Academic Program Review
Self Study

Department of Computer Science

Committee
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This is the first Academic Program Review for the Department of Computer Science, which was created in 1999 when the Department of Mathematics and Computer Science was split into two departments. During its first seven years, the Department of Computer Science has made tremendous strides, including hiring a first-class faculty, creating a successful Ph.D. program, and building collaborative research and education programs with other science departments.

SECTION A: UNIT ASSESSMENT OF STRENGTHS AND WEAKNESSES

Quality of Instruction. The Department of Computer Science offers B.S., M.S., and Ph.D. degrees. The B.S. and M.S. program are well-established, having existed before the creation of the department in 1999. The Ph.D. program, on the other hand, is relatively new, receiving approval from the Board of Regents in 2000. The first Ph.D. degrees were awarded in December 2004.

The B.S. program has been very volatile over the years, with fall enrollment surging from 344 in 1996 to 953 in 2001, driven by the Internet boom, then dropping to 396 in 2005 as the bubble burst. The M.S. program has been more stable, with fall enrollment going from 41 in 1996 to 96 in 2001 before declining to 66 in 2005.

Establishing the Ph.D. program has been a focus of the department over the last few years. So far, the program has been a great success. By December 2006, 17 students will have earned the Ph.D. degree, with 11 of these accepting tenure-track positions at well-regarded universities. The productivity of graduate students has skyrocketed; in calendar year 2005, graduate students were listed as the primary author on 74 refereed publications and as a secondary author on 44.

From an instructional standpoint, the graduate programs in general and the Ph.D. program in particular are doing well. The B.S. program needs improvement, however. The B.S. curriculum has not changed substantially since Georgia State converted to semesters in 1998, although a number of new courses have been created. Student surveys indicate dissatisfaction with the program. Retention, progress toward degree, and graduation rates are below university averages. Many of these problems are no doubt due to the rapid expansion of undergraduate enrollment between 1996 and 2001, which led to large classes, often taught by newly hired faculty.

Quality of Research. The department has a number of active research areas. Some of these areas date back to the period when computer science was part of the Department of Mathematics and Computer Science, including artificial intelligence, algorithms, database systems, neural networks, and parallel and distributed computing. One long-term research area is graphics and visualization, which for years was headed by Dr. Scott Owen. In 1992, Dr. Owen established the Hypermedia and Visualization Laboratory (HVL) in the Department of Mathematics and Computer Science. Dr. Owen resigned as director in 2006 and Dr. Ying Zhu became the new director of the HVL. Although the core faculty of the HVL has always been small, its projects have involved most of the faculty in the Department of Computer Science. The HVL has had over $1.5 million in funding from federal agencies (NSF and NIH), local government, and private industry, and has produced almost fifty publications. In the past two years, HVL faculty have graduated three Ph.D. students and are currently supervising several more.

The department’s research capabilities have improved greatly since 1999. One of the most important reasons for the improvement was the establishment of the Ph.D. program, but there were two key events as well. The first was the launch of the State of Georgia’s Yamacraw initiative in 1999. The Yamacraw program, which was designed to promote the development of the technology industry in Georgia, provided significant funds to the department for faculty salaries. Money from Yamacraw enabled the department to hire more faculty and to offer higher salaries
than would otherwise have been possible. Thanks to Yamacraw, which had a focus on computer hardware and embedded software, the department hired several faculty members with backgrounds in electrical engineering and computer engineering as well as computer science. This gave the department new expertise in such areas as computer networking and embedded systems. As P.I. of the Yamacraw Embedded Software research contracts (2000–2004), Dr. Sushil Prasad procured over $850K of funding and led a Georgia State team of seven faculty and over a dozen graduate students, with the active collaboration of three Georgia Tech faculty and their students. Five utility patent applications and over two dozen provisional patent filings resulted, in addition to several publications and work on several theses and dissertations. Dr. Prasad also established the GSU-GEDC Distributed and Mobile Systems Research (DiMoS) laboratory on the Georgia Tech campus. DiMoS, which currently houses about a dozen M.S. and Ph.D. students, continues to serve as a collaboratory for interdisciplinary and inter-university research.

The second event occurred in 2001 with the hiring of Dr. Robert Harrison, who was given a joint appointment in the Department of Biology and later named a Distinguished Cancer Scientist by the Georgia Cancer Coalition. With a background in biology and chemistry as well as computer science, he was the perfect person to launch a collaborative program in bioinformatics. Since coming to Georgia State, Dr. Harrison has had a number of significant accomplishments, including being awarded a planning grant valued at $1.09 million from the National Institutes of Health. The grant was used to develop a multidisciplinary program for research and education in bioinformatics and biomolecular computing. Only nine such grants were awarded nationwide; other universities receiving the grant include the University of Washington, the University of California at Berkeley, and the University of Pennsylvania.

In addition to running its own bioinformatics program, the Department of Computer Science participates in the Molecular Basis of Disease (MBD) and the Brains and Behavior (B&B) programs, which were established in 2004. MBD and B&B are Georgia State University initiatives that facilitate interdisciplinary research among science departments. Both programs provide Ph.D. stipends, undergraduate research fellowships, seed grants, and core facility maintenance.

The MBD and B&B programs have provided important financial support for launching collaborative projects. In 2004, for example, Dr. Raj Sunderraman and Dr. Ying Zhu began collaborating with Dr. Paul Katz of Biology on a neuroinformatics project named NeuronBank (www.neuronbank.org). The project goal is to build an online reference source and informatics tool for exploring identified neurons and the circuits they form in various species. The project was initially funded by two B&B seed grants; recently, the team was awarded a two-year NIH R21 grant. The first public release of NeuronBank is slated for January 2007. Additional neuroscientists outside of Georgia State are being recruited to help catalog knowledge about neurons in various species. The NeuronBank team has grown to include Dr. Sushil Prasad as well as a neuroscientist post-doc, four Computer Science Ph.D. students, and several Computer Science M.S. students. The team plans to submit a larger NIH proposal in 2007, which will include at least two other non-GSU neuroscientists (specializing in other animal species) as collaborators.

Faculty productivity has increased steadily during the review period. The average tenure-track faculty member published 9 refereed papers in calendar year 2005. Half of the tenure-track faculty obtained external research funding during the review period. External funding totaled $2.7 million during this period, averaging $58K per tenure-track faculty member per year. The improving quality of research was highlighted early this year when Dr. Yingshu Li received a CAREER award, the most competitive and prestigious award from NSF to young fac-
ulty members in science and engineering. It was the first such award in the history of the Department of Computer Science and only the fourth to a Georgia State faculty member since 2000.

**Quality of Service.** Computer Science faculty members are very active in professional service. In calendar year 2005, the average tenure-track faculty member served as a referee 5.4 times, was a member of two conference organizing committees, and served on 3.7 program committees. In addition, faculty members were members of 24 journal editorial boards and served as editor-in-chief of five journals or book series.

Dr. Scott Owen is particularly notable for his service contributions to ACM (Association for Computing Machinery), the world’s oldest and largest educational and scientific computing society. ACM has 34 Special Interest Groups, each covering a separate computing discipline. In 2005, Dr. Owen was elected president of ACM SIGGRAPH (Special Interest Group on Computer Graphics), known for its annual SIGGRAPH conference, which this year was attended by nearly 20,000 people. In 2006, Dr. Owen was elected to the Executive Committee of the ACM Special Interest Groups Governing Board, which establishes policies that relate to all SIGs.

The department has begun to host conferences as a way to improve its visibility, starting with the Second SECABC Fall Workshop on Biocomputing in 2005. In 2006, the department hosted the second IEEE International Conference on Granular Computing. Next year, the department will host the first International Symposium on Bioinformatics Research and Applications.

**Centrality of Programs.** The field of computer science, once thought to be related only to such fields as mathematics and electrical engineering, is rapidly expanding in scope and increasingly being recognized as one of the most important departments in any modern university.

The centrality of computer science as a discipline was highlighted at a recent national symposium sponsored by the Computer Science and Telecommunications Board, the nation’s leading advisory board on science and technology. As reported by the *New York Times*, one of the themes at the conference was that over the next ten years “the impact of computing will go deeper into the sciences and spread more into the social sciences.”

Computer Science has already made great strides in the last five years in building research and educational collaborations with other science departments, particularly Biology and Chemistry. As time goes on, opportunities will undoubtedly arise for collaboration with other departments in the College of Arts and Sciences as well as departments such as Computer Information Systems. The department welcomes these opportunities and intends to make the most of them.

The Department of Computer Science will play an important role in meeting the objectives of the University’s 2005-2010 Strategic Plan, particularly the focus on interdisciplinary research and educational programs. The department—in partnership with other science departments—intends to help Georgia State become a leader in the rapidly growing field of bioinformatics. We are key participants in two Arts and Sciences initiatives, the Molecular Basis of Disease program and the Brains and Behavior area of focus. Our growing amount of external funding will help the university meet its goal of increasing total external funding to $100 million by 2010.

**Viability of Programs.** The Department of Computer Science offers three degree programs. During the review period, the B.S. program produced 201 graduates (an average of 67 per year) and had an enrollment of 505 in FY2006. The M.S. program produced 92 graduates (an average of 30.7 per year) and had an enrollment of 99. The Ph.D. program, which was started in 2001, had an enrollment of 69 in FY2006. The B.S. and M.S. programs are well-established; the Ph.D. program is new but has had a rapid increase in production over the last two years, going from 2 graduates in FY2005 to 6 in FY2006 and a projected 14 in FY2007.
The B.S. and M.S. programs are strong and viable despite facing stiff challenges during the review period. Enrollment in the B.S. program declined due to widespread layoffs in the technology industry and the fear of outsourcing. M.S. enrollment has remained steady, but the number of applications shrank because of strict immigration rules after 9/11. Such cycles are not unusual in the computer science field, and we feel confident that enrollments will begin to grow as the technology industry rebounds, a process that is already well underway. We are not waiting for external events, however. Our goals in Section H call for increased efforts to recruit high-quality undergraduate and graduate students, as well as strategies aimed at increasing retention, progress toward degree, and graduation rates.

The Ph.D. program has experienced great success during the review period. Graduates seeking academic positions have easily found tenure-track positions at reputable universities. The presence of Ph.D. students has had a positive impact on the department’s research productivity, with both faculty and graduate student publication rates increasing sharply. The Ph.D. program has also made the department more competitive when applying for external grants.

**Strategic Focus.** The strategic focus of the Department of Computer Science is to strengthen its research programs in the areas of bioinformatics, graphics and visualization, networks and distributed systems, and algorithms. A majority of the current tenure-track faculty are working in these areas and are making progress in obtaining external funds to support their research. The publication rates of faculty have also seen a steady increase over the past three years. Near-term faculty hiring will try to add to the existing strengths in these areas with special emphasis on hiring faculty who are able to obtain external funding for their research. The department aims at becoming a nationally recognized department in the four focus areas. It has been recognized that interdisciplinary collaborations lead to greater funding opportunities; the department has and will make efforts to strengthen such collaborations. The department’s participation in the Molecular Basis of Disease and Brains and Behavior areas of focus within Georgia State has enabled interdisciplinary collaborations with the Departments of Biology, Chemistry, Physics and Astronomy, and Mathematics and Statistics. Joint projects are underway with several proposals for external funding already submitted. The growth of the Ph.D. program has led to increased research productivity in terms of new external funding as well as higher rates of peer-reviewed publication. The department plans to increase the quality and size of both the M.S. and Ph.D. programs to be able to achieve greater research productivity and make the goal of national recognition possible.

**Financial Resource Analysis.** Internal financial resources are insufficient to sustain the current level of excellence provided by departmental faculty in instruction, research, and service. The Department’s annual budget of ~$2.1 million is much less than the amount specified by the Regents’ formula. The number of graduate students per tenure-track faculty member was 10.5 in FY2006. This ratio is higher than other science departments, such as Biology with 7.9 in FY2005 and Chemistry with 5.4 in FY2005. We expect our graduate program to continue to grow, especially our Ph.D. program. This growth will further increase our need for more faculty resources. In particular, we will require additional research faculty members to keep up with the workload associated with advising Ph.D. students. Additionally, as the number of Ph.D. students increases, our budget will be inadequate to provide nationally competitive stipends. The average stipend currently provided by the department is $12K, well below the national average.

Current faculty salaries are comparable to or slightly lower than those at peer institutions. Higher salaries will be necessary for the department to retain its most productive faculty and compete with other institutions for promising new faculty.
The department’s budget for conference registration and travel is currently inadequate. Because the field of computer science is rapidly changing, conferences play a vital role for faculty. Researchers must publish in refereed conferences as well as attend conferences in order to exchange ideas, discuss solutions, and identify future directions for their fields of study.

In summary, the Department of Computer Science has made great strides in a very short period of time, despite operating with limited resources and being hampered in the past by an exploding undergraduate enrollment. The greatest strengths of the department are the quality of its faculty, its young but highly successful Ph.D. program, and its strong collaborative research and education programs with other science departments. The greatest weakness of the department is its B.S. program, which has a shrinking enrollment and needs to be updated.

SECTION B: HISTORICAL AND CURRENT CONTEXTS

The history of the Department of Computer Science begins in 1984, when the Department of Mathematics added a major in computer science and was renamed the Department of Mathematics and Computer Science. The combined department was chaired by Dr. Fred Massey. The first faculty members to teach computer science were Dr. Martin Fraser, a statistician by training, and Dr. Scott Owen, a chemist. In 1985, Dr. Ross Gagliano was hired, becoming the first faculty member in the department to hold a Ph.D. in computer science.

When Dr. Massey retired in 1998, Dr. Fraser was named chair of the department. A year later, the department was split into the Department of Mathematics and Statistics and the Department of Computer Science, with Dr. Fraser serving as chair of the latter department. When he retired in 2005, Dr. Yi Pan was named to chair the department.

At the time the department was created in 1999, there were 10 tenured/tenure-track faculty members and one instructor. Thanks in part to funding from the state’s Yamacraw program, the department was able to hire a number of new faculty over the next few years. By 2006, the department had grown to 15 tenured/tenure-track faculty members and 4 instructors, for a total of 19 full-time faculty members. Three faculty members (Dr. Fraser, Dr. Owen, and Dr. Gagliano) retired during this period, but Dr. Owen continues to teach on a part-time basis.

Until 2003, the Department of Computer Science was located in the College of Education building, sharing office space and staff with the Department of Mathematics and Statistics. In the spring of 2003, Computer Science moved to separate offices at 34 Peachtree Street, taking some of the staff that had been previously been shared. The staff today is the same as it was in 2003, consisting of five people: an academic administrative specialist, a business manager, a systems manager, an administrative assistant, and an administrative coordinator.

At the time of its creation, the Department of Computer Science offered B.S. and M.S. degrees in computer science. In August 2000, the department received approval from the Board of Regents to offer a Ph.D. program. Applications were immediately accepted for the new program, and the first Ph.D. students graduated in December 2004. Starting in 2002, a Bioinformatics concentration was added as an option for M.S. and Ph.D. students.

Enrollment in computer science in the fall of 1996 was 344 undergraduate majors and 41 M.S. students. Enrollment increased dramatically from 1996 to 2001, thanks to the growth of the Internet and the consequent hiring boom, peaking at 953 undergraduate majors and 96 M.S. students in the fall of 2001. Since then, enrollment has decreased to 396 undergraduate majors and 66 M.S. students as of the fall of 2005. This drop has been partially offset by the creation of the Ph.D. program. In the fall of 2005, there were 53 students enrolled in the Ph.D. program.
The period covered in the present Program Review is FY 2004–2006, from July 1, 2003 to June 30, 2006. Data on faculty productivity was obtained from annual reports, however, so the period covered by these data is January 1, 2003 to December 31, 2005.

Faculty. As Table B-1 shows, the number of full-time faculty stayed essentially flat during the review period, with 19 full-time faculty in FY2004, 18 in FY2005, and 20 in FY2006. (The FY2006 count of 20 supplied by Institutional Research is actually somewhat exaggerated. It includes Dr. Scott Owen, who retired in 2004 but continues to teach one course per year for the department.) Four permanent full-time faculty (roughly 20% of the total) hold the rank of Instructor; all other full-time faculty are tenured or tenure-track. The four instructors hold M.S. degrees; all tenured/tenure-track faculty have Ph.D. degrees.

Table B-1: Faculty Distribution by Numbers for 2004-2006

<table>
<thead>
<tr>
<th>Year</th>
<th>Status</th>
<th>Tenured</th>
<th>Tenure-Track</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Prof.</td>
<td>Assoc.</td>
<td>Asst.</td>
</tr>
<tr>
<td>FY 2004</td>
<td>Female Male</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Asian Hispanic</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Mixed White</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>FY 2005</td>
<td>Female Male</td>
<td>3</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Asian Hispanic</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Mixed White</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>FY 2006</td>
<td>Female Male</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Asian Hispanic</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

The department had two female faculty members in FY2004 and FY2005, rising to three in FY2006. Thus, women accounted for 10% of the full-time faculty in FY2004 and FY2005 and 15% in FY2006. These numbers are in line with national averages: statistics from the Computing Research Association (CRA) show that 15% of computer science faculty in the U.S. and Canada are women. Ethnically, the department is more diverse than most. In FY2006, nine full-time faculty members (45% of the total) were Asian and two (10%) were black. (Table B-1, which was
supplied by Institutional Research, overstates the number of black faculty members.) According to CRA, the North American average for Asian faculty is 20%; for black faculty, the average is 1%. CRA (www.cra.org) is a group of more than 200 North American departments of computer science, computer engineering, and related fields; laboratories and centers in industry, government, and academia engaging in basic computing research; and affiliated professional societies.

The productivity of Computer Science faculty is high, as shown in Table B-2. (The table below is a highly condensed version of the full Table B-2, which is included as an appendix to this report.) Tenure-track faculty averaged 8 refereed publications per person per year (including refereed journal articles, refereed conference papers, and refereed book chapters), increasing from an average of 7 in 2003 to an average of 9.4 in 2005. External funding averaged $58K per faculty member per year during this period, rising from $571K in 2003 to $1.1 million in 2005.

Table B-2 (short version): Faculty Productivity for Calendar Years 2003–2005

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Number of TT Faculty</th>
<th>Number of Refereed Publications</th>
<th>Number of Conference Presentations</th>
<th>Total External Funding</th>
<th>Number of Active External Grants</th>
<th>Total Internal Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>15</td>
<td>105</td>
<td>109</td>
<td>$571,375</td>
<td>4</td>
<td>$18,000</td>
</tr>
<tr>
<td>2004</td>
<td>15</td>
<td>112</td>
<td>119</td>
<td>$1,055,583</td>
<td>6</td>
<td>$202,504</td>
</tr>
<tr>
<td>2005</td>
<td>17</td>
<td>159</td>
<td>127</td>
<td>$1,092,657</td>
<td>9</td>
<td>$150,207</td>
</tr>
</tbody>
</table>

Departmental Administration. As Appendix B2 shows, the department has three key administrators: the Chair, the Director of Graduate Studies, and the Director of Undergraduate Studies. There are sixteen standing committees. The members of most committees are appointed by the Chair. However, two members of the Executive Committee are elected by the faculty.

Appendix B2 also lists the department’s five staff members, all of whom are full-time. Four staff members have administrative positions. The fifth is the department’s systems administrator.

Academic Programs

B.S. Program. The number of undergraduate computer science majors fell from 838 in FY2004 to 505 in FY2006, while the number of B.S. degrees conferred decreased slightly, from 72 in FY2004 to 61 in FY2006 (see Table B3 on next page). Although the graduation rate may seem low, it appears to be similar to other departments at Georgia State. Students often take classes part-time and/or take no classes at all during some semesters, thus delaying their graduation.

B.S. students may choose a concentration from six options. Table B-3 shows that the most popular concentration is Networks and Parallel and Distributed Computing, followed by Databases and Knowledge-Based Systems.

The decrease in undergraduate enrollment closely correlates with a similar nationwide decrease. According to CRA, the percentage of incoming undergraduates among all degree-granting institutions who indicated they would major in CS fell by 70 percent between fall 2000 and 2005, signaling a long-term decline in the number of undergraduate majors.

It is important to recognize that the computer science field is highly sensitive to job demand. The crash of technology stocks in 2000 resulted in widespread layoffs in the tech field. These layoffs, coupled with fears about outsourcing, discouraged many students from pursuing a computer science degree. The job situation has actually improved greatly in recent years, with many companies expressing concern about being able to hire enough qualified computer science graduates. Thus, we feel that enrollment will begin to grow in the near future.

The computer science major has seen a similar boom-and-bust cycle before. According to the CRA, the number of bachelor’s degrees awarded quadrupled between 1980 and 1986, driven by
the widespread adoption of personal computers. The number then fell sharply, from about 43,000 degrees to only 25,000, not rebounding until the late 1990s Internet boom.

### Table B-3: Program Types By Majors And Concentrations and Unduplicated Number (Headcount) Of Major Students And Degrees Conferred FY2004–FY2006

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Majors</td>
<td>Degrees</td>
<td>Majors</td>
<td>Degrees</td>
</tr>
<tr>
<td>BS</td>
<td>CSC</td>
<td></td>
<td>730</td>
<td>31</td>
<td>506</td>
<td>11</td>
</tr>
<tr>
<td>BS</td>
<td>CSC</td>
<td>CWS</td>
<td>13</td>
<td>6</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>BS</td>
<td>CSC</td>
<td>DKS</td>
<td>25</td>
<td>11</td>
<td>40</td>
<td>12</td>
</tr>
<tr>
<td>BS</td>
<td>CSC</td>
<td>GHI</td>
<td>12</td>
<td>1</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>BS</td>
<td>CSC</td>
<td>HDS</td>
<td>14</td>
<td>7</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>BS</td>
<td>CSC</td>
<td>NPD</td>
<td>42</td>
<td>16</td>
<td>52</td>
<td>25</td>
</tr>
<tr>
<td>BS</td>
<td>CSC</td>
<td>RSC</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total Bachelors</td>
<td></td>
<td></td>
<td>838</td>
<td>72</td>
<td>650</td>
<td>68</td>
</tr>
<tr>
<td>MS</td>
<td>CSC</td>
<td></td>
<td>92</td>
<td>42</td>
<td>88</td>
<td>27</td>
</tr>
<tr>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>MS</td>
<td>CSC</td>
<td>DKS</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total Masters</td>
<td></td>
<td></td>
<td>93</td>
<td>42</td>
<td>90</td>
<td>27</td>
</tr>
<tr>
<td>PHD</td>
<td>CSC</td>
<td></td>
<td>55</td>
<td>0</td>
<td>55</td>
<td>2</td>
</tr>
<tr>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total Doctorate</td>
<td></td>
<td></td>
<td>56</td>
<td>0</td>
<td>57</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>987</td>
<td>114</td>
<td>797</td>
<td>97</td>
</tr>
</tbody>
</table>

**Key to concentrations:**
- CWS = Computer Software Systems
- DKS = Databases and Knowledge-Based Systems
- GHI = Graphics and Human-Computer Interaction
- HDS = Hardware Systems
- NPD = Networks and Parallel and Distributed Computing
- RSC = Theoretical Computer Science
- BIN = Bioinformatics

**M.S. Program.** Table B-3 shows that M.S. enrollments have remained stable during the review period, with 93 students in FY2004, 90 in FY2005, and 99 in FY2006. A bioinformatics concentration became available in FY2005, but only one student selected it in FY2005 and two students in FY2006.

The table on the left below shows the number of M.S. degrees awarded broken down by thesis versus project. Although the number of students enrolled in the M.S. program has remained relatively constant, there has been a decline in the number of degrees awarded. Also, there has been a recent shift towards the project option. The table on the right shows that the average time taken to complete an M.S. degree increased slightly during the program review period.

**M.S. Thesis versus Project Degrees Awarded**
(Source: Director of Graduate Studies)

<table>
<thead>
<tr>
<th></th>
<th>M.S. Theses (% of total)</th>
<th>M.S. Projects (% of total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2004</td>
<td>33 (78%)</td>
<td>9 (22%)</td>
</tr>
<tr>
<td>FY2005</td>
<td>23 (85%)</td>
<td>4 (15%)</td>
</tr>
<tr>
<td>FY2006</td>
<td>15 (65%)</td>
<td>8 (35%)</td>
</tr>
</tbody>
</table>

**Time to Degree for M.S. Graduates**
(Source: Director of Graduate Studies)

<table>
<thead>
<tr>
<th></th>
<th>Average time to degree (# months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2004</td>
<td>26.29</td>
</tr>
<tr>
<td>FY2005</td>
<td>26.74</td>
</tr>
<tr>
<td>FY2006</td>
<td>29.00</td>
</tr>
</tbody>
</table>

**Ph.D. Program.** The focus of the department during the review period was on building the fledgling Ph.D. program. As Table B-3 shows, Ph.D. enrollment grew from 56 in FY2004 to 69 in FY2006. No Ph.D. degrees were awarded in FY2004 (or any prior year). The first two Ph.D. degrees were awarded in FY2005, with six more in FY2006 and a projected 14 in FY2007. (The
chart below on the left shows the rapid increase in Ph.D. production.) Students are given the option of a concentration in bioinformatics. This concentration has steadily gained popularity, with four Ph.D. students choosing it in FY2006.

The table on the right shows the average time taken to complete the Ph.D. degree. The average has remained approximately the same—a little over 4 calendar years—for the two fiscal years in which there were graduates.

Peer Comparison. The following table compares the number of degrees awarded in calendar year 2005 with the number at peer institutions.

<table>
<thead>
<tr>
<th>Peer Comparison – Degrees Awarded</th>
<th>Auburn</th>
<th>George Mason</th>
<th>Wayne State</th>
<th>Georgia State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of tenure-track faculty</td>
<td>18</td>
<td>20</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Number of non-tenure-track faculty</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Number of undergraduate degrees awarded</td>
<td>71</td>
<td>102</td>
<td>46</td>
<td>60</td>
</tr>
<tr>
<td>Number of M.S. degrees awarded</td>
<td>26</td>
<td>54</td>
<td>34</td>
<td>24</td>
</tr>
<tr>
<td>Number of Ph.D. degrees awarded</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

*Note:* Degrees awarded numbers were obtained for calendar year 2005 from peer departments. Table B-3 numbers for Georgia State were adjusted to calendar year 2005 numbers to make a fair comparison.

Georgia State compares well with peers with respect to the number of degrees awarded in each of the three programs, with the exception of George Mason, which awards a noticeably larger number of undergraduate and M.S. degrees. The number of Ph.D. degrees awarded at Georgia State is significant because our program is relatively new compared to the more established Ph.D. programs in the peer departments.

Minority Enrollment. Georgia State has one of the most diverse student bodies in the country. This diversity is reflected by computer science majors as well. The table at the top of the next page shows Georgia State enrollment as well as department enrollment by ethnicity. No racial group is in the majority among undergraduate computer science majors, with the percentages of white, black, and Asian students each at 20% or higher. Asian students account for over 60% of M.S. and Ph.D. students, although their numbers have been reduced by post-9/11 immigration restrictions.

A particular strength of our department is the strong participation of black students in graduate programs. The most recent Taulbee survey shows that only 2% of M.S. degrees in computer science and 1% of Ph.D. degrees are awarded to black students. Our department had 8 black M.S. students and 4 black Ph.D. students enrolled in FY2006, indicating a healthy pipeline that should lead to gains in black graduates in the near future. However, an effort will need to be made to improve retention and graduation rates for black graduate students.
The Department of Computer Science participates in the Ronald E. McNair Post-Baccalaureate Achievement Program, a university-administered program funded by the Department of Education that encourages undergraduate minority students to enter Ph.D. programs through Graduate School Preparation Seminars during the academic year and research in departmental labs during the summer.

Retention, Progress Toward Degree, and Graduation Rates. Undergraduate one-year retention rates improved from 70.4% for Fall 1999 Juniors to 76.3% for Fall 2001 Juniors, as shown in Table B-4a. (Tables B-4a, B-4b, and B-4c are included as an appendix to this report.) Four-year graduation rates also improved for the same period from 39.4% to 40.2%.

Master’s-level one-year retention rates fluctuated from 65.2% for the Fall 2000 cohort, to 71.0% for the Fall 2001 cohort, back down to 65.4% for the Fall 2002 cohort (see Table B-4b). Graduation rates dropped from 65.2% to 57.7% over the three years. The number of students involved is too small to draw any conclusions, however.

Ph.D. one-year retention rates rose from 52.9% for the Fall 2001 cohort to 86.7% for the Fall 2003 cohort (see Table B-4c). This could possibly be due to higher stipends being awarded to doctoral students. Table B-4c shows a promising trend for Ph.D. retention and graduation rates.

The Department of Computer Science is currently involved in several efforts to improve undergraduate retention and graduation rates, including participating in the Institute for Personal Robots in Education (www.roboteducation.org), which is operated by Georgia Tech with funding from Microsoft. The goal of the Institute is to improve introductory computer science education by using robots as a teaching tool.

The department actively supports the Association for Computing Machinery, a professional organization with a student chapter at GSU. Our student chapter hosts approximately 12 speakers a year, aimed at students’ interests. We recently established a student chapter of the National Society of Black Engineers, which helps young scientists become better professionals and leaders in their fields by providing career advancement, networking, interview preparation, and empowering minorities and females through education in their communities.

Credit-Hour Generation. Total credit-hour generation by the department stayed steady during the review period, starting at 11,007 in FY2004, dropping slightly to 10,260 in FY2005, and then rebounding to 10,648 in FY2006 (see Tables B-5a, B-5b, and B-5c). Undergraduate upper-
division hours shrank from 4,634 in FY2004 to 2,778 in FY2006 as the number of new majors was not large enough to offset the number of graduating seniors. Graduate hours increased from 3,847 in FY2004 to 5,164 in FY2006, which was nearly enough to offset the undergraduate credit-hour decrease. The number of hours in lower-division courses went from 1,647 in FY2004 to 1,554 in FY2006, a much smaller decrease than the one observed in upper-division courses, possibly indicating that the number of undergraduate majors will soon stabilize.

Table B-5a: FY 2004 Credit Hours Taught by Computer Science Faculty by Level and Faculty Type

<table>
<thead>
<tr>
<th>Faculty Type</th>
<th>Undergrad Core</th>
<th>Undergrad Lower</th>
<th>Undergrad Upper</th>
<th>Grad</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure Track</td>
<td>105</td>
<td>3,028</td>
<td>3,586</td>
<td>6,719</td>
<td></td>
</tr>
<tr>
<td>Non-Tenure Track</td>
<td>165</td>
<td>813</td>
<td>942</td>
<td>179</td>
<td>2,099</td>
</tr>
<tr>
<td>GTA</td>
<td>714</td>
<td>729</td>
<td>664</td>
<td>82</td>
<td>2,189</td>
</tr>
<tr>
<td>Other</td>
<td>879</td>
<td>1,647</td>
<td>4,634</td>
<td>3,847</td>
<td>11,007</td>
</tr>
</tbody>
</table>

Table B-5b: FY 2005 Credit Hours Taught by Computer Science Faculty by Level and Faculty Type

<table>
<thead>
<tr>
<th>Faculty Type</th>
<th>Undergrad Core</th>
<th>Undergrad Lower</th>
<th>Undergrad Upper</th>
<th>Grad</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure Track</td>
<td>93</td>
<td>2,343</td>
<td>3,564</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Non-Tenure Track</td>
<td>162</td>
<td>1,041</td>
<td>809</td>
<td>231</td>
<td>2,243</td>
</tr>
<tr>
<td>PTI</td>
<td>124</td>
<td>153</td>
<td>153</td>
<td>277</td>
<td></td>
</tr>
<tr>
<td>GTA</td>
<td>717</td>
<td>399</td>
<td>523</td>
<td>83</td>
<td>1,722</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>879</td>
<td>1,533</td>
<td>3,799</td>
<td>4,049</td>
<td>10,260</td>
</tr>
</tbody>
</table>

Table B-5c: FY 2006 Credit Hours Taught by Computer Science Faculty by Level and Faculty Type

<table>
<thead>
<tr>
<th>Faculty Type</th>
<th>Undergrad Core</th>
<th>Undergrad Lower</th>
<th>Undergrad Upper</th>
<th>Grad</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure Track</td>
<td>30</td>
<td>1,603</td>
<td>4,737</td>
<td>6,370</td>
<td></td>
</tr>
<tr>
<td>Non-Tenure Track</td>
<td>420</td>
<td>852</td>
<td>646</td>
<td>264</td>
<td>2,182</td>
</tr>
<tr>
<td>PTI</td>
<td>60</td>
<td>83</td>
<td>143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GTA</td>
<td>732</td>
<td>672</td>
<td>469</td>
<td>80</td>
<td>1,953</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,152</td>
<td>1,554</td>
<td>2,778</td>
<td>5,164</td>
<td>10,648</td>
</tr>
</tbody>
</table>

The following chart summarizes credit-hour generation during the review period:

Credit-hour generation by tenure-track faculty remained stable over the review period, going from 6,719 in FY2004 to 6,000 in FY2005 and 6,370 in FY2006. Hours generated by non-tenure-track faculty were also similar from year to year (2,099 in FY2004, 2,243 in FY2005, and 2,182 in FY2006). Hours generated by graduate teaching assistants shrank slightly from 2,189 in FY2004 to 1,722 in FY2005 and 1,953 in FY2006. The percentage of credit hours generated by
tenure-track faculty remained constant at 60% during the review period. The percentage of credit hours generated by full-time faculty (whether tenure-track or not) was also constant at 80%.

Tenure-track faculty accounted for approximately 90% of all graduate-level credit hours during the review period. The percentage of undergraduate upper-division credit hours generated by tenure-track faculty declined from 65% in FY2004 to 62% in FY2005 and 58% in FY2006, as the Ph.D. program matured and highly qualified GTAs became available to teach these courses.

Table B-6 summarizes many relevant statistics for the Department of Computer Science.

| Table B-6: Faculty Numbers, Credit Hours, and Scholarly and Creative Productivity |
|---------------------------------|--------|------------------|
| Three-Year Average              |        |                  |
| Average annual number of faculty members by rank and status |        |                  |
| Tenured professors              | 2      |                  |
| Tenured associate professors    | 5      |                  |
| Tenure-track associate professors | 1     |                  |
| Tenure-track assistant professors | 7     |                  |
| Total tenure-track faculty members | 15    |                  |
| Non-tenure-track faculty members (fulltime) | 4 |                  |
| Total fulltime faculty members | 19     |                  |
| Part-time instructors            | 1      |                  |
| Graduate teaching assistants     | 10     |                  |
| Total for part-time faculty      | 11     |                  |
| Average annual number and type of staff |        |                  |
| Administrative staff (fulltime equivalents) | 5 |                  |
| Student assistants (half-time equivalents) | 1 |                  |
| Average annual credit hours by level |        |                  |
| Undergraduate: Core              | 970    |                  |
| Undergraduate: Lower division    | 1,578  |                  |
| Undergraduate: Upper division    | 3,737  |                  |
| Graduate                        | 4,353  |                  |
| Average annual credit hours by faculty type |        |                  |
| Tenured and tenure-track          | 6,363  |                  |
| Non-tenure track (fulltime)      | 2,175  |                  |
| Total for fulltime faculty       | 8,538  |                  |
| Part-time instructors             | 140    |                  |
| Graduate teaching assistants      | 1,955  |                  |
| Total for part-time faculty       | 2,095  |                  |
| Scholarly and creative productivity |      |                  |
| Total number of refereed publications: Unduplicated | 280 |                  |
| Total number of refereed publications: By author | 376 |                  |
| Total number of other scholarly works: Unduplicated | 19 |                  |
| Total number of other scholarly works: By author | 19 |                  |
| Average annual number of refereed publications per tenure-track faculty: Unduplicated | 6.0 |                  |
| Average annual number of refereed publications per tenure-track faculty: By author | 8.0 |                  |
| Average annual number of other scholarly/creative works per tenure-track faculty: Unduplicated | 0.4 |                  |
| Average annual number of other scholarly/creative works per tenure-track faculty: By author | 0.4 |                  |
| Funding from grant and other sources |        |                  |
| Total external direct funding    | $1,910,850 |                  |
| Total external indirect funding  | $808,765 |                  |
| Total internal funding           | $370,711 |                  |
| Total funding from other sources | $0 |                  |
| Average annual external funding per tenure-track faculty | $57,864 |                  |
| Average annual internal funding per tenure-track faculty | $7,887 |                  |

1 Works with multiple authors from the unit are counted only once.
2 Works with multiple authors from the unit are counted once for each author in the unit.
3 Multi-participant grants include only the amounts allocated to unit faculty members.
**Program Relevance.** The Department of Computer Science has proven itself to be highly responsive to the challenges facing the field of computer science today. A prime example is the intensity with which the department has approached the research area of bioinformatics. During the program review period, faculty have received a number of grants in this area, including one from NIH for $1M+. This has led to numerous collaborative projects pairing a computer scientist with a biologist or chemist. Other initiatives toward developing innovative, collaborative research have led to the support of 15 graduate fellowships within the department. There are also many other research programs within the department that focus on more traditional research topics, such as wireless networks, artificial intelligence, data mining, and computer graphics.

Our students at both the undergraduate and graduate level have benefited from working side-by-side with our faculty. Teams of undergraduate students led by faculty members have won awards in national and international competitions. Our graduate students have also performed well in competitions.

The Department of Computer Science has reached out toward undergraduate students at other universities within the community. Several faculty members from the department have participated in the Ronald E. McNair program and mentored students from Morehouse College. This program supports promising students from disadvantaged backgrounds who are working towards their baccalaureate degree and wish to further their studies at the doctoral level.

The department has also contributed to community needs by hosting the Summer Institute for AP Computer Science Teachers on June 19–30, 2006. The purpose of the institute was to prepare high school teachers to teach AP Computer Science. The institute offered two courses as well as a workshop. Summer Institute programs were taught by Dr. Anu Bourgeois, Dr. K. N. King, and Dr. Raj Sunderraman, who was also the director of the institute. A total of 14 teachers participated in the Summer Institute, which was sponsored by the University System of Georgia’s Double the Double Initiative.

**Peer Programs.** Comparative data was requested from six peer institutions, which are listed in Appendix B1. Three departments responded to our request: Auburn University, George Mason University, and Wayne State University. All three have between 15 and 25 faculty members, have established Ph.D. programs (in existence for 10 years or more), and are not ranked in the top 50 computer science departments in the U.S. (according to *U.S. News & World Report’s* 2007 rankings). Wayne State University, like Georgia State, is located in an urban setting. George Mason is in a large metropolitan area. The peer comparisons made in this study mainly relate to faculty productivity and student enrollment. The faculty size and department ranking criteria provide a basis for comparing faculty productivity. The metropolitan location and faculty size criteria provide a basis for student enrollment comparisons.

**SECTION C: PROGRESS TOWARD GOALS AND OBJECTIVES**

This is the first Academic Program Review for the Department of Computer Science. Consequently, the department had no strategic plan or goals as a result of any prior program review.

**SECTION D: CURRICULA QUALITY**

**Departmental Curricula**

**B.S. Program.** Requirements for the B.S. in Computer Science can be divided into four groups of courses that are specific to the major and are beyond the undergraduate core curriculum areas as stated by the university. A minimum of 120 semester hours must be completed.
• **Courses appropriate to the major field:** Math 2211, Phys 2211K, Phys 2212K, Math 2212, Math 2215, Math 2420, Math 3030, 3 credit hours of 4000-level Math, Phys 3500, and 4 credit hours of 3000- or 4000-level Physics.

• **Computer Science requirements:** CSc, 2010, CSc 2310, CSc 2311, CSc 3210, CSc 3410, CSc 4210, CSc 4330, CSc 4350, CSc 4520

• **Concentration courses:** Students are to select an area of concentration from 1) Computer Software Systems, 2) Databases and Knowledge-Based Systems, 3) Graphics and Human-Computer Interaction, 4) Hardware Systems, 5) Networks and Parallel and Distributed Computing, and 6) Theoretical Computer Science. For a total of 16 hours, students select two or three courses from within their concentration and exactly two additional courses from the other concentrations.

• **Electives:** Students select 6 hours of 3000-level or above computer science courses or other courses approved by the department.

Major changes during the program review period: 3 credit hours of mathematics and 4 credit hours of physics were added to the courses appropriate to the major field for the 2004–5 academic year. Numerical analysis was dropped from the list of required courses, replaced by a choice of 4000-level Math courses. Only 25 credit hours of computer science courses (rather than 28) are now required. The number of concentration hours was reduced from 20 to 16.

**M.S. Program.** Requirements for the M.S. in Computer Science can be divided into four parts. There are two options for the M.S. degree: a thesis option and a project option.

• **Foundation courses:** Students must complete foundation coursework prior to entering the program or early in their program. The courses are: 1) data structures, 2) computer architecture, 3) operating systems, 4) programming languages, 5) software engineering, 6) automata, 7) design and analysis of algorithms, and 8) discrete mathematics.

• **Seminar in computer science:** CSc 8900 must be taken in the first semester as a graduate student.

• **Graduate coursework:** 16 hours of 8000-level computer science courses are required, exclusive of research and independent study courses. 8 hours of 6000-level or above computer science courses are required, exclusive of foundation, research, and independent study courses.

• **Thesis/project:** The thesis option requires 6 hours of thesis research, a written thesis, and an oral defense before their thesis committee, made up of at least three faculty members. The project option requires 4 hours of CSc 8980R in which the student completes a project and an additional four hours of graduate-level coursework, exclusive of foundation, research, and independent study courses. The project includes a written report and an oral defense before the project committee, made up of at least two faculty members.

**Ph.D. Program.** Requirements for the Ph.D. in Computer Science can be divided into six parts.

• **Foundation courses:** Students must complete the foundation coursework prior to entering the program or early in their program. The courses are: 1) data structures, 2) computer architecture, 3) operating systems, 4) programming languages, 5) software engineering, 6) automata, 7) design and analysis of algorithms, and 8) discrete mathematics.

• **Required coursework:** CSc 9900 must be taken in the first semester as a graduate student. Six of the following seven topics are also required: 1) algorithms, 2) computer architecture, 3) operating systems, 4) parallel and distributed computing, 5) programming languages, 6)
software engineering, and 7) theory of computation. 24 hours of CSc 9999 (dissertation research) are required.

- **Electives:** 23 hours of graduate-level courses that should reflect interest and be related to research area. A maximum of 11 hours can be directed study or research. A minimum of 3 hours and a maximum of 9 hours must be from outside the department.
- **Qualifying examination:** Must be passed by the third semester, excluding summers.
- **Candidacy examination:** Must be passed within two years of passing the qualifying examination. This requirement consists of a research proficiency and research proposal that is administered by the dissertation committee. The committee consists of the major advisor and at least three other members, of which one must be from outside the department.
- **Written dissertation and oral defense:** This is administered by the dissertation committee.

**Course Enrollment And Class Size.** Enrollment in 2000-level classes remained relatively stable during the program review period, but at the 3000- and 4000-level there was a considerable drop, as the following table shows.

<table>
<thead>
<tr>
<th>Enrollment in Classroom-Taught Courses by Level</th>
<th>FY2004</th>
<th>FY2005</th>
<th>FY2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>1010</td>
<td>293</td>
<td>293</td>
<td>382</td>
</tr>
<tr>
<td>2000-level</td>
<td>549</td>
<td>511</td>
<td>516</td>
</tr>
<tr>
<td>3000-level</td>
<td>456</td>
<td>269</td>
<td>210</td>
</tr>
<tr>
<td>4000-level</td>
<td>813</td>
<td>734</td>
<td>513</td>
</tr>
<tr>
<td>6000-level</td>
<td>215</td>
<td>184</td>
<td>195</td>
</tr>
<tr>
<td>8000-level</td>
<td>215</td>
<td>191</td>
<td>190</td>
</tr>
</tbody>
</table>

The drop in upper-division enrollment is partially due to the smaller number of students enrolled in the undergraduate program. Other factors include the prerequisite enforcement introduced through GoSOLAR (Georgia State’s registration system) in FY2004 as well as the added requirement that students must have a 2.3 GPA to take these classes (as opposed to a 2.0 GPA). Since the department enrolls a number of international students, this may also account for the drop in enrollment, due to the stricter requirements for students to obtain F1 visas. Graduate student enrollment at the 6000- and 8000-level changed only a little during the three-year period. In addition to courses for computer science majors, the department offers a service course, CSc 1010, which increased in enrollment by 30% over the period.

The following table shows average class size for each course level. The 4000-level classes are cross-listed with 6000-level classes, and thus were combined to obtain average class sizes. The service course experienced growth in class size, as expected. Average class sizes dropped over the three-year period for 2000-, 3000-, and 4000/6000-level classes, reflecting the drop in enrollment in these classes. The average class size remained stable at the 8000 level.

<table>
<thead>
<tr>
<th>Average Class Size by Level</th>
<th>FY2004</th>
<th>FY2005</th>
<th>FY2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>1010</td>
<td>26.6</td>
<td>26.6</td>
<td>31.8</td>
</tr>
<tr>
<td>2000-level</td>
<td>21.1</td>
<td>20.4</td>
<td>19.1</td>
</tr>
<tr>
<td>3000-level</td>
<td>22.8</td>
<td>14.2</td>
<td>12.4</td>
</tr>
<tr>
<td>4000/6000-level</td>
<td>33.2</td>
<td>29.6</td>
<td>20.2</td>
</tr>
<tr>
<td>8000-level</td>
<td>15.4</td>
<td>13.6</td>
<td>14.6</td>
</tr>
</tbody>
</table>
Student Advisement. The department has three levels of advisement for undergraduate students, as described in Appendix D6. The first is provided by the College of Arts and Sciences with the Office of Academic Advisement. The second level is provided by the department as a whole, so that any faculty member may serve as an advisor to the students. The third level is the Director of Undergraduate Students, who handles specific issues, such as graduation audits, transfer credits, and independent study. The Director of Graduate Students advises graduate students upon entry to the department. A temporary advisor is then assigned to the student until he or she chooses a major advisor, who then directs the student for the remainder of his or her studies.

Student Learning. The department submitted an Assessment Plan that was approved in July, 2004 (Appendix D1). Assessment of learning outcomes concentrated on six areas that are central to the field: 1) algorithm design and analysis, 2) discrete mathematics, 3) computer systems development, 4) programming skills, 5) hardware systems, and 6) computer organization and programming. The department submitted its first annual Learning Outcomes Assessment Report in September 2005 (Appendix D1), covering courses taught during the 2004–5 academic year.

At the undergraduate level, we were able to conclude that the program is meeting most of its expected learning outcomes. However, we identified weaknesses in discrete mathematics, hardware systems, and computer organization and programming, as the weighted averages of the correlations were 0.735, 0.750, and 0.784, respectively. The low values for hardware systems and computer organization reflect the low values for discrete mathematics. After investigating how to address this issue, the department decided to offer its own discrete mathematics course that is tailored to the requirements of the field.

At the graduate level, we also found a general weakness in discrete mathematics and theoretical algorithms preparation. We are investigating possible ways to remedy this weakness.

Student Survey Results. Surveys were administered to currently enrolled undergraduate and graduate students and undergraduate and graduate alumni by the Office of Institutional Research in the spring of 2006.

Undergraduate Survey Results. The response rate for current undergraduates was 30%, with 107 people completing the survey. The university response rate is 42.7%. Respondents were 82.5% male and 17.5% female.

Undergraduate responses had a high mean for the question stating that class size is suitable for effective learning, where 73.6% of respondents either agree or strongly agree. For the question stating that the undergraduate program is academically challenging, over two-thirds of students agreed or strongly agreed with this statement, similar to the university response. Half of our students either agreed or strongly agreed that faculty members in the department are interested in students’ academic development, as well as that faculty in the department are appropriately prepared for their courses, and that degree requirements are clear.

When asked about the availability of academic advising within the department, almost 1 in 5 students indicated that they did not know. For a similar question about career advisement, 28.6% did not know if it was available in the department. About 1 in 8 students thought that the availability of the faculty outside the classroom was excellent, and another 1 in 8 did not know. Apparently, some students seek advice and find it, while others simply do not ask.

The effectiveness of teaching methods question has ratings from fair to very good for 3 out of 4 responses. A related question about procedures used to evaluate student performance drew a very similar response, again with about 3 of 4 students indicating a response between fair and very good. A question about the frequency of undergraduate major course offerings had a major-
ity (52.9%) indicating that this was either good or very good. A similar question about the variety of undergraduate major course offerings drew a somewhat better response, with 56.2% indicating that this was either good or very good.

When asked about the adequacy of laboratories for students enrolled in courses, 30.2% either disagreed or strongly disagreed. This likely reflects a satisfaction with class size, combined with a dissatisfaction for the laboratories themselves. Almost 40% of students indicated disagreement with the statement that the department makes good use of technology in its courses. Many classes only require students to use a PC with software, where work can be done at home. Classes such as Embedded Systems that require the use of departmental equipment often draw complaints from students: the lab is not open late at night or on weekends, and the lab is also used as a classroom. The question that drew the lowest mean response (2.28) was whether the department’s reputation was a significant factor in the decision to attend Georgia State. This is not surprising, since Computer Science is a relatively new department.

The response rate for the undergraduate alumni survey was only 20.6%, while the response rate for the university was 34.0%. Alumni tended to agree with current students on many questions. Alumni differed from current students on the question about how academically challenging the program was, with a mean of 3.40 compared to the current students’ mean of 3.92. Perhaps most significant is the drop in people who strongly agree with this statement. While the majority of current undergraduates agree (33.0%) or strongly agree (35.8%), alumni agree 37.5% of the time but strongly agree only 12.5% of the time. For the question about open communication between faculty and undergraduate students about student concerns, alumni tend to agree (with a mean of 3.60) as compared to current students with a mean of 3.23.

Undergraduate alumni differed from current students when asked about the class size being suitable for effective learning. Alumni had a mean response of 3.85, compared to the current students’ mean response of 4.14. This is possibly due to the nationwide drop in computer majors: undergraduate class sizes were much larger on average a few years ago. Among alumni, responses to the statement about the availability of career advisement in the department was more certain; only 15.0% said they did not know, compared to 28.6% of current students. The mean for alumni was 2.57, compared to 2.84 for current students. Alumni responded more favorably to the statement about the availability of faculty outside of the classroom, with a 3.50 mean versus the current students’ mean of 3.28. Significantly, alumni had twice the percentage of respondents who rate this as excellent (22.5%) versus current students (10.4%).

In the statement about procedures used to evaluate student performance, alumni indicated more satisfaction than students currently in the program. Forty percent of alumni rate it very good or excellent, compared to 30.2%. Perhaps work experience matches classroom criteria more closely than students expected. For the statement about degree requirement clarity, 40.0% of alumni rate it as excellent, compared to only 21.7% of current students. The degree requirements take time to learn but have not significantly changed since the department was created.

Supplemental questions for alumni were similar to those posed to current undergraduates, and the responses were similar as well. Alumni had a mean response of 3.00 to a statement about the ease of getting a job after graduation. This response is not bad in light of employment trends in technology over the past few years. Job titles provided by alumni indicate that at least 80% have computer-related jobs.
Graduate Survey Results. The response rate for current graduate students was 50.8%, just 8.4% lower than the university response rate. Females accounted for about 1 in 3 respondents.

The statement that drew the most positive response was “Class size is suitable for effective learning,” with a mean of 4.42. This was followed by statements about faculty being interested in the academic development of graduate students and about the clarity of degree requirements, with 80.7% and 80.3% either agreeing or strongly agreeing, respectively.

Availability of academic advisement and availability of faculty outside of the classroom were virtually tied with means of 4.02 and 4.03, respectively. About 2 of every 3 graduate students agreed or strongly agreed with statements on the effectiveness of teaching methods, procedures used to evaluate student performance, that the graduate program is preparing them for professional work, the academic program being challenging, and faculty preparation for classes. Respondents were split about the frequency and variety of graduate courses, with about 40% in the middle, while another approximate 40% agreed or strongly agreed. The statement about the availability of career advisement drew a similar response, except that 13.1% did not know.

The supplemental questions revealed that space for graduate student offices is a concern, with 1 in 3 respondents disagreeing or strongly disagreeing that space is adequate. Roughly the same number were concerned with research laboratories, stipends, and the department’s reputation being a factor in attendance. Slightly more respondents thought the laboratories for teaching were sufficient, most likely due to the availability of our teaching computer lab. Space and access to research laboratories is something to be improved.

Only twelve people responded to the graduate alumni survey, which is not enough to provide a good sample. Graduate alumni were not quite as positive as current graduate students. For most statements, alumni responses were very similar to those of current students. The two groups differed on the statement about how academically challenging the program is, with a higher percent of alumni either remaining neutral or disagreeing. The groups also differed in their response to the statement about preparation for a career, with over 40% of the alumni strongly agreeing. Over 40% of the alumni agreed with the statement about the availability of career advisement, although no one strongly agreed. While half of the current students agree with procedures to evaluate student work, the alumni response was less enthusiastic.

Five graduate alumni strongly agreed that they were able to get a job without difficulty. Another five either agreed or were neutral. Only one person strongly disagreed. For statements about computer laboratories and the program balancing theory and practice, five people either agreed or strongly agreed, with at least four being neutral for each statement. When asked about the department being well-known, 45.5% of respondents either did not agree or strongly disagreed. For job titles, one person indicated “Associate consultant,” without clarifying if this is a computer consultant role. All other job titles, such as “J2EE consultant” and “software engineer,” indicate that graduates are working in their area.

SECTION E: STUDENT QUALITY

Undergraduate Major

Input Quality Metrics. Other than admission to Georgia State University, the Department of Computer Science does not have any minimum requirements for entry to the undergraduate major. However, students are expected to get at least a “C” grade in all computer science coursework in the plan of study. In order to take upper-division courses (3000-level and above), computer science majors are required to maintain a GPA of 2.3.
The following table shows the average high school GPA, combined SAT score, and freshman index for incoming freshman majors during the fall term of the last three years. Numbers are given for computer science majors as well as for the entire Georgia State freshman student population. Overall, computer science majors tend to have slightly higher SAT scores but lower GPAs, giving them a freshman index that is similar to Georgia State students as a whole.

<table>
<thead>
<tr>
<th></th>
<th>Computer Science</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School GPA</td>
<td>3.26</td>
<td>3.32</td>
</tr>
<tr>
<td>Combined SAT</td>
<td>1120</td>
<td>1083</td>
</tr>
<tr>
<td>Freshman Index</td>
<td>2741</td>
<td>2736</td>
</tr>
<tr>
<td>High School GPA</td>
<td>3.18</td>
<td>3.31</td>
</tr>
<tr>
<td>Combined SAT</td>
<td>1123</td>
<td>1095</td>
</tr>
<tr>
<td>Freshman Index</td>
<td>2709</td>
<td>2746</td>
</tr>
<tr>
<td>High School GPA</td>
<td>3.24</td>
<td>3.30</td>
</tr>
<tr>
<td>Combined SAT</td>
<td>1105</td>
<td>1091</td>
</tr>
<tr>
<td>Freshman Index</td>
<td>2716</td>
<td>2735</td>
</tr>
</tbody>
</table>

Output Quality Metrics. The department has not tracked the career paths of recent graduates, but by looking at the job titles reported in our recent alumni survey (Appendix D5), it appears that over 80% of the respondents are working in the computing/information technology industry.

Undergraduate computer science majors earned a variety of honors during the review period, including the following:

- In 2004, Lindsay Lee won the President’s Award for Academic Excellence with a perfect 4.0 GPA at the time of graduation.
- A team of Georgia State computer science majors was among 30 finalists for the Windows Embedded Student Challenge 2006, winning an expense-paid trip to Microsoft headquarters. The Georgia State team was one of only five teams from the United States to place in the top 30. In the 2004 competition, the Georgia State team also won an expense-paid trip to Microsoft headquarters. Both teams were mentored by Dr. Michael Weeks.
- In 2004, a team of four students was awarded second place in the Southern Regional Imagine Cup competition sponsored by Microsoft.
- Two students were awarded undergraduate research scholarships by Georgia State’s Brains and Behavior initiative in 2004. Both participated in the NeuronBank project.

Graduate Programs. A majority of the applications to our graduate programs are from international students. The table below shows that, during the review period, 74% of the applicants to the M.S. program and 82% of the applicants to the Ph.D. program were foreign.

<table>
<thead>
<tr>
<th>Graduate Applications</th>
<th>FY2004</th>
<th>FY2005</th>
<th>FY2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic</td>
<td>99</td>
<td>46</td>
<td>33</td>
</tr>
<tr>
<td>Foreign</td>
<td>228</td>
<td>174</td>
<td>105</td>
</tr>
<tr>
<td>Ph.D.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic</td>
<td>22</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>Foreign</td>
<td>149</td>
<td>58</td>
<td>40</td>
</tr>
</tbody>
</table>

Input Quality Metrics. Admission to the M.S. and Ph.D. programs has been quite competitive. An undergraduate degree in computer science or computer engineering is preferred; however, high-performing students from other disciplines have been given admission. All applicants are evaluated for foundation coursework in computer science (consisting of three mathematics
courses and seven computer science courses) and are required to take any that they have not taken in their prior degrees. A “B” grade is required in each foundation course.

As Table E-2 shows, applications to both the M.S. and Ph.D. programs fell from FY2004 to FY2006. There are two primary reasons for the decline:

- Computer science became a less popular major, for the same reasons discussed earlier for the undergraduate program.
- The number of international applicants has decreased because of the increased strictness of U.S. immigration requirements. This affects the Department of Computer Science particularly hard, because the vast majority of graduate students come from other countries.

In an attempt to prevent the graduate program from shrinking too much, the department has been increasing the percentage of applicants who are admitted, as Table E-2 shows. That, in turn, has caused a small decrease in the GRE scores of those accepted to the M.S. and Ph.D. programs as well as those actually enrolled (Table E-1).

Table E-1: Mean Standardized Graduate Admission Test Scores
FY 2004–FY 2006

<table>
<thead>
<tr>
<th>FY</th>
<th>Academic Program</th>
<th>Degree</th>
<th>Major</th>
<th>Conc</th>
<th>GRE Applied</th>
<th>GRE Accepted</th>
<th>GRE Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GRE Verbal</td>
<td>GRE Quant</td>
<td>GRE Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GRE Verbal</td>
<td>GRE Quant</td>
<td>GRE Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GRE Verbal</td>
<td>GRE Quant</td>
<td>GRE Total</td>
</tr>
<tr>
<td>FY04</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>473</td>
<td>723</td>
<td>1197</td>
</tr>
<tr>
<td>FY05</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>7</td>
<td>379</td>
<td>666</td>
<td>1044</td>
</tr>
<tr>
<td>FY06</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>480</td>
<td>690</td>
<td>1170</td>
</tr>
<tr>
<td></td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>2</td>
<td>456</td>
<td>710</td>
<td>1167</td>
</tr>
<tr>
<td>FY04</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>432</td>
<td>710</td>
<td>1142</td>
</tr>
<tr>
<td>FY05</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>433</td>
<td>709</td>
<td>1142</td>
</tr>
<tr>
<td>FY06</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>445</td>
<td>793</td>
<td>1238</td>
</tr>
<tr>
<td>FY04</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>430</td>
<td>695</td>
<td>1125</td>
</tr>
<tr>
<td>FY05</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>305</td>
<td>710</td>
<td>1015</td>
</tr>
<tr>
<td>FY06</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>445</td>
<td>793</td>
<td>1238</td>
</tr>
<tr>
<td>FY04</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>541</td>
<td>757</td>
<td>1298</td>
</tr>
<tr>
<td>FY05</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>500</td>
<td>723</td>
<td>1223</td>
</tr>
<tr>
<td>FY06</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>454</td>
<td>753</td>
<td>1207</td>
</tr>
</tbody>
</table>

Table E-2: Selection Ratio Of Applicant/Accepted Graduate Students
FY 2004–FY 2006

<table>
<thead>
<tr>
<th>FY</th>
<th>Academic Program</th>
<th>Degree</th>
<th>Major</th>
<th>Conc</th>
<th># of Applicants</th>
<th># Accepted</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY04</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>FY05</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>28.6%</td>
</tr>
<tr>
<td>FY06</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>66.7%</td>
</tr>
<tr>
<td>FY04</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>323</td>
<td>72</td>
<td>22.3%</td>
<td></td>
</tr>
<tr>
<td>FY05</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>195</td>
<td>57</td>
<td>29.2%</td>
<td></td>
</tr>
<tr>
<td>FY06</td>
<td>MS</td>
<td>CSC</td>
<td>BIN</td>
<td>133</td>
<td>50</td>
<td>37.6%</td>
<td></td>
</tr>
<tr>
<td>FY04</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>2</td>
<td>1</td>
<td>50.0%</td>
<td></td>
</tr>
<tr>
<td>FY05</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>2</td>
<td>1</td>
<td>50.0%</td>
<td></td>
</tr>
<tr>
<td>FY06</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>4</td>
<td>1</td>
<td>25.0%</td>
<td></td>
</tr>
<tr>
<td>FY04</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>170</td>
<td>21</td>
<td>12.4%</td>
<td></td>
</tr>
<tr>
<td>FY05</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>65</td>
<td>10</td>
<td>15.4%</td>
<td></td>
</tr>
<tr>
<td>FY06</td>
<td>PHD</td>
<td>CSC</td>
<td>BIN</td>
<td>49</td>
<td>18</td>
<td>36.7%</td>
<td></td>
</tr>
</tbody>
</table>
Output Quality Metrics

Publications and Honors. As can be seen in the following table, graduate students have been increasingly productive in publishing their research in peer-reviewed journals and conference proceedings. The numbers have doubled each year in the “primary author” category.

<table>
<thead>
<tr>
<th>Year</th>
<th>Books/Monographs</th>
<th>Refereed Publications (primary author)</th>
<th>Refereed Publications (secondary author*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>0</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>2004</td>
<td>0</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>2005</td>
<td>1**</td>
<td>74</td>
<td>44</td>
</tr>
</tbody>
</table>

*Each secondary author on a publication is given credit for one publication.
**Student was primary author of a 100-page monograph.

Our Ph.D. students have received many honors. Here are a few samples:

- Dumitru Brinza received the Best Poster award at the 2005 Georgia Tech International Conference on Bioinformatics.
- Jingwu He received a Regional Finalist Award in the student paper competition held at the International Conference of the IEEE Engineering in Medicine and Biology Society in 2004. There were 600 student entries but only ten finalists. He also received a travel grant of $1500 from the conference.
- Bo Jin won a best student paper award at the 2005 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology. He placed 27th (3rd in the U.S.) in the Data Mining Cup Contest 2005, 42nd (2nd in the U.S) in the Data Mining Cup Contest 2006, and 9th in the 2006 UCSD Student Data Mining Contest (ahead of teams from the University of Central Florida, UCLA, UC San Diego, the University of Michigan, and the University of Texas at Austin.). He received a travel grant for the International Conference on Fuzzy Systems (FUZZ-IEEE 2005).
- Yuchun Tang placed in the top 50 in the Data Mining Cup Contest 2004. He placed 19th (1st in the U.S.) in the Data Mining Cup Contest 2005. He received travel grants for the 2004 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology and the International Conference on Fuzzy Systems (FUZZ-IEEE 2005). After receiving the Ph.D., he went to work for CipherTrust Inc. (recently acquired by Secure Computing Corporation), where he received the 2006 CEO Award of Excellence.
- Several Ph.D. students have served on organizing committees and program committees for international conferences.
- In 2006, nine Ph.D. students were awarded Molecular Basis for Disease fellowships and six were awarded Brains and Behavior fellowships. These fellowships, which pay an annual salary of $22,000, require students to work on research related to these areas of focus.

Average Time to Degree. The average time to degree for M.S. graduates over the past three years was 27 months, as shown in the table below. The fastest time was 12 months and the slowest was 64 months. A typical full-time student usually takes 18 to 24 months to complete the M.S. degree with two to three semesters of coursework and one to two semesters of thesis or project work. Several part-time students took longer, raising the average to 27 months.
The average time to degree for Ph.D. students is 49 months. Of the eight Ph.D. graduates during the review period, four received their M.S. degrees in Computer Science at Georgia State and then proceeded to complete the Ph.D. by applying most of their M.S. hours toward the Ph.D. program, while the remaining four completed all Ph.D. requirements in the time they spent at Georgia State.

<table>
<thead>
<tr>
<th>Average Time to Degree (in Months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Source: Director of Graduate Studies)</td>
</tr>
<tr>
<td><strong>M.S.</strong></td>
</tr>
<tr>
<td>FY2004</td>
</tr>
<tr>
<td>FY2005</td>
</tr>
<tr>
<td>FY2006</td>
</tr>
</tbody>
</table>

**Current Positions of Ph.D. Graduates.** As of December 2006, the department will have graduated a total of 17 Ph.D. students. Of these, 11 have obtained tenure-track assistant professor positions at reputable universities, including the University of Pittsburgh, the University of Texas at Corpus Christi, Marquette University, and Southwest Missouri State University. One graduate is a visiting assistant professor at Mercer University. Two have taken industry positions (as an embedded systems software engineer at Delphi and as a research scientist at Secure Computing Corporation). Another graduate is a research scientist in the Biostatistics Research and Informatics division of Emory University’s Winship Cancer Institute.

**M.S. Graduates.** During fiscal years 2004–06, the department has graduated 92 M.S. students. The department’s Director of Graduate Studies recently asked these graduates to participate in an online survey; 60 graduates responded. The results of the survey, which are summarized in the table below, indicate that most M.S. graduates are working in the software industry, with 15 of them pursuing Ph.D. degrees at Georgia State University and elsewhere.

**SECTION F: FACULTY QUALITY**

**Scholarly Productivity.** Details of faculty research productivity for the review period are given in Table B-2. Over the period, the average number of journal publications produced annually by each tenure-track faculty member rose from 1.7 in 2003 to 2.7 in 2005. The average number of refereed conference publications per person rose from 5 in 2003 to 6.2 in 2005. Over the three-year period, 100% of tenure-track faculty had publications, as the following table shows.

**Faculty Productivity on a Percentage Basis**
(Source: Table B-2)

<table>
<thead>
<tr>
<th>Year</th>
<th>Publications</th>
<th>Presentations</th>
<th>Invited Presentations</th>
<th>External Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>13/15 (87%)</td>
<td>12/15 (80%)</td>
<td>5/15 (33%)</td>
<td>4/15 (27%)</td>
</tr>
<tr>
<td>2004</td>
<td>13/15 (87%)</td>
<td>13/15 (87%)</td>
<td>7/15 (47%)</td>
<td>4/15 (27%)</td>
</tr>
<tr>
<td>2005</td>
<td>15/17 (88%)</td>
<td>15/17 (88%)</td>
<td>7/17 (41%)</td>
<td>5/17 (29%)</td>
</tr>
<tr>
<td>2003–2005</td>
<td>18/18 (100%)</td>
<td>17/18 (94%)</td>
<td>10/18 (56%)</td>
<td>9/18 (50%)</td>
</tr>
</tbody>
</table>
Many of the publications appeared in highly recognized and competitive journals, such as the IEEE Transactions series. As an indication of the recognition of Computer Science faculty in their research areas, 56% were invited to give presentations at universities, colloquia, conferences, and workshops.

The following table compares faculty productivity with that at peer institutions for calendar year 2005.

| Peer Comparison – Faculty Productivity (Calendar Year 2005) |
|-----------------|-----------------|-----------------|-----------------|
| Auburn          | George Mason    | Wayne State     | Georgia State   |
| Number of tenure-track faculty | 18              | 20              | 18              | 17              |
| Number of non-tenure-track faculty | 1               | 4               | 3               | 4               |
| Unduplicated publications | 48              | 80              | 105             | 124             |
| External grants awarded (number and total value) | 9 ($2.48M)      | 10 ($2.01M)     | 11 ($3.02M)     | 9 ($1.09M)*     |
| Average number of publications per TT faculty | 2.67            | 4.0             | 5.83            | 7.3             |
| Average amount of external funding per TT faculty | $137K            | $100K           | $168K           | $64K            |

*Includes all external grants from which funding was obtained in 2005, regardless of start date.

With an average of 7.3 unduplicated publications per tenure-track faculty member, Georgia State faculty outperformed all three peers. The number of external grants received by our faculty is comparable to the number received by peer programs, although the total value of our grants is smaller, as is the amount of external funding per tenure-track faculty member. (Note that grant data is hard to compare across institutions. Peers were asked for 2005 data, but it is unclear whether they included funds from grants that began in prior years or whether multiyear grants were prorated. Although our department received $278K in new external funding in 2005, the total external funding for the year was $1.09 million because of multiyear grants that started prior to 2005.) It is not surprising that our department receives less funding than peer programs, which are all older and have well-established Ph.D. programs. Our faculty are very active in submitting proposals and are publishing papers at a high rate, which should lead to more external funding in the long run.

**Faculty Progress.** All candidates for promotion and tenure during the review period were successful. One non-tenured faculty member left the department to take an academic position at another institution. Two tenured faculty members retired during the period, one of whom continues to teach one course per year for the department.

<table>
<thead>
<tr>
<th>Reviews, Promotions, and Tenure during the Review Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Pre-T Review</td>
</tr>
<tr>
<td>FY2004</td>
</tr>
<tr>
<td>FY2005</td>
</tr>
<tr>
<td>FY2006</td>
</tr>
</tbody>
</table>

**Honors.** The high quality of computer science faculty has led to significant recognition for scholarly activity and teaching over the last few years both within and outside the university. Dr. Yingshu Li received a CAREER award from the National Science Foundation; it was the first such award in the history of the Department of Computer Science. Dr. Scott Owen was elected president of ACM SIGGRAPH (Special Interest Group on Computer Graphics) for a three-year
term. SIGGRAPH is the world’s leading organization for researchers, artists, developers, filmmakers, scientists, and other professionals who share an interest in computer graphics and interactive techniques. Dr. Robert Harrison was recognized as a Distinguished Cancer Scientist by the Georgia Cancer Coalition for 2002–2007. Dr. Yi Pan was invited to be a keynote speaker for numerous international conferences and workshops. Dr. Xiaolin Hu was also invited to give a keynote speech at an international conference. Dr. Michael Weeks won Georgia State’s Instructional Innovation Award in 2003. Dr. Alex Zelikovsky won two Best Poster awards at international conferences on bioinformatics and on photomask technology. Dr. Anu Bourgeois was included in *Who’s Who Among America’s Teachers* in 2004 and 2005. Dr. Yanqing Zhang received the Outstanding Service Award at the 2005 IEEE International Conference on Granular Computing. Four faculty members were elevated to IEEE Senior Member status.

**Sponsored Research.** Computer Science faculty secured a total of $2.7 million in external grants for the years 2003–2005, with most of this funding coming from federal agencies such as NIH and NSF. Roughly 70% of grant money is used for covering direct costs while 30% is used for indirect expenses. Internal grants during the same period reached roughly $371K. The most notable internal grants were awarded by Georgia State’s interdisciplinary Brains and Behavior initiative. The Brains and Behavior group as well as the Molecular Basis of Disease area of focus were established in 2004 with annual budgets of $900,000, scheduled to increase to $2 million by fiscal year 2007. Several departments competed for these grants, among them Biology, Computer Science, Chemistry, Mathematics, Physics, and Computer Information Systems.

**Service.** As the following table shows, seven faculty members were engaged in major service within the university during the three-year program review period. Department faculty chaired three major committees: Senate IS&T, Technology Fee, and CIO/Associate Provost for IS&T Search. Department faculty were also very active in professional service. Roughly two-thirds reviewed for refereed journals and conferences in their fields during the program review period. Three-fourths of the faculty were active in professional organizations as officers, committee members, or meeting organizers.

<table>
<thead>
<tr>
<th>Faculty Service on a Percentage Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Source: Table B-2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2003</th>
<th>8/15</th>
<th>1/15</th>
<th>1/15</th>
<th>12/15</th>
<th>6/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>-------</td>
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<td>------</td>
</tr>
<tr>
<td>2003–2005</td>
<td>13/18</td>
<td>10/18</td>
<td>5/18</td>
<td>14/18</td>
<td>7/18</td>
</tr>
</tbody>
</table>

In calendar year 2005, the average tenure-track faculty member served as a referee 5.4 times, was a member of two conference organizing committees, and served on 3.7 program committees. In addition, faculty were members of 24 editorial boards for such well-known journals as *IEEE Transactions on Parallel and Distributed Systems* and *IEEE Transactions on NanoBioscience*. Dr. Yi Pan served as editor-in-chief of five journals and book series, including the *International Journal of Bioinformatics Research and Applications* and the *International Journal of High Performance Computing and Networking*.
Dr. Pan, Dr. Raheem Beyah, Dr. Scott Owen, and Dr. Alex Zelikovsky served as NSF panelists during the review period. Several faculty members, including Dr. Yanqing Zhang, reviewed NSF grant proposals.

**Faculty Survey Results.** A survey was administered to faculty by the Office of Institutional Research in the spring of 2006 (see Appendix D5). The response rate was 85%. The faculty felt that scholarship in the department was strong (82% responded 4 or 5). The faculty thought that the frequency of required course offerings was excellent (94% responded 4 or 5) but were somewhat less satisfied with the variety of advanced course offerings (75% responded 4 or 5). On support questions, the faculty were less positive about availability of computer software (59% responded 4 or 5) and the level of clerical support (53% responded 4 or 5). Faculty felt strongly about working together towards goals (94% responded 4 or 5) and having adequate opportunities to influence departmental decisions (82% responded 4 or 5). The vast majority of the faculty felt comfortable with expressing differing points of view (82% responded 4 or 5). The responses of the Computer Science faculty to these questions in comparison with 27 previously surveyed departments were similar, the widest difference being on faculty in the department working together toward program goals on which the mean Computer Science faculty response was 4.47 versus 3.93 in previously surveyed departments. On the question of having ever been the editor of any journals or serving on an editorial board, the affirmative response for Computer Science faculty was 58.8% versus 48.1% for the rest of the university. The questions about having been awarded any internal or external grants received affirmative responses of 76.5% and 94.1% respectively versus 61.5% and 67.3%. For the question of having reviewed articles in the last two years, 88.2% of Computer Science faculty surveyed answered yes versus 75.2% for the rest of the university. Several faculty members contributed written comments to the survey. Among these, the most common concern addressed was the lack of adequate resources.

**SECTION G: RESOURCE ADEQUACY**

**1. Faculty Resources.** Total credit-hour generation by the department stayed steady during the program review period, starting at 11,007 in FY2004, dropping slightly to 10,260 in FY2005, and then rebounding to 10,648 in FY2006 (see Tables B-5a, B-5b, and B-5c). A decrease in undergraduate upper-division hours was nearly offset by an increase in graduate hours.

Credit-hour generation by tenure-track faculty also remained stable over the review period, going from 6,719 in FY2004 to 6,000 in FY2005 and 6,370 in FY2006. The percentage of credit hours generated by tenure-track faculty remained constant at 60%. The percentage of credit hours generated by full-time faculty (whether tenure-track or not) was also constant at 80%.

During the program review period, the ratio of undergraduate students to tenure-track faculty changed dramatically, from 55.9 in FY2004 to 31.6 in FY2006. The reasons for this change were discussed in Section B. For years, the department was plagued with ever-increasing class sizes and a faculty that was unable to grow fast enough to keep up with demand. The abrupt decrease in the number of majors over the past few years has returned the ratio to a more normal level.

The number of graduate students per tenure-track faculty member increased slightly over the review period, going from 9.9 in FY2004 to 10.5 in FY2006, because of growth in the Ph.D. program. The number of Ph.D. students per graduate faculty member increased from 3.7 in FY2004 to 4.3 in FY2006.
The following table presents comparative data from peer institutions related to Fall 2005 student enrollment. (Since these figures are for a single semester, they are not comparable to the numbers given elsewhere in this self study.)

<table>
<thead>
<tr>
<th>Peer Comparison – Student Enrollment (Fall 2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auburn</td>
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<tr>
<td>--------</td>
</tr>
<tr>
<td>Number of tenure-track faculty</td>
</tr>
<tr>
<td>Number of non-tenure-track faculty</td>
</tr>
<tr>
<td>Number of undergraduate majors</td>
</tr>
<tr>
<td>Number of M.S. students</td>
</tr>
<tr>
<td>Number of Ph.D. students</td>
</tr>
<tr>
<td>Average number of undergraduate majors per TT faculty member</td>
</tr>
<tr>
<td>Average number of M.S. students per TT faculty member</td>
</tr>
<tr>
<td>Average number of Ph.D. students per TT faculty member</td>
</tr>
</tbody>
</table>

Note: Enrollment numbers were obtained for Fall 2005 from peer departments. Table B-3 numbers for Georgia State were adjusted to Fall 2005 numbers to make a fair comparison.

As the table shows, our department’s undergraduate enrollment is similar to that of Auburn and George Mason and is significantly higher than Wayne State’s. The M.S. enrollment is similar to that of Auburn and Wayne State and is significantly lower than George Mason’s. The number of Ph.D. students is similar to peer numbers. The average number of students per tenure-track faculty member is also similar to peers except for Wayne State (which has a significantly low number of undergraduate students) and George Mason (which has a much higher number of M.S. students).

Faculty resources are currently adequate for undergraduate instruction, but more faculty will be required when undergraduate enrollment begins to increase once more. Additional faculty are already needed in order to increase the size of the graduate programs (one of the main goals in Section H). In particular, projected growth in the Ph.D. program will increase the ratio of Ph.D. students to tenure-track faculty to an unreasonable level. Between Fall 2005 and Fall 2006, Ph.D. enrollment went from 53 to 59, causing the ratio of Ph.D. students to tenure-track faculty to grow from 3.3 to 3.7. Any further increases in Ph.D. enrollment will make our department’s ratio higher than that at any of the peer institutions.

2. Administrative Resources. The Department of Computer Science has five full-time staff members, including a technology administrator, an academic administrative specialist, an administrative assistant, an administrative coordinator, and a business manager. All staff members are located in the department’s main office at 34 Peachtree Street.

Our department has one staff member per 4 full-time faculty members. The Department of Biology has a staff-to-faculty ratio of 1:3.5. The Department of Mathematics and Statistics has 3.5 faculty per every office staff member, not including their technology support person. Our department has grown considerably since its inception, but our staff level has remained the same.

Student assistants help make the office run smoothly. However, we have had difficulty keeping student assistants because of our inconsistent budget.

3. Technological Resources. Every faculty member in our department has at least one office computer. Some faculty have multiple computers, e.g., a PC for office-related tasks and a Unix workstation for research work.
Office computers are wired into the campus network. Portable devices have wireless connectivity through the university’s CatChat wireless network. This works well for laptop connectivity, but fails to work for some cutting-edge technologies like PDAs. For example, wireless devices used in research may not have a web browser available, and thus cannot log in through the CatChat web page to authenticate and then use wireless services. This is not a matter of installing new software; in some cases the software would have to be written from scratch, a process that can take years. A better solution would be to have an open network for experimental equipment.

Graduate students have to share computers, which creates problems, especially when three or more people are assigned to the same workstation.

Software can be problematic, with multiple versions of the same software available on different computers. For example, MATLAB software has version 6.5 installed in our lab and version 6.1 installed on computers in the classroom, whereas faculty members have version 7.0 installed on office computers. Much of this problem stems from the licensing agreements of the Mathworks company, i.e., departments have purchased this software and installed it when possible, and our university does not have the money to give every computer the same version now. There are licensing issues as well, where we might be allowed to run 12 sessions of MATLAB on a server at once (determined by money). This becomes a problem when an entire class tries to use the software at the same time; only the first 12 get to use it.

Certain classes require additional equipment, such as PDAs, digital-signal-processing boards, field-programmable gate arrays, breadboards, oscilloscopes, and even a LEGO Mindstorms kit (with a programmable 8-bit microprocessor). This aging equipment was purchased years ago when funds were available, but now there is no budget to replace it.

4. Space Resources. The Department of Computer Science currently occupies the 14th floor of One Park Tower at 34 Peachtree Street. Because this floor is too small to house the entire department, two instructors have offices on the lower level of the 10 Park Place building, distancing them from department life. Each full-time faculty member has a private office. Faculty offices range in size from 110 square feet to 150 square feet; the chair’s office is 192 square feet.

Nearly all graduate student offices are on the 14th floor of One Park Tower. Students occupy shared offices, with each student having a carrel or desk. An additional graduate student office is located on the 12th floor of One Park Tower, and two more are located at 10 Park Place. Graduate student space is very limited. Not all graduate students are given office space. Priority is given first to Ph.D. students and then to full-time M.S. students. Students are often crammed into offices designed to hold fewer people. In some cases, students are assigned to the same carrel, forcing them to “time-share” the space. Because of the tiny spaces they are assigned, graduate teaching assistants and laboratory assistants have no suitable place to meet with their students.

The department has a small conference room (409 square feet), which is used for department and committee meetings, small classes, and colloquia. The room is too small for many meetings, there are time conflicts because of the many uses the room is put to, and the seating is inappropriate for colloquia.

Three of the five staff members have private offices; the other two share an office. All faculty and staff have individual phone lines.

The department currently occupies approximately 7,000 square feet on the 14th floor of One Park Tower, 124 square feet on the 12th floor of One Park Tower, and 420 square feet in 10 Park Place. In addition, the department controls a laboratory with 1078 square feet in Classroom South (discussed later in this section).
When the new Science Teaching Laboratory opens in 2009, the Department of Computer Science will be housed there. Preliminary plans call for the department to occupy 15,000 square feet. Approximately 9,000 square feet of space will be for offices, including 29 offices for faculty and staff. There will be 16 offices for Ph.D. students, each shared by four students, and a large room with cubicles housing 45 M.S. students.

5. Laboratory Resources. Four rooms on the 14th floor of One Park Tower serve as computer laboratories for research use. However, because of a severe shortage of space for graduate student offices, these labs double as office space for graduate assistants. The total square footage of these labs is 745 square feet.

The department has one additional computer laboratory, which is used primarily for teaching purposes. This lab, located in room 400 of the Classroom South building, occupies 1078 square feet. It contains seating for 25 students, with a computer for each student. Specialized equipment used by some classes is kept locked in a closet within the lab. It can be checked out only when a graduate assistant is present, which creates staffing problems.

In the new Science Teaching Laboratory, current plans call for the department to have 6,000 square feet of laboratory space (as part of its total 15,000 square feet), including three computer-equipped classrooms, each seating 40–50 students.

6. GSU Foundation Resources. The Department of Computer Science has only minimal foundation resources. The Computer Science Enrichment Fund currently has a balance of less than $8,000. The John Deere CS Diversity Scholars Fund has a balance of $2,000, which is earmarked for a fellowship to a minority or female graduate student.

7. Library Resources. The University Library report is in Appendix G2. Internet access to journals and conference proceedings is critical for our research, more so than physical access. Our library provides online access to IEEE Xplore and the ACM Digital Library. These resources are more than enough to rate our library as adequate. It should be noted that these online resources are not guaranteed. They are expensive, but it is very important to us that they remain available.

Our department has the luxury of accessing Georgia Tech’s library for any books, journals, or conference proceedings that our library does not have. Their campus is only a 15-minute drive from ours.

SECTION H: GOALS AND OBJECTIVES

Teaching

GOAL 1: INCREASE NUMBER OF B.S. DEGREES AWARDED

Objective 1: Increase quantity and quality of incoming majors

Rationale: The number of Computer Science majors has steadily decreased in the past several years. Also, the quality of undergraduate students is not high enough, hurting graduation rates.

Plan: Prepare and disseminate informational brochures and other recruiting materials, target Georgia high schools for student recruitment, prepare advertising materials for inclusion in local media, and update the undergraduate curriculum. Increase collaboration with other departments in the College of Arts and Sciences such as Biology, Chemistry, Communications, and Fine Arts to provide interdisciplinary course options for students. Provide increased opportunities for undergraduates to participate in research as well as offering honors courses.

Resources: Funds added to operating budget to cover costs of brochures, advertising, etc.
Objective 2: Improve undergraduate retention, progression, and graduation rates  
Rationale: The University’s 2005–2010 Strategic Plan calls for increasing undergraduate student retention, decreasing attrition, and increasing student engagement.  
Plan: Implement several new initiatives such as (a) using innovative techniques such as “pair programming” and “programming with robots” in the introductory programming course sequence, (b) enriching the curriculum, (c) providing more laboratory space for use by undergraduate students, and (d) organizing social events for undergraduates.  
Resources: Additional laboratory space as well as funding for social events.

GOAL 2: STRENGTHEN M.S. AND PH.D. PROGRAMS

Objective 1: Increase number of M.S. and Ph.D. graduates  
Rationale: The University’s 2005–2010 Strategic Plan calls for graduating an increasing number of doctoral students.  
Plan: The department intends to increase enrollment to around 100 M.S. and 80 Ph.D. students as well as increasing graduation rates to about 40 M.S. degrees and 15 Ph.D. degrees each year. To achieve these goals, the department intends to increase recruiting efforts, targeted especially at domestic students, by preparing and disseminating brochures and recruiting materials. The department also plans to recruit more minorities, women, and domestic students. In addition, the department will make efforts to increase the number of part-time Ph.D. students, especially those who are already faculty in Georgia colleges and universities.  
Resources: Additional tenure-track faculty to supervise the increased number of thesis and dissertation students. A dedicated staff person to handle all graduate matters. Funds added to operating budget to cover costs of brochures, advertising, etc.

Objective 2: Improve quality of M.S. and Ph.D. students  
Rationale: The University’s 2005–2010 Strategic Plan calls for Georgia State to improve its national reputation by retaining its designation as a Carnegie Research-Extensive university and by earning a position in the top 100 American Research Universities. Improving graduate student quality is important to both goals.  
Plan: Recruit higher-quality students by sending recruiting brochures to colleges and universities in the U.S. Increase graduate stipends to nationally competitive levels ($18,000/year for Ph.D. and $9,000/year for M.S.) and obtain additional office space for graduate assistants. Encourage graduate students to publish more peer-reviewed papers.  
Resources: Additional funding for graduate stipends and travel for students to present papers at conferences. Funds added to operating budget to cover costs of brochures, advertising, etc.

Creative and Scholarly Activity

GOAL 1: ENHANCE DEPARTMENT’S NATIONAL AND INTERNATIONAL REPUTATION

Objective 1: Increase department visibility  
Rationale: The University’s 2005–2010 Strategic Plan calls for the development of research programs with national and global recognition that benefit the interest of the state and region.  
Plan: Have the department continue to host international conferences. Have faculty gain more exposure by serving on organizing committees and program committees for international conferences. Provide funding for faculty and Ph.D. students to attend high-visibility conferences. Encourage participation of student teams in national and international competitions. Help Ph.D. graduates find jobs in high-quality research departments.
Resources: Funding for hosting conferences and for travel expenses to attend conferences.

**Objective 2: Obtain more external funding**

**Rationale:** The University’s 2005–2010 Strategic Plan calls for increasing the total amount of external funding to $100 million by 2010.

**Plan:** Encourage faculty to submit grant applications. Hire a grant specialist to assist with preparation of proposals. Target funding sources other than NSF and NIH, including other federal agencies (such as DoD and Homeland Security) and private industry (such as Microsoft).

**Resources:** Budget to support a grant specialist to assist with proposal preparation and grant management.

**Objective 3: Increase number of faculty and student publications**

**Plan:** Retain and attract outstanding faculty by offering higher salaries. Implement a department policy that requires each Ph.D. student to publish a minimum number of peer-reviewed papers in journals and/or conferences.

**Resources:** Higher salaries for current as well as new faculty members. Additional funds to cover travel expenses and registration costs for conference attendance.

**GOAL 2: STRENGTHEN EXISTING INTERDISCIPLINARY RESEARCH EFFORTS**

**Rationale:** The University’s 2005–2010 Strategic Plan calls for interdisciplinary research and educational programs that address emerging needs for new knowledge and its dissemination

**Objective 1:** Enhance current bioinformatics and neuroinformatics research efforts

**Plan:** Continue to apply for external funding for joint projects to federal agencies such as NIH as well as private agencies. Current internal seed money supports department faculty, but external funding can support and encourage each discipline.

**Objective 2:** Increase collaboration with Computer Information Systems

**Plan:** Give joint appointments to CIS faculty. Explore areas of mutual interest, such as grid computing and computer security.

**GOAL 3: DEVELOP DISTINCTIVE RESEARCH FOCUS AREAS**

**Rationale:** The University’s 2005–2010 Strategic Plan calls for interdisciplinary research and educational programs that address emerging needs for new knowledge and its dissemination

**Objective 1:** Develop relationships with non-science departments such as Communications (computer animation and game design), Art and Design (digital filmmaking), and Psychology (human-computer interaction).

**Plan:** Recruit graduate students with non-traditional backgrounds. Have department faculty reach out to faculty from other departments to explore research opportunities.

**Resources:** Budget for a staff person to assist with recruiting such students.

**Objective 2:** Increase department focus on algorithms as a unifying area of research emphasis

**Plan:** Recruit additional tenure-track faculty that will strengthen research in this area. Encourage faculty members to publish research on algorithms and apply for funding. Encourage collaboration with faculty from Mathematics and Statistics in areas such as graph theory.

**Resources:** Budget to hire additional faculty members.

**Objective 3:** Increase collaboration with international institutions, such as universities in Asia

**Plan:** Take advantage of faculty connections with Chinese and Indian universities to develop joint education and research initiatives.
Service

GOAL 1: INCREASE COMMUNITY SERVICE ACTIVITIES

Rationale: The University’s 2005–2010 Strategic Plan calls for increasing partnerships that have a positive impact on the community.

Objective 1: Establish liaisons with local educational institutions

Plan: Arrange visits for Computer Science faculty and students to interested local educational institutions, including high schools and colleges.

Objective 2: Establish summer workshops or camps to educate teachers, professionals, and interested groups about newly emerging technologies

Plan: Apply for educational grants to finance workshops or camps with faculty and graduate students performing the teaching and organizational duties.

GOAL 2: INCREASE UNIVERSITY AND PROFESSIONAL SERVICE

Objective 1: Increase participation of department faculty in college and university service

Plan: Nominate tenured and senior faculty for college and university committees. Encourage faculty serving in the University Senate to take leadership roles in Senate committees, especially the Information Systems and Technology committee.

Objective 2: Increase participation of department faculty in professional societies

Plan: Encourage department faculty to seek active roles in professional societies such as the Association for Computing Machinery and the IEEE Computer Society.
Table B-2: Faculty Productivity for Calendar Years 2003–2005

Calendar Year 2003

<table>
<thead>
<tr>
<th>Name</th>
<th>Refereed Publications (J)/(P)/(C)</th>
<th>Books (A)/(E)</th>
<th>Presentations (P)/(I)</th>
<th>External Funding</th>
<th>Internal Funding</th>
<th>Referee (R)/Editor in Chief (E)/Editorial Board (B)</th>
<th>Reviewed Grants (G)/Member of Panel (P)</th>
<th>Prof. Service Organizing Cmte (O)/Program Cmte (P)</th>
<th>Honors and Major University Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belkasim</td>
<td>1/3/0</td>
<td>6/0</td>
<td></td>
<td>3/0/0</td>
<td>0/2</td>
<td></td>
<td></td>
<td></td>
<td>Senator (elected from department); Senate IS&amp;T Cmte (Chair); Student technology Fee Subcmte of Senate IS&amp;T Cmte (Chair); Senate Budget Cmte; Budget Priorities Subcmte; Senate Planning and Development Cmte; MRRF Joint P&amp;D and Budget Senate Subcmte; CIO/Associate Provost for IS&amp;T Search Cmte (Co-Chair)</td>
</tr>
<tr>
<td>Bourgeois</td>
<td>4/4/1</td>
<td>6/0</td>
<td></td>
<td>1/0/0</td>
<td>0/5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dodgu</td>
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<td></td>
<td></td>
<td>1/0/0</td>
<td>0/5</td>
<td></td>
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<tr>
<td>Fraser</td>
<td></td>
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<td></td>
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<tr>
<td>Harrison</td>
<td>5/1/2</td>
<td>6/0</td>
<td>357,500</td>
<td>2/0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Georgia Cancer Coalition Distinguished Cancer Scientist, 10/1/02-9/30/07; Member, GRID Group @ GSU for NSF Middleware Initiative (NMI) Integration Testbed Program</td>
</tr>
<tr>
<td>King</td>
<td>0/1/0</td>
<td></td>
<td></td>
<td>2/0/0</td>
<td>1/0</td>
<td></td>
<td></td>
<td></td>
<td>College Petitions Cmte; Who's Who in Science and Engineering, 2003; Who's Who in America, 2003; APACE Academic Program Review Subcmte for CIS</td>
</tr>
<tr>
<td>Owen</td>
<td>0/3/0</td>
<td></td>
<td></td>
<td></td>
<td>2/1</td>
<td></td>
<td></td>
<td></td>
<td>College Area (Math &amp; Sciences) Promotion and Tenure Cmte; Faculty Senate--Information Systems and Technology Cmte; Admissions and Standards Cmte; Student Technology Fee Cmte; TLTS Subcmte of IS&amp;T and APACE</td>
</tr>
<tr>
<td>Name</td>
<td>Start/End</td>
<td>Days</td>
<td>Hours</td>
<td>Total Hours</td>
<td>Advisor Hours</td>
<td>Notes</td>
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<td></td>
<td></td>
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<tr>
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<td>----------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pan</td>
<td>8/12/0</td>
<td>0/3</td>
<td>14/5</td>
<td>109,125</td>
<td>6/2/10</td>
<td>2/1 18/9 Keynote Speaker at PDCAT; Keynote Speaker at ISPA; University Senator; University Information Systems and Technology (IS&amp;T) Cmte; University IS&amp;T Data Warehouse SubCmte; Executive Cmte for University Biomedical Computing Center; Scientific Review Cmte for University Biomedical Computing Center; University Instructional Innovation Review Cmte; GSU Grid Computing Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prasad</td>
<td>0/10/0</td>
<td>12/0</td>
<td>93,780</td>
<td>3/0</td>
<td></td>
<td>College Bylaws Cmte; Commemorative Plaque, presented by HiPC Steering Cmte Chair, IEEE Computer Society and ACM; Invitation for External Reviewer for Tenure, Arizona State University East</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Preethy</td>
<td>0/2/0</td>
<td>2/0</td>
<td>3,970</td>
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## Calendar Year 2004

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<th>Internal Funding</th>
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<th>Prof. Service Organizing Cmte (O)/ Program Cmte (P)</th>
<th>Honors and Major University Service</th>
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<td>Tenure/Year</td>
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<td>Total Salary</td>
<td>Average Year</td>
<td>Total Hours</td>
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## Calendar Year 2005

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<th>Internal Funding</th>
<th>Referee (R)/Editor in Chief (E)/Editorial Board (B)</th>
<th>Reviewed Grants (G)/Member of Panel (P)</th>
<th>Prof. Service Organizing Cmte (O)/Program Cmte (P)</th>
<th>Honors and Major University Service</th>
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<td>6/0</td>
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<tr>
<td>Weeks</td>
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<td>9/0/0</td>
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1. Refereed journal articles (J), refereed conference proceedings (P), and refereed book chapters (C).
2. Books that the faculty member authored/co-authored (A) or edited/co-edited (E).
3. Presentations made by the faculty member, students, and collaborators, including contributed presentations at professional meetings (P) and invited presentations (I) at professional meetings, workshops, and colloquia and seminars at universities. Of these presentations, invited presentations are those made by the faculty member by invitation. Presentations at GSU are not included.
4. Joint funding listed for all faculty involved as PI or Co-PI, but only counted once for yearly totals.
5. Review of articles submitted to refereed journals or conferences (R), editor-in-chief for refereed journals or book series (E), and member of editorial board for refereed journals (B).
6. Review of grant submissions for governmental, industrial, and/or private granting agencies (G). Service on NSF Review Panel and/or NIH Study Sections (P).
7. Service to professional organizations and societies includes holding offices, committee membership, and organizing meetings, workshops, and/or sessions (O). Membership on program/technical committees (P).
### Table B-4a: Undergraduate Retention and Graduation Rates

#### Fall 99 Juniors*

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<th>Fall 99 Cohort</th>
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<th>Graduated Fall 00</th>
<th>1-Yr Ret Rate</th>
<th>Retained Fall 01</th>
<th>Graduated Fall 01</th>
<th>2-Yr Ret Rate</th>
<th>Retained Fall 02</th>
<th>Graduated Fall 02</th>
<th>3-Yr Ret Rate</th>
<th>Retained Fall 03</th>
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<td>Graduated Fall 01</td>
<td></td>
<td>Retained Fall 02</td>
<td>Graduated Fall 02</td>
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<td>57.7%</td>
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#### Fall 00 Juniors

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<th>Graduated Fall 02</th>
<th>2-Yr Ret Rate</th>
<th>Retained Fall 03</th>
<th>Graduated Fall 03</th>
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<th>Retained Fall 04</th>
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<td>Graduated Fall 01</td>
<td></td>
<td>Retained Fall 02</td>
<td>Graduated Fall 02</td>
<td></td>
<td>Retained Fall 03</td>
<td>Graduated Fall 03</td>
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<td>11</td>
<td>39</td>
<td>12</td>
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<td>32</td>
<td>9</td>
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#### Fall 01 Juniors

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<td>Graduated Fall 03</td>
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<td></td>
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<td>76.3%</td>
<td>45.4%</td>
<td>19.6%</td>
<td>64.9%</td>
<td>21.6%</td>
<td>36.1%</td>
<td>57.7%</td>
<td>9.3%</td>
<td>40.2%</td>
<td>49.5%</td>
</tr>
</tbody>
</table>

#### Fall 02 Juniors

<table>
<thead>
<tr>
<th>Fall 02 Cohort</th>
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<th>Graduated Fall 03</th>
<th>1-Yr Ret Rate</th>
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<th>Graduated Fall 04</th>
<th>2-Yr Ret Rate</th>
<th>Retained Fall 05</th>
<th>Graduated Fall 05</th>
<th>3-Yr Ret Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retained Fall 03</td>
<td>Graduated Fall 03</td>
<td></td>
<td>Retained Fall 04</td>
<td>Graduated Fall 04</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Fall 02 Juniors</td>
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<td>73</td>
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<td>29</td>
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<td></td>
<td>76.0%</td>
<td>0.0%</td>
<td>76.0%</td>
<td>60.4%</td>
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<td>30.2%</td>
<td>25.0%</td>
<td>55.2%</td>
</tr>
</tbody>
</table>

*Defined as 60-75 total credit hours at start of fall term.
### Table B-4b: Master’s Level Retention and Graduation Rates

#### Summer and Fall New Master’s Students

<table>
<thead>
<tr>
<th>Fall 00 Cohort</th>
<th>Retained Fall 01</th>
<th>Graduated Fall 01</th>
<th>1-Yr Ret Rate</th>
<th>Retained Fall 02</th>
<th>Graduated Fall 02</th>
<th>2-Yr Ret Rate</th>
<th>Retained Fall 03</th>
<th>Graduated Fall 03</th>
<th>3-Yr Ret Rate</th>
<th>Retained Fall 04</th>
<th>Graduated Fall 04</th>
<th>4-Yr Ret Rate</th>
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<td>23</td>
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<td>5</td>
<td>15</td>
<td>8.7%</td>
<td>11</td>
<td>13</td>
<td>4.3%</td>
<td>15</td>
<td>65.2%</td>
<td>69.6%</td>
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<td>65.2%</td>
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<td>Graduated Fall 05</td>
<td>5-Yr Ret Rate</td>
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<td></td>
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<td>26</td>
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<td>61.5%</td>
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<tr>
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<td>1-Yr Ret Rate</td>
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<tr>
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<td>Graduated Fall 04</td>
<td>3-Yr Ret Rate</td>
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<td></td>
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<tr>
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<td>2-Yr Ret Rate</td>
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<td>6.7%</td>
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### Table B-4c: Ph.D. Retention and Graduation Rates

#### Summer and Fall New Ph.D. Students

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<th>Graduated by Fall 05</th>
<th>4-Yr Ret Rate</th>
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</thead>
<tbody>
<tr>
<td>17</td>
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<td>64.7%</td>
<td>8</td>
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<tr>
<td></td>
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<td>Graduated by Fall 05</td>
<td>3-Yr Ret Rate</td>
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<tr>
<td>Fall 02 Cohort</td>
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<td>3</td>
<td>18.8%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Retained Fall 05</td>
<td>Graduated by Fall 05</td>
<td>2-Yr Ret Rate</td>
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<td></td>
</tr>
<tr>
<td>Fall 03 Cohort</td>
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<td></td>
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<td>66.7%</td>
<td>1</td>
<td>6.7%</td>
<td>11</td>
</tr>
</tbody>
</table>
Appendix B1: Rationale for Choices of Peer Programs

When choosing peer programs, we considered universities that satisfied the following criteria:

- The Computer Science department has between 15 and 25 faculty members.
- The university is in an urban setting.
- The department has a Ph.D. program in Computer Science.
- The department does not rank in the top 50 in the U.S.

We found six universities that met at least three of these criteria:

- Auburn University
- George Mason University
- Montana State University
- State University of New York at Binghamton
- Wayne State University
- Western Michigan University

A survey was sent to the chairs of these departments requesting faculty productivity data and student data. The departments that responded were used as peer programs.
Appendix B2: Organization of Unit Governance and Committee Structure

Key Administrators

Chair                      Yi Pan
Director of Graduate Studies Raj Sunderraman
Director of Undergraduate Studies Anu Bourgeois

Staff

Business Manager           Adrienne Martin
Administrative Specialist–Academic Tammie Dudley
Administrative Coordinator  Venette Rice
Administrative Assistant    Celena Pittman
PC Systems Specialist Lead  Shaochieh Ou

Standing Committees

ACM CHAPTER COMMITTEE – Weeks, Chair
Bourgeois, Harrison, King

ADVISORS FOR UNDERGRADUATE PROGRAM COMMITTEE – Bourgeois, Chair and
Director for Undergraduate Advisement
Henry, Bhola, Nguyen (Director of Transfer Credit Evaluation)

ALUMNI RELATIONS COMMITTEE – King, Chair
Belkasim, Preethy, Zelikovsky, Zhang

COMPUTER SECURITY ADVISORY COMMITTEE – Belkasim, Chair
Beyah, Harrison, Sunderraman, Weeks

CURRICULUM COMMITTEE – Weeks, Chair
Bhola, Bourgeois, Henry, King, Sunderraman

EXECUTIVE COMMITTEE – Pan, Chair
Bourgeois (appointed), Sunderraman (elected), Zelikovsky (elected)

FACULTY SEARCH COMMITTEE (appointed annually) – Zelikovsky, Chair
Harrison, Preethy, Sunderraman,

GRADUATE COMMITTEE – Sunderraman, Chair and Director of Graduate Studies
Belkasim, Harrison, Hu, Li, Pan, Prasad, Preethy, Weeks, Zelikovsky, Zhang, Zhu

Graduate Student Admission Evaluation Subcommittee – Sunderraman, Chair
Belkasim, Bourgeois, Harrison, King, Pan, Preethy, Weeks, Zelikovsky, Zhang, Zhu
GRADUATE STUDENT TEACHING MENTORING COMMITTEE – Henry, Chair
King

HONORS PROGRAM AND HONORS AT GRADUATION COMMITTEE – Bourgeois, Chair
Belkasim, Henry, King, Weeks

LIBRARY COMMITTEE – Belkasim, Chair
Hu, Hundewale, Preethy, Zhang

Ph.D. QUALIFYING EXAMINATION COMMITTEE – Sunderraman, Chair

Architecture Subcommittee – Belkasim, Beyah, Bourgeois, Preethy, Weeks (Chair)
Algorithms Subcommittee – Hu, Li, Prasad (Chair), Zelkovsky, Zhu
Automata Subcommittee – Harrison, King, Sunderraman (Chair), Zhang

PROMOTION & TENURE COMMITTEE OF TENURED ASSOCIATE PROFESSORS AND
PROFESSORS
Belkasim, Bourgeois, Harrison, King, Prasad, Sunderraman, Weeks, Zelkovsky, Zhang

STUDENT LEARNING OUTCOMES COMMITTEE – Bourgeois, Harrison, Zelkovsky, Co-
chairs
Belkasim, King, Pan, Preethy, Sunderraman, Zhang

WEBSITE COMMITTEE – King, Chair
Harrison

COMMITTEE ON STUDENT ETHICS – Weeks, Chair
Belkasim, Beyah, Harrison, Hu, Zelkovsky

COLLOQUIUM COORDINATOR – Zhang
Appendix B3: Unit Bylaws

The Department of Computer Science does not currently have a set of bylaws.
## Appendix B4: Current (FY 2007) Faculty Roster

<table>
<thead>
<tr>
<th>Name</th>
<th>Hire Date</th>
<th>Entry Rank</th>
<th>Current Rank</th>
<th>Tenure Status</th>
<th>Full- or part-time</th>
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<tr>
<td>Belkasim, Saeid</td>
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<td>Associate Professor</td>
<td>Tenured</td>
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<td>Beyah, Raheem</td>
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<td>Assistant Professor</td>
<td>Assistant Professor</td>
<td>Tenure track</td>
<td>Full-time</td>
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<td>Bhola, Jaman</td>
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<td>Instructor</td>
<td>Instructor</td>
<td>Non-tenure track</td>
<td>Full-time</td>
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<tr>
<td>Bourgeois, Anu</td>
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<td>Assistant Professor</td>
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<td>Full-time</td>
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<tr>
<td>Harrison, Robert</td>
<td>12/2000</td>
<td>Associate Professor</td>
<td>Professor</td>
<td>Tenured</td>
<td>Full-time</td>
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<tr>
<td>Henry, Louis</td>
<td>8/2001</td>
<td>Instructor</td>
<td>Instructor</td>
<td>Non-tenure track</td>
<td>Full-time</td>
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<tr>
<td>Hu, Xiaolin</td>
<td>8/2004</td>
<td>Assistant Professor</td>
<td>Assistant Professor</td>
<td>Tenure track</td>
<td>Full-time</td>
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<td>Hundewale, Nisar</td>
<td>4/2001</td>
<td>Instructor</td>
<td>Instructor</td>
<td>Non-tenure track</td>
<td>Full-time</td>
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<tr>
<td>King, K. N.</td>
<td>9/1987</td>
<td>Associate Professor</td>
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<td>Full-time</td>
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<tr>
<td>Li, Yingshu</td>
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<td>Assistant Professor</td>
<td>Assistant Professor</td>
<td>Tenure track</td>
<td>Full-time</td>
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<tr>
<td>Nguyen, Ken</td>
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<td>Instructor</td>
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<td>Emeritus</td>
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<td>Pan, Yi</td>
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</table>
Appendix B5: Center Reports

The Department of Computer Science does not currently operate any centers.
Appendix C1: Unit’s Strategic Plan and Goals

This is the first Academic Program Review for the Department of Computer Science, so no strategic plan and goals existed at the beginning of the self-study period.
Appendix D1: Learning Outcome Statements and Assessment Plans

Major Assessment Plan

Bachelor of Science in Computer Science

Department of Computer Science
Georgia State University
March 2004

MISSION

Within the Georgia State mission of research, education, and public service, the mission of the Department of Computer Science encompasses the following areas.

Research: To make leading contributions to basic and applied science by:

- Conducting broadly based research in both theoretical and applied areas of computer science. Current active research areas are: Artificial intelligence and neural networks, Bioinformatics, Combinatorial optimization, Computer architecture, Computer networks, Databases, Digital libraries, Graphics and visualization, Parallel and distributed computing, Programming languages, Simulation, and Software engineering.

- Collaborating on interdisciplinary efforts with other units including Biology, Chemistry, Computer Information Systems, Mathematics and Statistics, Philosophy, Physics, and Psychology.

Educational Programs: To provide the next generation of leaders and capable lifelong learners in computer science. The Department of Computer Science offers programs at the baccalaureate, master's and doctoral levels.

Service: To support other programs at Georgia State by offering rigorous training in basic computer science to non-majors and to support collaboration with colleagues in other disciplines.

PROGRAM PURPOSES AND PHILOSOPHY

The Department of Computer Science offers one undergraduate degree, the Bachelor of Science in Computer Science. The basis of the degree program provides students with underpinnings for today’s applications in industry, science, government, and business and prepares the foundation for tomorrow’s applications in ubiquitous computing, medical cures for diseases, and instant access to information by every one.

The baccalaureate program contains the following:

a) courses needed to meet general institutional degree requirements;
b) a core of foundation courses to develop a strong background in mathematics and physics and to build a scientific foundation for areas such as computer design, computer programming and software, information processing, algorithmic solutions to problems, and the algorithmic process itself;

c) concentration courses that provide for appropriate breadth and depth of knowledge in the discipline. These concentrations are: Computer software systems, Databases and knowledge-based systems, Graphics and human-computer interaction, Hardware systems, Networks and parallel and distributed computing, and Theoretical computer science;

d) computer science upper division electives that enable the student to further explore their interests in computer science.

The B.S. in computer science provides strong preparation in the fundamental principles and processes of computation and the basic computer science upon which these principles and processes depend. In addition, the program provides for the application of these principles to problems in the areas of science and technology.

INTENDED LEARNING OBJECTIVES/OUTCOMES

Below are expected competencies for computer science majors. The first six are also included in the General Education Assessment Plan.

1. Communication
Students communicate effectively using appropriate writing and oral conventions and formats.

2. Collaboration
Students participate effectively in collaborative activities

3. Critical Thinking
Students formulate appropriate questions for research.
Students appropriately evaluate claims, arguments, evidence and hypotheses.
Students use the results of analysis to appropriately construct new arguments and formulate new questions.

4. Contemporary Issues
Students effectively analyze contemporary issues within the context of diverse disciplinary perspectives.
Students effectively analyze contemporary multicultural, global, and international questions.

5. Quantitative Literacy
Students effectively perform arithmetic operations, as well as reason and draw appropriate conclusions from numerical information. Students effectively translate problem situations into their symbolic representations and use those representations to solve problems.

6. Technology
Students effectively use computers and other technology.
7. Algorithm Design and Analysis
Students understand the principles and methods of analyzing algorithms and have a working knowledge of algorithm design techniques.

8. Discrete Mathematics
Students understand the mathematics of discrete structures and have a working knowledge of the application of discrete mathematics in computer science.

9. Computer Systems Development
Students understand the principles, processes, and life cycles of computer systems development and have a working knowledge of the modeling techniques and tools to specify systems under development and of computer systems project team management.

10. Programming Skills
Students understand the current, best-practices programming paradigms and have a working knowledge of programming in high-level programming languages that implement the paradigms.

11. Hardware Systems
Students understand the principles and processes of hardware systems development and have a working knowledge of the modeling techniques and tools to represent the phases of development.

12. Computer Organization and Programming
Students understand the principles, organization, and process for designing and programming digital logic devices. Students have a working knowledge of current technologies.

IMPLEMENTATION PLAN

The undergraduate coordinator will have overall responsibility for maintaining data collection, reporting, and dissemination of assessment results to faculty in the Department of Computer Science. Our Undergraduate Committee will be responsible for considering and enacting curricular changes in the light of assessment findings within the Department of Computer Science. Specific measurement implementation includes:

Examinations: Student ability will be assessed via examinations. Copies of selected examinations will be collected from individual faculty members for future inspection by the Assessment Committee. (each semester)

Written Class Assignments, Lab Reports, and Research Reports: Copies of selected written class assignments, lab reports, and research reports will be collected from individual faculty members for future inspection by the Assessment Committee. (each semester)

4000-Level Course Oral and Written Presentations – Copies of selected presentations and oral reviews will be collected from individual faculty for future inspection by Assessment Committee. (each semester) Students are encouraged to participate in external design competitions where they are judged relative to their peers from other institutions. (ongoing)
Senior Level Course Surveys and Senior Exit Interviews: A senior level course survey and exit interview will be conducted each term to solicit input from graduating seniors on a self-assessment of their education, on their concerns with the department, and their ideas for possible curricular improvements. The undergraduate coordinator will administer the survey in conjunction with the graduation audit check out.

Alumni Surveys: An alumni survey will be mailed to alumni via the departmental newsletter on an annual basis. Survey will solicit input from alumni on job promotions, success in graduate schools, job satisfaction, etc. Results will be provided to the Assessment Committee for review.
Department of Computer Science
Bachelor of Science in Computer Science
Intended Learning Outcomes and Assessment Methods

Intended Learning Outcomes

<table>
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<tr>
<th>Assessment Methods</th>
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<td>Alumni Surveys</td>
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</table>

*Note: Material collected from any one course may not provide a basis for assessing mastery of all 12 learning outcomes. However, material collected from required courses will cover all 12 learning outcomes.
Part 1. Assessment Procedures

As described in our assessment plan, the Computer Science program was assessed by examining learning outcomes, testing instruments, and student performance in selected courses from the curriculum. The data that was used was collected from the faculty for all courses taught during the academic year.

The original plan did not describe a data reduction strategy, which we now describe. The average assessment of the goal was evaluated by a weighted average of the professor’s assessment of the learning outcomes for each course. The weights were the predicted profile or prior estimate of emphasis for each course described in the super matrix of learning outcomes. In order to control for the effects of the assessment method on the scores the most representative score was chosen for each goal.

\[ \frac{\sum_{i} W_i G_i}{\sqrt{\sum_{i} G_i \sum_{i} W_i}} \]

where W is the a-priori estimate of emphasis from the learning outcome and G is the instructor’s assessment of achieving the learning outcomes in the course. This average will be maximized when the assessment is strongly correlated with the a-priori estimate of emphasis.

Part 2. Achievement of Departmental Student Learning Objectives

The data used for our analysis to describe achievement of our learning outcomes are given in the appendix. The undergraduate assessment is based on the 2000, 3000, and 4000 level courses.

The results given in the table below show how closely our overall program meets the expected learning outcomes. This is derived from the individual instructor’s assessments given in the appendix and by the process described in Part 1 of our report. From this, we can conclude that the program is meeting most of its expected learning outcomes. However, we are able to identify weaknesses in the following student learning outcomes: Discrete Mathematics, Hardware Systems, and Computer Organization and Programming.

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Weighted average (perfect score is 1.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>0.913</td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.874</td>
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<tr>
<td>Critical Thinking</td>
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<td>Contemporary Issues</td>
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<tr>
<td>Quantitative Literacy</td>
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<td>Course</td>
<td>Weight</td>
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<td>--------------------------------------</td>
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</tr>
<tr>
<td>Technology</td>
<td>0.991</td>
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<tr>
<td>Algorithm Design and Analysis</td>
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<tr>
<td>Discrete Mathematics</td>
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<tr>
<td>Computer Systems Development</td>
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<td>Programming Skills</td>
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<tr>
<td>Hardware Systems</td>
<td>0.750</td>
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<tr>
<td>Computer Organization and Programming</td>
<td>0.784</td>
</tr>
</tbody>
</table>

Part 3. Changes to Procedures or Curriculum Based on Assessment:

Changes to procedures:

1. We propose to adjust the weights to produce an a-posteriori estimate of the relative contributions to the learning outcomes of each course and thus improve the accuracy of the assessment.

2. We propose to use a sampling of representative courses for our assessment analysis. These courses will cover any path of course selections that a student may follow. We will still collect assessment data from faculty for all courses taught.

3. We propose to modify the course assessment data sheet. The revised form is given on the next page.
Assessment Report for a Classroom Taught Course

Course Number:  
Course Title:  
Term Taught:  

Fill in chart with numeric score 1-4 and N/A as defined

1 - Poor  2 - Satisfactory  3 - Good  4 - Excellent

<table>
<thead>
<tr>
<th>Assessment Methods</th>
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<td>Computer Systems Development</td>
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<td>Computer Organization and Programming</td>
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Professor’s assessment of the course:

Professor’s suggestions to modify course or its assessment:
Evidence of student weakness in learning outcomes and proposed changes to curriculum addressing these problems:

1. There is a general weakness in discrete mathematics, hardware systems, and computer organization and programming, resulting in more class time spent on compensating weaknesses. (See correlation scores in the table on page 2 of this report.) The low values for hardware systems and computer organization are reflective of the low values for discrete mathematics.

   Proposed changes to curriculum:
   a. Incorporate more real-world examples (at least more than in textbooks) in teaching allowing better student comprehension in hardware systems and computer organization.
   b. Explore possibilities to modify the curriculum that will supplement the deficiencies students have in discrete mathematics. This includes either introducing a new course at the 3000 level or modifying existing 3000 level courses.
   c. Textbook choice should be revised for certain courses since they do not contain sufficient number of examples.
   d. Certain courses (like Windows programming) should be frequently (almost each year) updated in order to be synchronized with changes in the best programming practices.

2. Professors’ comments suggest that students’ communications skills need improvement.

   Proposed changes to curriculum:
   a. Encourage faculty to change syllabi to include group student projects in their courses.
   b. Also encourage faculty to have students in 4000 level courses submit written reports and oral presentations.
   c. Encourage students to turn the class projects into paper submissions/publications.

Part 4. Changes in Department’s Assessment Goals

There are no proposed changes at this time.
Part 1. Assessment Procedures:

As described in our assessment plan, the Computer Science program was assessed by examining course objectives, testing instruments and student performance in selected courses from the curriculum. The data that was used was collected from the faculty for all courses taught during the academic year. In addition to these course-specific assessment methods, the success of the master’s program is demonstrated by the list of student defenses and publications.

The original plan did not describe a data reduction strategy, which we now describe. The average assessment of the goal was evaluated by a weighted average of the professor’s assessment of the course. The weights were the predicted profile or prior estimate of emphasis for each course described in the super matrix of learning outcomes. In order to control for the effects of the assessment method on the scores the most representative score was chosen for each goal.

\[
\frac{\sum_{i} W_i G_i}{\sqrt{\sum_{i} G_i \sum_{i} W_i}}
\]

The weighted average is defined by: \(\sum_{i} W_i G_i\) where \(W\) is the a-priori estimate of emphasis from the learning outcome and \(G\) is the instructor’s assessment of the course. This average will be maximized when the assessment is strongly correlated with the a-priori estimate of emphasis.

Part 2. Achievement of Departmental Student Learning Objectives:

The data used for our analysis to describe achievement of our learning outcomes are given in the appendix. The master’s degree assessment is based on the 4000/6000 and 8000 level courses and includes information about defenses and publications. There will be some overlap in the data between different programs because an individual course such as a cross-listed 4000/6000 class can have undergraduate, masters, and Ph.D. students. Similarly a paper may have undergraduate, masters and Ph.D. students as authors.

The data in the appendix consist of the following:

1) list of student publications
2) list of masters defenses
3) course assessments.
The results given in the table below show how closely each course correlates to students achieving both the general GSU learning outcomes, as well as our program specific learning goals. This is derived from the individual instructor’s assessments given in the appendix and by the process described in Part 1 of our report. From this, we can clearly see that the department is meeting its expected learning outcomes.

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Weighted average (perfect score is 1.0)</th>
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</thead>
<tbody>
<tr>
<td>Communication</td>
<td>0.948</td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.906</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>0.998</td>
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<td>Contemporary Issues</td>
<td>0.902</td>
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<td>Quantitative Literacy</td>
<td>0.874</td>
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<td>Technology</td>
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<tr>
<td>Algorithm Design and Analysis</td>
<td>0.921</td>
</tr>
<tr>
<td>Discrete Mathematics</td>
<td>0.719</td>
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<tr>
<td>Computer Systems Development</td>
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<td>Programming Skills</td>
<td>0.894</td>
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<tr>
<td>Hardware Systems</td>
<td>0.866</td>
</tr>
<tr>
<td>Computer Organization and Programming</td>
<td>0.728</td>
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</tbody>
</table>

Summarization of publications: 20 publications in refereed conferences and journals.

Summarization of defenses: 23 M. S. Theses defenses and 4 M. S. Project defenses.

**Part 3. Changes to Procedures or Curriculum Based on Assessment:**

Changes to procedures:

1. We propose to adjust the weights to produce an a-posteriori estimate of the relative contributions of each course and thus improve the accuracy of the assessment.

2. We propose to use a sampling of representative courses for our assessment analysis. These courses will cover any path of course selections that a student may follow. We will still collect assessment data from faculty for all courses taught.

3. We propose to modify the course assessment data sheet. The revised form is given on the next page.
Assessment Report for a Classroom Taught Course

Course Number:
Course Title:
Term Taught:

Fill in chart with numeric score 1-4 and N/A as defined

1 - Poor   2 - Satisfactory   3 - Good   4 - Excellent

<table>
<thead>
<tr>
<th>Assessment Methods</th>
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<td>Examinations</td>
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<td>Written Assignments, Lab Reports, or Research Reports</td>
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<td>6000 / 8000 Level Course Oral/Written Presentations</td>
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</tbody>
</table>

Professor’s assessment of the course:

Professor’s suggestions to modify course or its assessment:
Changes to curriculum:

1. Incorporate more real-world examples (at least more than in textbooks) in teaching allowing better student comprehension.

2. Certain courses (like Windows programming) should be frequently (almost each year) updated in order to be synchronized with changes in the best programming practices.

3. Students should be strongly encouraged to turn the class projects into paper submissions/publications.

The most common individual instructors’ comments include the following:

1. There is a general weakness in discrete mathematics and theoretical algorithms preparation resulting in more class time spent on compensating weaknesses.

2. Textbook choice should be revised for certain courses since they do not contain sufficient number of examples.

3. Group student projects are really good for improving communication skills and achieving research results but make difficult to fairly grade individual student effort and therefore should be used for grading with caution.

**Part 4. Changes in Department’s Assessment Goals:**

There are no proposed changes at this time.
Part 1. Assessment Procedures:

As described in our assessment plan, the Computer Science program was assessed by examining course objectives, testing instruments and student performance in selected courses from the curriculum. The data that was used was collected from the faculty for all courses taught during the academic year. In addition to these course-specific assessment methods, the success of the Ph. D. program is demonstrated by the list of student defenses and publications.

The original plan did not describe a data reduction strategy, which we now describe. The average assessment of the goal was evaluated by a weighted average of the professor’s assessment of the course. The weights were the predicted profile or prior estimate of emphasis for each course described in the super matrix of learning outcomes. In order to control for the effects of the assessment method on the scores the most representative score was chosen for each goal.

The weighted average is defined by:

\[
\frac{\sum_{i} W_i G_i}{\sqrt{\sum_{i} G_i \sum_{i} W_i}}
\]

where W is the a-priori estimate of emphasis from the learning outcome and G is the instructor’s assessment of the course. This average will be maximized when the assessment is strongly correlated with the a-priori estimate of emphasis.

Part 2. Achievement of Departmental Student Learning Objectives:

The data used for our analysis to describe achievement of our learning outcomes are given in the appendix. The Ph.D. assessment is based on the 4000/6000 and 8000 level courses and includes information about defenses and publications. There will be some overlap in the data because an individual course such as a cross-listed 4000/6000 class can have undergraduate, masters, and Ph.D. students. Similarly a paper may have undergraduate, masters and Ph.D. students as authors.

The data in the appendix consist of the following:
1) list of student publications
2) list of Ph.D. dissertations
3) list of Ph.D. proposal defenses
4) course assessments.

The results given in the table below show how closely each course correlates to students achieving both the general GSU learning outcomes, as well as our program specific learning goals. This is derived from the individual instructor’s assessments given in the appendix and by the process
described in Part 1 of our report. From this, we can clearly see that the department is meeting its expected learning outcomes.

<table>
<thead>
<tr>
<th>Course</th>
<th>Weighted average</th>
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<tr>
<td>6820</td>
<td>0.87432562</td>
</tr>
</tbody>
</table>

We could not derive a correlation for the 8000 level classes, since we had not performed a gap analysis of learning outcomes for these courses.

Summarization of publications: 3 book chapters, 2 journal papers, and 67 refereed conference papers.

Summarization of defenses: 2 dissertation defenses and 9 proposal defenses

Summarization of Qualifying Exam: 9 out of 12 students passed the Qualifying Exam during the 04-05 academic year.

**Part 3. Changes to Procedures or Curriculum Based on Assessment:**

Changes to procedures:

1. We propose to adjust the weights to produce an a-posteriori estimate of the relative contributions of each course and thus improve the accuracy of the assessment.

2. We propose to use a sampling of representative courses for our assessment analysis. These courses will cover any path of course selections that a student may follow. We will still collect assessment data from faculty for all courses taught.

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</table>

Professor’s assessment of the course:

Professor’s suggestions to modify course or its assessment:
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The most common individual instructors’ comments include the following:

1. There is a general weakness in discrete mathematics and theoretical algorithms preparation resulting in more class time spent on compensating weaknesses.

2. Textbook choice should be revised for certain courses since they do not contain sufficient number of examples.

3. Group student projects are really good for improving communication skills and achieving research results but make difficult to fairly grade individual student effort and therefore should be used for grading with caution.

Part 4. Changes in Department’s Assessment Goals:

There are no proposed changes at this time.
Appendix D2: Current Course Syllabi for All Approved Writing Intensive Courses

The Department of Computer Science does not currently offer any approved Writing Intensive courses.
Appendix D3: Degree Requirements

Undergraduate Programs Offered:

Bachelor of Science in Computer Science
- Concentration in Computer Software Systems
- Concentration in Databases and Knowledge-based Systems
- Concentration in Graphics and Human-Computer Interaction
- Concentration in Hardware Systems
- Concentration in Networks and Parallel and Distributed Computing
- Concentration in Theoretical Computer Science

Minor in Computer Science

Computer science is the systematic exploration of all aspects of computation. Computer science as a discipline seeks to build a scientific foundation for topics such as computer design, computer programming and software, information processing, algorithmic solutions to problems, and the algorithmic process itself. Computer science provides underpinnings for today’s applications in industry, science, government, and business and prepares the foundation for tomorrow’s applications in ubiquitous computing, medical cures for diseases, and instant access to information by every one.

The B.S. degree program in computer science provides preparation in the fundamental principles and processes of computation and training in applying these principles in application areas in industry, science, government, and business. The student completes a basic group of required courses in the early stages and chooses courses from several concentrations in the later stages to provide for appropriate breadth and depth of knowledge in the discipline. In parallel, the student takes relevant courses in mathematics and physics that complement the study of computer science.

A B.S. degree in computer science provides a good foundation for advanced studies at the M.S. or Ph.D. level as well as for careers in industry, science, government, and business. To plan the major according to particular goals, students are encouraged to consult with an adviser in the department. Majors who are interested in having a paid work experience related to their area of study may contact the university’s Office of Cooperative Education, which coordinates the university’s cooperative education programs.

The courses are structured, and the department enforces the prerequisites for its courses. Students are urged to check and take the prerequisites for computer science courses and any computer science requirement as listed by their major department/school/institute. Refer any questions to that major department/school/institute or to the Department of Computer Science.

Program Academic Regulations

A minimum grade of C is required in all mathematics and computer science courses and all 3000 level or above courses that are used to fulfill the undergraduate programs of this department.

As part of the core curriculum, students must receive credit for the three calculus courses: Math 2211, Math 2212, and Math 2215. (When counting the number of semester hours in Areas A, D, and F, only 3 of the 4 credit hours of each calculus course will be counted in Area A and/or D. The fourth hour, or the “rollover hour,” will be counted in Area F.)
Prerequisites and co-requisites are strictly enforced in all computer science courses. Students must maintain a 2.3 Georgia State University GPA to take Computer Science courses numbered 3000 or above.

Program Degree Requirements

In addition to the Program Degree Requirements, students must fulfill the College of Arts and Sciences Degree Requirements and the University Degree Requirements.

B.S. in Computer Science

Areas A-E: Core Curriculum Recommendations
1. Required course:
   - Math 1113 Precalculus, or higher level math course (3)
2. Required course:
   - Math 2211 Calculus of One Variable I (or a higher level mathematics course) (4)
   - Phys 2211K Principles of Physics I (4)
   - Phys 2212K Principles of Physics II (4)

Area F: Courses Appropriate to the Major Field (18)
1. Required Course(s): Select the course(s) not taken in Area A or D. (13-17)
   - Math 2212 Calculus of One Variable II (4)
   - Math 2215 Multivariate Calculus (4)
   - Math 2420 Discrete Mathematics (3)
   - CSc 2010 Introduction to Computer Science (3)
   - CSc 2310 Principles of Computer Science (3)
2. Select additional courses to complete 18 hours in Area F. (0-4)

Area G: Major Requirements (60)
1. In addition to the courses placed in the core curriculum, such as Phys 2211K and 2212K, all computer science majors must complete the following courses. (13)
   a. Math 3030 (3);
   b. one mathematics course selected from the following list for three (3) hours: Math 4211, Math 4460, Math 4455, Math 4610, Math 4620, Math 4751;
   c. Phys 3500 (3);
   d. for a total of four (4) hours, select Phys 3401 (4) or Phys 4700 (4) or select one of the following pairs of course and lab combinations:
      - Phys 3800 (3) and Phys 4030 (1);
      - Phys 3800 (3) and Phys 4050 (1);
   Math 2420 and Math 2215 are prerequisites for Math 3030. Phys 2212K is a prerequisite for Phys 3500. A note for computer science majors transferring to Georgia State University: Board of Regents’ rules may have required Georgia State University to award credit
for Math 2420, Math 2215, and/or Phys 2212K even though a student did not take this course at the sending institution. Math 3030 and Phys 3500 are demanding courses, and the Department of Computer Science believes that there is almost no chance of passing them if one has not taken the proper prerequisites. Transfer students are strongly advised to take all prerequisites.

2. Computer Science Requirements (25)
   CSc 2311 Principles of Programming II (3)
   CSc 3210 Computer Organization and Programming (3)
   CSc 3410 Data Structures (3)
   CSc 4210 Computer Architecture (4)
   CSc 4330 Programming Language Concepts (4)
   CSc 4350 Software Engineering (4)
   CSc 4520 Design and Analysis of Algorithms (4)

3. For a total of sixteen (16) hours, select two or three courses from within one of the following concentrations and exactly two additional courses from among the courses in the other concentrations.

**Computer Software Systems Concentration**
- CSc 3320 System-Level Programming (3)
- CSc 4110 Introduction to Embedded Systems (4)
- CSc 4320 Operating Systems (4)
- CSc 4340 Introduction to Compilers (4)
- CSc 4380 Windowing Systems Programming (4)
- CSc 4640 Fundamentals of Bioinformatics (4)
- CSc 4830 System Simulation (4)

and other 4000 level courses approved by the Department

**Databases and Knowledge-based Systems Concentration**
- CSc 3320 System-Level Programming (3)
- CSc 4260 Digital Image Processing (4)
- CSc 4310 Parallel and Distributed Computing (4)
- CSc 4360 Network-Oriented Software Development (4)
- CSc 4640 Fundamentals of Bioinformatics (4)
- CSc 4710 Database Systems (4)
- CSc 4810 Artificial Intelligence (4)

and other 4000 level courses approved by the department

**Graphics and Human-Computer Interaction Concentration**
- CSc 4260 Digital Image Processing (4)
- CSc 4380 Windowing Systems Programming (4)
- CSc 4720 Human-Computer Interaction (4)
- CSc 4730 Scientific Visualization (4)
- CSc 4820 Computer Graphics Algorithms (4)
- CSc 4840 Computer Graphics Imaging (3)
- CSc 4841 Computer Animation (3)

and other 4000 level courses approved by the Department
Hardware Systems Concentration

CSc 4110  Introduction to Embedded Systems Laboratory (4)
CSc 4220  Computer Networks (4)
CSc 4230  VLSI Design (4)
CSc 4250  VLSI CAD and Computer Architecture Lab (4)
CSc 4270  Introduction to Digital Signal Processing (4)
CSc 4310  Parallel and Distributed Computing (4)

and other 4000 level courses approved by the Department

Networks and Parallel and Distributed Computing Concentration

CSc 3320  System-Level Programming (3)
CSc 4220  Computer Networks (4)
CSc 4270  Introduction to Digital Signal Processing (4)
CSc 4310  Parallel and Distributed Computing (4)
CSc 4320  Operating Systems (4)
CSc 4360  Network-Oriented Software Development (4)
CSc 4830  System Simulation (4)

and other 4000 level courses approved by the Department

Theoretical Computer Science Concentration

CSc 4310  Parallel and Distributed Computing (4)
CSc 4340  Introduction to Compilers (4)
CSc 4510  Automata (4)
CSc 4620  Numerical Analysis II (3) if not taken as Math 4620 in item 1.b above

and other 4000 level courses approved by the Department

4. Select 6 hours in additional courses as electives. (6)

3000 or above level computer science courses or others approved by the department.

Area H: Minor and Additional Courses

1. Students earning a B.S. in the Department of Computer Science are not required to complete a minor.

2. Additional courses must be taken as electives to complete a minimum of 120 semester hours, exclusive of 1000/2000 physical education, health or military science courses.

Minor in Computer Science

Students choosing to minor in computer science should complete CSc 2311 and 3410 and nine hours of additional computer science courses at the 3000 level or above. Students should check prerequisites carefully before enrolling in courses at the 3000 level and above. Consultation with an adviser in computer science is recommended. Students majoring in mathematics may not include CSc 4610 or 4620 in the minor.
Graduate Programs Offered:

Master of Science in Computer Science
Concentration in Bioinformatics

Doctor of Philosophy in Computer Science
Concentration in Bioinformatics

The Department of Computer Science offers a program leading to the Doctor of Philosophy (Ph.D.) degree in Computer Science. A bioinformatics option is available. A baccalaureate or master’s degree in computer science, or its equivalent, is required for admission. The department encourages applications from high-tech and teaching professionals and those with non-computer science, but closely related degrees. Pursuing the Ph.D. program part-time is possible, so working professionals are encouraged to consider applying. Competitive financial aid is available for full-time Ph.D. students along with tuition waivers.

The M.S. degree program in computer science provides students with advanced training in the fundamental principles and processes of computation. The program focuses on the technical aspects of both software and hardware. Computer science faculty are actively engaged in a wide variety of research endeavors. Research efforts are concentrated in artificial intelligence and neural nets, computer architecture, database, graphics and visualization, networks, parallel and distributed computing, programming languages, simulation, and software engineering. Graduate laboratory, research, and teaching assistantships are available to graduate students.

The computer science department accepts applications for the M.S. program each semester and for the Ph.D. program only fall semester with the general deadlines applying. However, in order to be considered for graduate assistantships, applicants must have all application materials in by February 15 for fall semester and by August 15 for spring semester. No financial aid is offered to new applicants for summer semesters.

Hard copies of the forms for letters of recommendations, statement of background and goals, and financial aid may be obtained from the department, or downloaded from the department’s website at http://www.cs.gsu.edu.

M.S. Admission Requirements

In addition to the general requirements of the College of Arts and Sciences, the Department of Computer Science has the following requirements:

1. A baccalaureate degree in computer science, or its equivalent. While we welcome capable students with non-computer-science degrees, they may need some foundation courses.
2. A supplemental application for computer science.
3. A statement of background and goals.
4. Three letters of recommendations from individuals who can evaluate the applicant’s potential for graduate work in computer science.
M.S. Degree Requirements

1. Foundation coursework: If any of the following foundation courses in Computer Science or Mathematics have not been taken in another program, these must be completed at the earliest. 4000-level foundation courses must be taken as their 6000-level counterparts by graduate students.
   a. Foundation coursework in computer science, with a grade of B or higher in each.
      Data Structures (CSc3410)
      Computer Architecture (CSc4210)
      Operating Systems (CSc4320)
      Programming Languages (CSc4330)
      Software Engineering (CSc4350)
      Automata (CSc4510)
      Design and Analysis of Algorithms (CSc4520)
   b. Foundation coursework in mathematics that includes a standard elementary calculus sequence (Math 2211 and Math 2212) and Discrete Mathematics (Math 2420), with a grade of B or higher in each.

2. CSc8900: Seminar in Computer Science (1 hour). A research training course which must be taken in the first semester.

3. Twenty-four hours of graduate-level courses in the Department of Computer Science, selected in consultation with an academic advisor, and approved by the Director of Graduate Studies, with a grade of B or higher in each course.
   a. Sixteen hours of computer science courses at the 8000-level, exclusive of Research, Thesis Research, and Independent Study courses.
   b. An additional eight hours of graduate-level coursework, exclusive of Research, Thesis Research and Independent Study courses.

4. Thesis/Project (6-8 hours)
   a. Thesis Option: Six hours of Thesis Research (CSC 8999) A thesis committee must be set up no later than two semesters after completing any foundation courses. This work should culminate in the writing of a thesis. The thesis must be defended successfully in an oral examination. This examination will pertain to, but is not limited to, the subject matter of the thesis.
   b. Project Option: Four hours of CSc 8980R in which the student completes a project and an additional four hours of graduate-level coursework in computer science at the 6000 level or above exclusive of Foundation Research, Thesis Research, and Independent Study courses. The project must be supervised by a computer science graduate faculty adviser. The student must write a report on the project and pass an oral final examination given by an ad hoc faculty committee headed by the project adviser. This examination will pertain to, but is not limited to, the subject matter of the project.

Master of Science in Computer Science
Interdisciplinary Emphasis in Bioinformatics

Degree Requirements
1. Foundation Coursework (any that are not done): Math 2211, 2212, 2420, CSc 3410, 4210, 4320, 4330, 4350, 4510, 4520, 4630 with B or better in each.
2. Graduate Coursework (26 hours): Computer Science (12 hours): CSc 8630 and two other 8000-level classroom taught courses. Biology (8 hours): Biol 7800, Molecular Cell Biology; Biol 7810, Molecular Cell Biology Laboratory; and Biol 7900, Genetics; or Biol 6564, Advanced Genetics. Chemistry (3 hours): Chem 6150, Introduction to Biophysical Chemistry. Alternatives to Chem 6150 include Chem 6110 or 6120, or 6600 or 8900-0. Mathematics/Statistics (3 hours): Math 6544, Bio-statistics.

3. Thesis/Project (6-8 hours): 6 hours of CSc 8999 (thesis) or 4 hours of CSc 8980R (project) and an additional classroom taught 6000-level or higher computer science course.

Ph.D. Admission Requirements

In addition to the general requirements of the College of Arts and Sciences, the Department of Computer Science has the following requirements:

- A baccalaureate or master’s degree in computer science or its equivalent. While we welcome capable students with non-computer-science degrees, they may need some foundation courses.
- A supplemental application for computer science.
- A statement of background and goals.
- Three letters of recommendation from individuals who can evaluate the applicant’s potential for Ph.D. work in computer science.
- GRE (General) score.
- Minimum GPA 3.00/4.00.

Ph.D. Degree Requirements

Note: Must maintain 3.5 GPA in coursework at Georgia State University.

I. Foundation Coursework. If any of the following foundation courses in computer science or mathematics has not been taken in another program, these must be completed at the earliest. 4000-level foundation courses must be taken as their 6000-level counterparts by graduate students.

a. Foundation coursework in computer science with a grade of B or higher in each.
   CSc 3410 Data Structures
   CSc 4210 Computer Architecture
   CSc 4320 Operating Systems
   CSc 4330 Programming Languages
   CSc 4350 Software Engineering
   CSc 4510 Automata
   CSc 4520 Design and Analysis of Algorithms

b. Foundation coursework mathematics that includes a standard elementary calculus sequence (Math 2211 and Math 2212) and Discrete Mathematics (Math 2420), with at least a “B” in each.

II. Ph.D. Coursework (48 hours)
    Of these 48 hours, no more than 12 hours can be taken at the 6000 level. These 12 hours exclude any of the foundation courses previously listed.
    - CSc 9990: Seminar in Computer Science (1 hour)
• A research training course which must be taken in the first semester

Required Coursework (24 hours)
Choose six of the following seven topics (take classroom taught CSc courses):
1. Algorithms
2. Computer Architecture
3. Operating Systems
4. Parallel and Distributed Computing
5. Programming Languages
6. Software Engineering
7. Theory of Computation

Electives (23 hours)
1. To be chosen in concert with dissertation committee and approved by dissertation committee. Should reflect student interest, coursework related to research area, etc.
2. A maximum of 11 hours can be directed study or research.
3. A minimum of three hours and a maximum of nine hours from outside the department.

III. Qualifying Examination (by third semester, excluding summers)
• Offered each fall (October) and spring (April); written examination.
• Three areas: computer architecture, automata and formal languages, algorithm analysis and design.
• Maximum two attempts: three grades (pass, marginally pass, fail). Must get at least two pass and one marginally pass to qualify.
• Second attempt must be taken at the next available examination date.

IV. Dissertation Committee
• Major adviser plus at least three other members.
• One member must be from outside the department. Major adviser and at least two other members must be computer science graduate faculty.
• To be formed as soon as potential research area and a major adviser has been identified.
• This committee should be consulted to plan electives and possibly required courses to ensure depth in the research area. (If this committee has not been set up, the initial faculty adviser assigned to the student must be consulted.)
• Additional technical writing, mathematics, or computer skill courses may also be suggested by this committee based on the student’s background.

V. Candidacy Examination (within two years of qualifying examination)
The candidacy examination consists of two parts, both administered at around the same time:

Research Proficiency
• To be administered by the dissertation committee to assess the student’s ability to conduct independent research in and around the student’s research area.
• Format and content to be determined by dissertation committee; typically would be a combination of written and oral components in some courses related to the research area and may involve literature surveys and critical reviews.

Research Proposal
• Written proposal on research to be carried out, and an oral presentation to the dissertation committee.
Upon successful completion of the candidacy examination, a student is declared a candidate for the doctoral degree. An unsuccessful result in the candidacy examination would require the student to take the candidacy examination a second and last time within three semesters (excluding summer).

VI. Dissertation (24 hours of CSc 9999).
VII. Written dissertation and oral defense.

Ph.D. Degree Requirements Bioinformatics Concentration

Degree Requirements
I. Foundation Coursework (any that are not done): Math 2211, 2212, 2420, CSc 3410, 4210, 4320, 4330, 4350, 4510, 4520, 4630 with B or better in each. 4000-level foundation courses must be taken at the 6000-level counterparts by graduate students.

II. Ph.D. Coursework (48 hours): Of these 48 hours, no more than 8 CSc hours can be taken at the 6000-level. These 8 hours exclude any of the foundation courses previously listed. No more than 5 hours can be directed study or research.

CSc 9900: Seminar in Computer Science (1 hour).

Required Coursework (24 hours): Choose six of the following seven topics (take one classroom taught CSc course in each topic): Algorithms, Computer Architecture, Operating Systems, Parallel and Distributed Computing, Programming Languages, Software Engineering, and Theory of Computation.


III. Qualifying Examination: same as in regular Ph.D. requirements.

IV. Dissertation Committee: same as in regular Ph.D. requirements except one member must be a biologist or chemist.

V. Candidacy Examination: same as in regular Ph.D. requirements.

VI. Dissertation (24 hours of CSc 9999): Research should involve a current topic in bioinformatics.

VII. Written Dissertation and Oral Defense.
Appendix D4: Courses Offered for Past Three Years

DEPARTMENTAL COURSE OFFERINGS BY FISCAL YEAR, COURSE LEVEL, # OF SECTIONS, # OF STUDENTS AND AVERAGE # OF STUDENTS

FISCAL YEAR 2004

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<th>FY</th>
<th>LEVEL</th>
<th>COURSE</th>
<th># OF SECTIONS</th>
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Appendix D5: Summary Results of Surveys

ACADEMIC PROGRAM REVIEW
DEPARTMENT OF COMPUTER SCIENCE
UNDERGRADUATE STUDENT SURVEY FINDINGS REPORT
April 2006

N = 107 (response rate = 30.0 percent)
University (23 departments) N = 3286 (response rate = 42.7 percent)

Table 1

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<th>Dept. Mean*</th>
<th>SD</th>
<th>Univ. Mean*</th>
<th>SD</th>
<th>% Rank</th>
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<td>N</td>
<td>N</td>
<td>N %</td>
<td>N %</td>
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<td>Faculty members in the department are interested in the academic development of undergraduate majors.</td>
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<td>I feel the undergraduate program is preparing me for my professional career and/or further study.</td>
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<td>There is open communication between faculty and undergraduate students about student concerns.</td>
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*Mean range: 1=strongly disagree to 5=strongly agree; “Don’t know/not applicable” excluded from analysis.
Faculty members in the department are interested in the academic development of undergraduate majors.

The undergraduate program of study is academically challenging.

Faculty in the department are appropriately prepared for their courses.

I feel the undergraduate program is preparing me for my professional career and/or further study.

There is open communication between faculty and undergraduate students about student concerns.

Class size is suitable for effective learning.
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*Mean range: 1=poor to 5=excellent; “Don’t know/not applicable” excluded from analysis.

Graph 7

Graph 8
Availability of faculty to students outside the classroom

Effectiveness of teaching methods used by faculty

Procedures used to evaluate student performance

Frequency of undergraduate major course offerings

Variety of undergraduate major course offerings

Clarity of degree requirements
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<td>13</td>
<td>12.3</td>
<td>19</td>
<td>17.9</td>
<td>31</td>
<td>29.2</td>
<td>28</td>
</tr>
<tr>
<td>students enrolled in courses.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The department's reputation was a significant</td>
<td>36</td>
<td>34.3</td>
<td>26</td>
<td>24.8</td>
<td>29</td>
<td>27.6</td>
<td>6</td>
</tr>
<tr>
<td>factor in my decision to attend Georgia State.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The department makes good use of technology in</td>
<td>14</td>
<td>13.2</td>
<td>26</td>
<td>24.5</td>
<td>37</td>
<td>34.9</td>
<td>20</td>
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<td>its courses.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>The undergraduate curriculum exposes me to a</td>
<td>17</td>
<td>16.0</td>
<td>19</td>
<td>17.9</td>
<td>40</td>
<td>37.7</td>
<td>23</td>
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<tr>
<td>variety of current technologies.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The department offers opportunities to get</td>
<td>22</td>
<td>20.8</td>
<td>25</td>
<td>23.6</td>
<td>42</td>
<td>39.6</td>
<td>11</td>
</tr>
<tr>
<td>involved in undergraduate research.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*Mean range: 1=strongly disagree to 5=strongly agree
The department has adequate laboratories for students enrolled in courses.

The department's reputation was a significant factor in my decision to attend Georgia State.

The department makes good use of technology in its courses.

The undergraduate curriculum exposes me to a variety of current technologies.

The department offers opportunities to get involved in undergraduate research.
N = 40 (response rate = 20.6 percent)
University (22 departments) N = 1375 (response rate = 34.0 percent)

Table 1

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly agree</th>
<th>Don't know/Not applicable</th>
<th>Dept. Mean*</th>
<th>SD</th>
<th>Univ. Mean*</th>
<th>SD</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Faculty members in the department were interested in the academic development of undergraduate majors.</td>
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<td>10</td>
<td>25.0</td>
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<td>32.5</td>
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<td>7</td>
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<td>12</td>
<td>30.0</td>
<td>15</td>
<td>37.5</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>Faculty in the department were appropriately prepared for their courses.</td>
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<td>6</td>
<td>15.0</td>
<td>15</td>
<td>37.5</td>
<td>11</td>
<td>27.5</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>I feel the undergraduate program prepared me for my professional career and/or further study.</td>
<td>5</td>
<td>12.5</td>
<td>10</td>
<td>25.0</td>
<td>9</td>
<td>22.5</td>
<td>11</td>
<td>27.5</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>There was open communication between faculty and undergraduate students about student concerns.</td>
<td>1</td>
<td>2.5</td>
<td>4</td>
<td>10.0</td>
<td>12</td>
<td>30.0</td>
<td>16</td>
<td>40.0</td>
<td>7</td>
<td>17.5</td>
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<tr>
<td>Class size was suitable for effective learning.</td>
<td>1</td>
<td>2.5</td>
<td>2</td>
<td>5.0</td>
<td>9</td>
<td>22.5</td>
<td>18</td>
<td>45.0</td>
<td>10</td>
<td>25.0</td>
</tr>
</tbody>
</table>

*Mean range: 1=strongly disagree to 5=strongly agree; "Don't know/not applicable" excluded from analysis.

Graph 1

Faculty members in the department are interested in the academic development of undergraduate majors.

Graph 2

The undergraduate program of study is academically challenging.
Faculty in the department are appropriately prepared for their courses.

I feel the undergraduate program is preparing me for my professional career and/or further study.

There is open communication between faculty and undergraduate students about student concerns.

Class size is suitable for effective learning.
Table 2

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Excellent</th>
<th>Don't know/Not applicable</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>Mean*</td>
<td>SD</td>
<td>Mean*</td>
</tr>
<tr>
<td>Department of Computer Science Self Study 2006</td>
<td>5.0</td>
<td>0.0</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>0.0</td>
<td>3.28</td>
<td>1.07</td>
<td>3.57</td>
</tr>
<tr>
<td>Career advisement available in the department</td>
<td>7.5</td>
<td>0.0</td>
<td>15</td>
<td>5</td>
<td>9</td>
<td>4.0</td>
<td>2.57</td>
<td>1.03</td>
<td>3.00</td>
</tr>
<tr>
<td>Availability of faculty to students outside the classroom</td>
<td>15.0</td>
<td>5</td>
<td>13</td>
<td>15</td>
<td>1</td>
<td>1.0</td>
<td>3.50</td>
<td>1.03</td>
<td>3.87</td>
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<td>Effectiveness of teaching methods used by faculty</td>
<td>17.5</td>
<td>10</td>
<td>13</td>
<td>5</td>
<td>1</td>
<td>1.0</td>
<td>3.00</td>
<td>1.06</td>
<td>3.99</td>
</tr>
<tr>
<td>Procedures used to evaluate student performance</td>
<td>22.5</td>
<td>12</td>
<td>13</td>
<td>3</td>
<td>2</td>
<td>1.0</td>
<td>3.15</td>
<td>1.04</td>
<td>3.78</td>
</tr>
<tr>
<td>Frequency of undergraduate major course offerings</td>
<td>22.5</td>
<td>3</td>
<td>13</td>
<td>2</td>
<td>5</td>
<td>1.0</td>
<td>3.00</td>
<td>1.10</td>
<td>3.55</td>
</tr>
<tr>
<td>Variety of undergraduate major course offerings</td>
<td>17.5</td>
<td>13</td>
<td>13</td>
<td>2</td>
<td>5</td>
<td>1.0</td>
<td>3.00</td>
<td>1.17</td>
<td>3.62</td>
</tr>
<tr>
<td>Clarity of degree requirements</td>
<td>25.0</td>
<td>10</td>
<td>11</td>
<td>5</td>
<td>0</td>
<td>0.0</td>
<td>4.11</td>
<td>.894</td>
<td>4.04</td>
</tr>
</tbody>
</table>

*Mean range: 1=poor to 5=excellent; “Don’t know/not applicable” excluded from analysis.

Graph 7

Graph 8

Academic advisement available in the department

Career advisement available in the department
Availability of faculty to students outside the classroom

Effectiveness of teaching methods used by faculty

Procedures used to evaluate student performance

Frequency of undergraduate major course offerings

Variety of undergraduate major course offerings

Clarity of degree requirements
Table 3

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>9</td>
<td>25.7</td>
</tr>
<tr>
<td>Male</td>
<td>26</td>
<td>74.3</td>
</tr>
</tbody>
</table>

Graph 15

Supplemental Questions – Department of Computer Science

Table 4

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly agree</th>
<th>Don't know/Not applicable</th>
<th>Dept.</th>
<th>Mean*</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>The department provided adequate computer laboratories for students enrolled in courses.</td>
<td>5</td>
<td>13.9</td>
<td>6</td>
<td>16.7</td>
<td>13</td>
<td>36.1</td>
<td>10</td>
<td>27.8</td>
</tr>
<tr>
<td>The department is well-known among the people with whom I work.</td>
<td>11</td>
<td>29.7</td>
<td>8</td>
<td>21.6</td>
<td>14</td>
<td>37.8</td>
<td>4</td>
<td>10.8</td>
</tr>
<tr>
<td>My degree program provided a balance of theory and practice.</td>
<td>5</td>
<td>13.2</td>
<td>12</td>
<td>31.6</td>
<td>13</td>
<td>34.2</td>
<td>8</td>
<td>21.1</td>
</tr>
<tr>
<td>After graduation, I was able to get a job without difficulty.</td>
<td>10</td>
<td>27.0</td>
<td>6</td>
<td>16.2</td>
<td>4</td>
<td>10.8</td>
<td>8</td>
<td>21.6</td>
</tr>
</tbody>
</table>

Mean range: 1=strongly disagree to 5=strongly agree; "Don’t know/not applicable" excluded from analysis.
Graph 16

The department provided adequate computer laboratories for students enrolled in courses.

Graph 17

The department is well-known among the people with whom I work.

Graph 18

My degree program provided a balance of theory and practice.

Graph 19

After graduation, I was able to get a job without difficulty.
<table>
<thead>
<tr>
<th>Job Title</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer application developer</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td>Software developer</td>
<td>3</td>
<td>8.6</td>
</tr>
<tr>
<td>Singer/songwriter</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Net consultant</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Security analyst</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Financial services representative</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Employment assistant</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Consultant</td>
<td>3</td>
<td>8.6</td>
</tr>
<tr>
<td>Projects control engineer</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Network administrator/IT administrator</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td>Assistant store manager</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Intern</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Fast food</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Software engineer</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>Pre-Closing manager</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Systems analyst</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Database developer</td>
<td>1</td>
<td>2.9</td>
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<tr>
<td>Programmer</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Content developer</td>
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<td>2.9</td>
</tr>
<tr>
<td>Manager</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Assistant Banking Center Manager</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>PC Support</td>
<td>1</td>
<td>2.9</td>
</tr>
</tbody>
</table>
N = 62 (response rate = 50.8 percent)
University (26 departments) N = 1861 (response rate = 59.2 percent)

Table 1

<table>
<thead>
<tr>
<th>Faculty members in the department are interested in the academic development of graduate majors.</th>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly agree</th>
<th>Don’t know/Not applicable</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N % N % N % N % N % N % N % N % N % Mean* SD Mean* SD</td>
<td>0 .0 3 4.8 9 14.5 21 33.9 29 46.8 0 .0</td>
<td>4.23 .876</td>
<td>4.13 1.00</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The graduate program of study is academically challenging.</td>
<td>3 4.8 3 4.8 13 21.0 28 45.2 15 24.2 0 .0</td>
<td>3.79 1.02</td>
<td>4.05 1.02</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty in the department are appropriately prepared for their courses.</td>
<td>2 3.2 2 3.2 18 29.0 22 35.5 18 29.0 0 .0</td>
<td>3.84 .995</td>
<td>4.14 .929</td>
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</tr>
<tr>
<td>I feel the graduate program is preparing me for my professional career and/or further study.</td>
<td>1 1.6 5 8.1 15 24.2 24 38.7 16 25.8 1 1.6</td>
<td>3.80 .980</td>
<td>4.06 1.00</td>
<td>15</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>There is open communication between faculty and graduate students about student concerns.</td>
<td>0 .0 5 8.1 12 19.4 20 32.3 23 37.1 2 3.2</td>
<td>4.02 .965</td>
<td>3.82 1.17</td>
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<td>4.19 1.04</td>
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</tr>
</tbody>
</table>

*Mean range: 1=strongly disagree to 5=strongly agree; “Don’t know/not applicable” excluded from analysis.
Faculty in the department are appropriately prepared for their courses.

I feel the graduate program is preparing me for my professional career and/or further study.

There is open communication between faculty and graduate students about student concerns.

Class size is suitable for effective learning.
Table 2

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Excellent</th>
<th>Don't know/Not applicable</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>4</td>
<td>13</td>
<td>28</td>
<td>18</td>
<td>1</td>
<td>1.6</td>
<td>4.02</td>
<td>.806</td>
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<tr>
<td>%</td>
<td>26.7</td>
<td>51.7</td>
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<td>57.1</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>100</td>
<td>100</td>
<td>100</td>
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<td></td>
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<tr>
<td>N</td>
<td>.2</td>
<td>.7</td>
<td>1.3</td>
<td>.8</td>
<td>0.1</td>
<td></td>
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</tr>
<tr>
<td>%</td>
<td>1.6</td>
<td>7.5</td>
<td>13</td>
<td>4.8</td>
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<tr>
<td>N</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>12.9</td>
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<td>21.6</td>
<td>4.03</td>
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<td>3.96</td>
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<td>7.2</td>
<td>15</td>
<td>21.6</td>
<td></td>
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</table>

*Mean range: 1=poor to 5=excellent; "Don't know/not applicable excluded from analysis.

Graph 7

Graph 8
<table>
<thead>
<tr>
<th>Graph 9</th>
<th>Graph 10</th>
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<tbody>
<tr>
<td>Availability of faculty to students outside the classroom</td>
<td>Effectiveness of teaching methods used by faculty</td>
</tr>
<tr>
<td>Poor</td>
<td>2</td>
</tr>
<tr>
<td>0.0%</td>
<td>20.0%</td>
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<table>
<thead>
<tr>
<th>Graph 11</th>
<th>Graph 12</th>
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<tbody>
<tr>
<td>Procedures used to evaluate student performance</td>
<td>Frequency of graduate course offerings</td>
</tr>
<tr>
<td>Poor</td>
<td>2</td>
</tr>
<tr>
<td>0.0%</td>
<td>20.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graph 13</th>
<th>Graph 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variety of graduate course offerings</td>
<td>Clarity of degree requirements</td>
</tr>
<tr>
<td>Poor</td>
<td>2</td>
</tr>
<tr>
<td>0.0%</td>
<td>20.0%</td>
</tr>
</tbody>
</table>
**Table 3**

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>20</td>
<td>36.4</td>
</tr>
<tr>
<td>Male</td>
<td>35</td>
<td>63.6</td>
</tr>
</tbody>
</table>

**Graph 15**

**Supplemental Questions – Department of Computer Science**

**Table 4**

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly agree</th>
<th>Mean*</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>The department has adequate space for graduate student offices.</td>
<td>11 17.7 11 17.7 18 29.0 14 22.6 8 12.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.95</td>
<td>1.28</td>
</tr>
<tr>
<td>The department has adequate computer laboratories for research.</td>
<td>6  9.7 13 21.0 17 27.4 18 29.0 8 12.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.15</td>
<td>1.18</td>
</tr>
<tr>
<td>The department has adequate computer laboratories for students enrolled in courses.</td>
<td>4  6.6 10 16.4 18 29.5 18 29.5 11 18.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.36</td>
<td>1.15</td>
</tr>
<tr>
<td>The department's reputation was a significant factor in my decision to attend Georgia State.</td>
<td>7  11.5 9 14.8 18 29.5 18 29.5 9 14.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.21</td>
<td>1.21</td>
</tr>
<tr>
<td>Graduate assistant stipends are adequate, compared with other computer science departments with which I am familiar.</td>
<td>12  19.7 9 14.8 13 21.3 13 21.3 14 23.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.13</td>
<td>1.44</td>
</tr>
</tbody>
</table>

*Mean range: 1=strongly disagree to 5=strongly agree
The department has adequate space for graduate student offices.

The department has adequate computer laboratories for research.

The department has adequate computer laboratories for students enrolled in courses.

The department's reputation was a significant factor in my decision to attend Georgia State.

Graduate assistant stipends are adequate, compared with other computer science departments with which I am familiar.
N = 12 (response rate = 15.6 percent)  
University (24 departments) N = 1081 (response rate = 46.2 percent)

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly agree</th>
<th>Don't know/Not applicable</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty members in the department were interested in the academic development of graduate majors.</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>8.3</td>
<td>3</td>
<td>25.0</td>
<td>2</td>
<td>16.7</td>
<td>5</td>
</tr>
<tr>
<td>The graduate program of study was academically challenging.</td>
<td>0</td>
<td>.0</td>
<td>4</td>
<td>33.3</td>
<td>3</td>
<td>25.0</td>
<td>3</td>
<td>25.0</td>
<td>2</td>
</tr>
<tr>
<td>Faculty in the department were appropriately prepared for their courses.</td>
<td>0</td>
<td>.0</td>
<td>2</td>
<td>16.7</td>
<td>2</td>
<td>16.7</td>
<td>6</td>
<td>50.0</td>
<td>2</td>
</tr>
<tr>
<td>I feel the graduate program prepared me for my professional career and/or further study.</td>
<td>0</td>
<td>.0</td>
<td>2</td>
<td>16.7</td>
<td>2</td>
<td>16.7</td>
<td>3</td>
<td>25.0</td>
<td>5</td>
</tr>
<tr>
<td>There was open communication between faculty and graduate students about student concerns.</td>
<td>0</td>
<td>.0</td>
<td>1</td>
<td>9.1</td>
<td>2</td>
<td>18.2</td>
<td>6</td>
<td>54.5</td>
<td>2</td>
</tr>
<tr>
<td>Class size was suitable for effective learning.</td>
<td>1</td>
<td>8.3</td>
<td>0</td>
<td>.0</td>
<td>0</td>
<td>.0</td>
<td>7</td>
<td>58.3</td>
<td>4</td>
</tr>
</tbody>
</table>

*Mean range: 1=strongly disagree to 5=strongly agree; "Don't know/not applicable" excluded from analysis.

Graph 1

![Graph 1](image1)

Faculty members in the department are interested in the academic development of graduate majors.

Graph 2

![Graph 2](image2)

The graduate program of study is academically challenging.
Faculty in the department are appropriately prepared for their courses.

I feel the graduate program is preparing me for my professional career and/or further study.

There is open communication between faculty and graduate students about student concerns.

Class size is suitable for effective learning.
### Table 2

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>Don't know/Not applicable</th>
<th>Dept. Mean*</th>
<th>SD</th>
<th>Univ. Mean*</th>
<th>SD</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic advisement available in the department</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>8.3</td>
<td>2</td>
<td>16.7</td>
<td>5</td>
<td>41.7</td>
<td>3</td>
<td>25.0</td>
<td>0</td>
<td>0</td>
<td>3.67</td>
<td>1.23</td>
</tr>
<tr>
<td>Career advisement available in the department</td>
<td>2</td>
<td>16.7</td>
<td>3</td>
<td>25.0</td>
<td>1</td>
<td>8.3</td>
<td>5</td>
<td>41.7</td>
<td>0</td>
<td>1</td>
<td>8.3</td>
<td>3.67</td>
<td>2.62</td>
<td>2.03</td>
</tr>
<tr>
<td>Availability of faculty to students outside the classroom</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>25.0</td>
<td>6</td>
<td>50.0</td>
<td>3</td>
<td>25.0</td>
<td>0</td>
<td>0</td>
<td>4.00</td>
<td>0.739</td>
</tr>
<tr>
<td>Effectiveness of teaching methods used by faculty</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>16.7</td>
<td>9</td>
<td>75.0</td>
<td>1</td>
<td>8.3</td>
<td>0</td>
<td>0</td>
<td>3.92</td>
<td>0.515</td>
</tr>
<tr>
<td>Procedures used to evaluate student performance</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>16.7</td>
<td>3</td>
<td>25.0</td>
<td>4</td>
<td>33.3</td>
<td>2</td>
<td>16.7</td>
<td>1</td>
<td>8.3</td>
<td>3.55</td>
<td>1.03</td>
</tr>
<tr>
<td>Frequency of graduate course offerings</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>16.7</td>
<td>3</td>
<td>25.0</td>
<td>4</td>
<td>33.3</td>
<td>2</td>
<td>16.7</td>
<td>1</td>
<td>8.3</td>
<td>3.17</td>
<td>0.937</td>
</tr>
<tr>
<td>Variety of graduate course offerings</td>
<td>1</td>
<td>8.3</td>
<td>5</td>
<td>41.7</td>
<td>4</td>
<td>33.3</td>
<td>2</td>
<td>16.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.58</td>
<td>0.900</td>
</tr>
<tr>
<td>Clarity of degree requirements</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>8.3</td>
<td>2</td>
<td>16.7</td>
<td>3</td>
<td>25.0</td>
<td>5</td>
<td>41.7</td>
<td>0</td>
<td>0</td>
<td>3.83</td>
<td>1.33</td>
</tr>
</tbody>
</table>

*Mean range: 1=poor to 5=excellent; “Don’t know/not applicable” excluded from analysis.

**Graph 7**

**Graph 8**
Availability of faculty to students outside the classroom

Effectiveness of teaching methods used by faculty

Procedures used to evaluate student performance

Frequency of graduate course offerings

Variety of graduate course offerings

Clarity of degree requirements
Table 3

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>4</td>
<td>36.4</td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>63.6</td>
</tr>
</tbody>
</table>

Graph 15

Supplemental Questions – Department of Computer Science

Table 4

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly agree</th>
<th>Dept.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>The department provided adequate computer laboratories for students enrolled in courses.</td>
<td>1</td>
<td>9.1</td>
<td>1</td>
<td>9.1</td>
<td>4</td>
<td>36.4</td>
</tr>
<tr>
<td>The department is well-known among the people with whom I work.</td>
<td>2</td>
<td>18.2</td>
<td>3</td>
<td>27.3</td>
<td>2</td>
<td>18.2</td>
</tr>
<tr>
<td>My degree program provided a balance of theory and practice.</td>
<td>0</td>
<td>.0</td>
<td>1</td>
<td>9.1</td>
<td>5</td>
<td>45.5</td>
</tr>
<tr>
<td>After graduation, I was able to get a job without difficulty.</td>
<td>1</td>
<td>9.1</td>
<td>0</td>
<td>.0</td>
<td>3</td>
<td>27.3</td>
</tr>
</tbody>
</table>

*Mean range: 1=strongly disagree to 5=strongly agree
Graph 18

My degree program provided a balance of theory and practice.

Graph 19

After graduation, I was able to get a job without difficulty.

Table 5

<table>
<thead>
<tr>
<th>Job Title</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software developer</td>
<td>2</td>
<td>18.2</td>
</tr>
<tr>
<td>Software engineer</td>
<td>5</td>
<td>45.5</td>
</tr>
<tr>
<td>Software programmer</td>
<td>1</td>
<td>9.1</td>
</tr>
<tr>
<td>Associate consultant</td>
<td>1</td>
<td>9.1</td>
</tr>
<tr>
<td>J2EE consultant</td>
<td>1</td>
<td>9.1</td>
</tr>
<tr>
<td>Java developer</td>
<td>1</td>
<td>9.1</td>
</tr>
</tbody>
</table>
N = 17 (response rate = 85.0 percent)  
University (27 departments) N = 588 (response rate = 84.5 percent)

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>0.0 0 0</td>
<td>3 17.6 8 47.1 6 35.3 0 0</td>
<td>4.18 .728 4.22 .845 57</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>6 37.5 6 37.5 0 0</td>
<td></td>
<td>4.13 .806 3.91 .961 61</td>
</tr>
<tr>
<td>Don't know/Not applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholaristic of the faculty in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of required course</td>
<td>0 0 0 4 25.0 6 37.5 6 37.5 0 0</td>
<td></td>
<td>4.13 .806 3.91 .961 61</td>
</tr>
<tr>
<td>offerings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variety of advanced course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>offerings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of clerical staff support</td>
<td>1 5.9 2 11.8 5 29.4 5 29.4 4 23.5 0 0</td>
<td></td>
<td>3.53 1.17 3.63 1.20 39</td>
</tr>
<tr>
<td>Clarity of departmental goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for the next two years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of computer/data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>base software relevant to your</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>work</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Mean range: 1=poor to 5=excellent; “Don’t know/not applicable” excluded from analysis.

Graph 1

Graph 2

Scholarship of the faculty in the department  
Frequency of required course offerings
**Graph 3**

- Variety of advanced course offerings

**Graph 4**

- Level of clerical staff support

**Graph 5**

- Clarity of departmental goals for the next two years

**Graph 6**

- Availability of computer/data base software relevant to your work
## Table 2

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly agree</th>
<th>Don't know/not applicable</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>The department's program of study is academically challenging.</td>
<td>0</td>
<td>.0</td>
<td>1</td>
<td>5.9</td>
<td>3</td>
<td>17.6</td>
<td>8</td>
<td>47.1</td>
<td>5</td>
</tr>
<tr>
<td>Faculty in the department work together toward program goals.</td>
<td>0</td>
<td>.0</td>
<td>1</td>
<td>5.9</td>
<td>0</td>
<td>.0</td>
<td>6</td>
<td>35.3</td>
<td>10</td>
</tr>
<tr>
<td>In our department, faculty feel comfortable expressing different views and opinions.</td>
<td>1</td>
<td>5.9</td>
<td>0</td>
<td>2</td>
<td>11.8</td>
<td>3</td>
<td>17.6</td>
<td>11</td>
<td>64.7</td>
</tr>
<tr>
<td>I have adequate opportunities to influence decisions made in the department about our programs.</td>
<td>0</td>
<td>.0</td>
<td>1</td>
<td>5.9</td>
<td>2</td>
<td>11.8</td>
<td>5</td>
<td>29.4</td>
<td>9</td>
</tr>
<tr>
<td>Guidelines regarding job performance are clear to faculty in the department.</td>
<td>0</td>
<td>.0</td>
<td>1</td>
<td>5.9</td>
<td>0</td>
<td>.0</td>
<td>10</td>
<td>58.8</td>
<td>6</td>
</tr>
</tbody>
</table>

*Mean range: 1=strongly disagree to 5=strongly agree; “Don’t know/not applicable” excluded from analysis.

---

**Graph 7**

The department's program of study is academically challenging.

**Graph 8**

Faculty in the department work together toward program goals.
In our department, faculty feel comfortable expressing different views and opinions.

I have adequate opportunities to influence decisions made in the department about our programs.

Guidelines regarding job performance are clear to faculty in the department.

Table 3

<table>
<thead>
<tr>
<th></th>
<th>Significantly too little</th>
<th>Significantly too much</th>
<th>Don't know/Not applicable</th>
<th>Dept. Mean*</th>
<th>SD</th>
<th>Univ. Mean*</th>
<th>SD</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research tasks</td>
<td>1: 5.9 1 5.9 7 41.2 7 41.2 1: 5.9 0 .0</td>
<td></td>
<td></td>
<td>3.35 .931</td>
<td>.329 .844</td>
<td>61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service to department</td>
<td>0: .0 2 11.8 10 58.8 9 4 23.5 1: 5.9 0 .0</td>
<td></td>
<td></td>
<td>3.24 .752</td>
<td>.341 .894</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publishing in certain journals</td>
<td>1: 5.9 2 11.8 9 52.9 4 23.5 1: 5.9 0 .0</td>
<td></td>
<td></td>
<td>3.12 .928</td>
<td>.326 .892</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>0: .0 2 11.8 6 35.3 6 35.3 3: 17.6 0 .0</td>
<td></td>
<td></td>
<td>3.59 .939</td>
<td>.331 .894</td>
<td>86</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Mean range: 1=significantly too little to 5=significantly too much; “Don’t know/not applicable” excluded from analysis.
Table 4

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Not applicable</th>
<th>Univ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever been the editor of any journals or served on any editorial boards in your field?</td>
<td>10</td>
<td>7</td>
<td>0</td>
<td>48.1</td>
</tr>
<tr>
<td>Have you been awarded any grants from Georgia State University to support research in your field?</td>
<td>13</td>
<td>4</td>
<td>0</td>
<td>61.5</td>
</tr>
<tr>
<td>Have you been awarded any grants from a source other than Georgia State University to support research in your field?</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>67.3</td>
</tr>
<tr>
<td>During the last two years, have you refereed or served as a reviewer of one or more articles submitted to journal(s) in your field?</td>
<td>15</td>
<td>2</td>
<td>0</td>
<td>75.2</td>
</tr>
</tbody>
</table>
Have you ever been the editor of any journals or served on any editorial boards in your field? [Graph 16]

Have you been awarded any grants from Georgia State University to support research in your field? [Graph 17]

Have you been awarded any grants from a source other than Georgia State University to support research in your field? [Graph 18]

During the last two years, have you refereed or served as a reviewer of one or more articles submitted to journal(s) in your field? [Graph 19]
Table 5

<table>
<thead>
<tr>
<th>How many professional articles or chapters in books have you published in the last five years?</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>5.9</td>
<td>1</td>
<td>5.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How many authored books or edited books have you published in the last five years?</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>10</td>
<td>62.5</td>
<td>3</td>
<td>18.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How many monographs, manuals, or reviews have you published in the last five years?</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>11</td>
<td>68.8</td>
<td>1</td>
<td>6.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How many formal presentations have you given at professional meetings over the last five years?</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>5.9</td>
<td>3</td>
<td>17.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How many formal presentations have you given at other colleges or institutions over the last five years?</th>
<th>Dept.</th>
<th>Univ.</th>
<th>% Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>5</td>
<td>29.4</td>
<td>3</td>
<td>17.6</td>
</tr>
</tbody>
</table>

*Mean range: 1=0, 2=1-2, 3=3-4, 4=5-6, 5=7 or more; *Not applicable excluded from analysis.

Graph 20

Graph 21
How many monographs, manuals, or reviews have you published in the last five years?

How many formal presentations have you given at professional meetings over the last five years?

How many formal presentations have you given at other colleges or institutions over the last five years?
### Supplemental Questions – Department of Computer Science

#### Table 6

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Strongly agree</th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>Mean*</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>The department has adequate space for graduate student offices.</td>
<td>9</td>
<td>52.9</td>
<td>6</td>
<td>35.3</td>
<td>0</td>
<td>1</td>
<td>5.9</td>
<td>1</td>
<td>5.9</td>
<td>1.76</td>
<td>1.14</td>
<td></td>
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<tr>
<td>The department has adequate computer laboratories for research.</td>
<td>5</td>
<td>29.4</td>
<td>10</td>
<td>58.8</td>
<td>0</td>
<td>2</td>
<td>11.8</td>
<td>0</td>
<td>.0</td>
<td>1.94</td>
<td>.899</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>The department has adequate computer laboratories for teaching.</td>
<td>5</td>
<td>29.4</td>
<td>8</td>
<td>47.1</td>
<td>3</td>
<td>17.6</td>
<td>0</td>
<td>.0</td>
<td>1</td>
<td>5.9</td>
<td>2.06</td>
<td>1.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty salaries are adequate, compared with similar departments at comparable institutions.</td>
<td>2</td>
<td>11.8</td>
<td>10</td>
<td>58.8</td>
<td>4</td>
<td>23.5</td>
<td>1</td>
<td>5.9</td>
<td>0</td>
<td>.0</td>
<td>2.24</td>
<td>.752</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate assistant stipends are adequate, compared with similar departments at comparable institutions.</td>
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<td>17.6</td>
<td>9</td>
<td>52.9</td>
<td>4</td>
<td>23.5</td>
<td>1</td>
<td>5.9</td>
<td>0</td>
<td>.0</td>
<td>2.18</td>
<td>.809</td>
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<td></td>
</tr>
</tbody>
</table>

*Mean range: 1=strongly disagree to 5=strongly agree

#### Graph 25

**The department has adequate space for graduate student offices.**

#### Graph 26

**The department has adequate computer laboratories for research.**
The department has adequate computer laboratories for teaching.

Faculty salaries are adequate, compared with similar departments at comparable institutions.

Graduate assistant stipends are adequate, compared with similar departments at comparable institutions.
Appendix D6: Undergraduate and Graduate Advisement Procedures

Undergraduate Advisement

Advisement of undergraduate students can be divided into four categories: 1) college advising, 2) general department advising, 3) undergraduate director advising, and 4) transfer credits.

College Advising

The College of Arts and Sciences has an Office of Academic Assistance, which provides advisement for students within the college. Students are able to walk in for brief consultations for more general types of questions. However, students are encouraged to seek advisement on an appointment basis. The services provided by the Office of Academic Assistance are 1) evaluation of transfer work, 2) assistance with course selection and schedule revision, 3) advisement concerning university policies and regulations, 4) evaluation of degree requirements for graduation, and 5) preparation of graduation audits. Additionally, the office is able to assist with change of majors, change of colleges, and overload requests. Much of the curriculum advising at this level is concerned with core classes and questions of a more general nature, while issues related to the Computer Science curriculum are generally handled at the department level.

General Department Advising

The Department of Computer Science offers advising for issues specifically concerning the Computer Science program. Each faculty member is available for one hour of advising per week, on a walk-in basis. A schedule showing the times at which advisors are available is posted on the department web site. Students may come to a department advisor with many different problems and requests. The advisor recommends what classes they should take according to their past courses and the area of concentration the student has selected. There are six areas of concentration: 1) Computer Software Systems, 2) Databases and Knowledge-based Systems, 3) Graphics and Human-computer Interaction, 4) Hardware Systems, 5) Networks and Parallel and Distributed Computing, and 6) Theoretical Computer Science. Students may also seek advisement as to what area they should concentrate in, bearing in mind the job market, background, and interests of the student, among other concerns.

Undergraduate Director Advising

The department’s Director of Undergraduate Studies (Dr. Anu Bourgeois) is available for three hours each week for walk-in advising and also by appointment. Students must see the Director of Undergraduate Studies for the following requests: 1) waiving prerequisites, 2) overload requests, 3) approval of independent studies and/or directed readings courses, 4) taking classes at another Board of Regents school in Georgia as a transient student, and 6) graduation audits. All students should apply for graduation one year before they expect to graduate. They must schedule an appointment with the Director to review their graduation audit that they receive from the Office of Academic Advisement, and both the student and Director must sign the audit before submitting it to the college level. A final checkout will be performed by the college during the student’s last semester to ensure everything is in order prior to graduation.
Transfer Credits

The Department of Computer Science has a separate faculty member (Mr. Ken Nguyen) in charge of approving transfer credits. Students must submit a Request for Review of Transfer Credit form to either Mr. Nguyen or Dr. Bourgeois to obtain credit for courses taken at another university. The student submits a transcript showing the course name, number, credit hours and grade received, as well as documentation describing the course contents. This could include a course syllabus, catalog description, exams, and/or assignments. The course is then evaluated to see if it is of similar nature to one of the courses offered by the department, and then credit is approved. The Office of Academic Assistance performs the same review for core classes and sends any reviews of computer science courses to the department.
Graduate Advisement

I. Ph.D. Students

Initial Advising

New Ph.D. students are typically admitted in the Fall semester. They are required to meet with the Director of Graduate Studies as soon as they arrive at GSU. In this meeting, the Director goes over the degree requirements, informs the student of any foundation coursework that is required of the student, and suggests courses to register in the first semester. The student is also assigned a temporary advisor (or a permanent one if the student has chosen the advisor already). In subsequent semesters, the student is advised by their advisor.

Ph.D. Qualifying Exam

The first milestone in the Ph.D. study is the passing of the Ph.D. qualifying exam. The exams are offered 3 times a year (January, May, and September). Students who are admitted with an M.S. in Computer Science from GSU are required to take the first attempt in January. Other students take their first attempt in May. Students will choose 2 of 3 areas: Automata, Architecture, and Algorithms and will request a third exam from an area of interest (e.g. Databases, Software Engineering, Operating Systems, AI, etc.). The choice will be communicated to the Director of Graduate Studies at least 3 months in advance (an email request will be sent to the student). The student must PASS all three exams by their second attempt.

Dissertation Committee Formation

Soon after the student passes the qualifiers, they form their dissertation committee. The student also completes a Plan of Study form detailing all courses taken and planned in their study.

Ph.D. Candidacy Exam

The second milestone is the presentation of a research proposal in the candidacy exam. Typically this exam is taken when some preliminary results are obtained in the research. A road map is also presented on this exam to indicate what needs to be accomplished to complete the dissertation research.

Ph.D. Dissertation Defense

The Ph.D. study culminates in the defense of the research by the student.

II. M.S. Students

Initial Advising

New M.S. students are required to meet with the Director of Graduate Studies as soon as they arrive at GSU. In this meeting, the Director goes over the degree requirements, informs the stu-
dent of any foundation coursework that is required of the student, and suggests courses to register in the first semester. The student is also assigned a temporary advisor (or a permanent one if the student has chosen the advisor already). In subsequent semesters, the student is advised by their advisor.

**Thesis Committee Formation**

M.S. students pursuing the thesis option should form their thesis committee soon after they have chosen their advisor. They should also submit the Plan of Study form at that time.

**M.S. Thesis Defense**

The student should schedule their thesis defense well before the college deadlines to allow for changes to be made in the thesis document after the defense. An announcement of their thesis defense needs to be made one week before the defense date.

**M.S. Project Presentation**

A project report and presentation is required of all M.S. project option students. The project needs to be completed and presented before grades can be turned in for the semester in which they are planning to graduate.

**III. Registration Procedures for all Graduate Students**

The student completes a Graduate Student Registration Form for each term after consulting with their advisor (in the first term the Director of Graduate Studies acts as their advisor and soon after an advisor is assigned). The form is signed by the student as well as the advisor and is turned in to a staff member. The staff member then registers the student on the GoSolar system. After the courses are registered, the student can view their registration and make the fee payment. All changes to the term schedule is made in consultation with the advisor and the graduate registration form is submitted again with the changes to the staff member.

**IV. Continuous Enrollment Policy**

Effective Fall 2006, graduate students are required to be registered for a minimum of 6 credit hours in every 3 consecutive terms in their duration of study. They are also required to be registered in the term of graduation.
Appendix F1: Definition of Graduate Faculty and Criteria for Selection of Graduate Faculty

The departmental Graduate Faculty Committee has the responsibility to assess and recommend faculty who demonstrate current scholarly competence to the Dean for appointment to Graduate Faculty status. The faculty has designated the departmental P & T committee to also serve as the Graduate Faculty committee. In addition to following the departmental guidelines, College and University policy must be met. Changes to the departmental guidelines must be approved by the Dean’s office.

I. Criteria for Selection

In accordance with the College of Arts and Sciences’ Graduate Faculty policy, the Computer Science department makes recommendations to the Dean for appointment to the Graduate Faculty for tenure-track faculty via recommendations from the departmental Graduate Faculty committee using the following criteria:

1. An earned doctoral (terminal) degree in the relevant discipline.
2. A strong record of scholarly (refereed) high quality publications and grant support during the last five years.
3. Evidence of effective teaching in graduate courses.
4. Evidence of effective supervision/mentoring of graduate students.

Because of the extensive evaluation during the hiring process, all new tenure-track faculty are automatically appointed to Graduate Faculty status upon hiring.

Other faculty (NTT Senior Lecturers, Lecturers, Adjunct Faculty, etc.) whose position and workload allows for involvement in the graduate education programs can hold Graduate Faculty status but cannot chair Ph.D. dissertation committees. The chairing of M.S. thesis and project committees will only be allowed after approval of both the departmental Chair and the departmental Graduate Director. Criteria 1, 2, and 3 above apply except the grant support record in criterion 2 is not required. The graduate faculty status of this group will be reviewed at least every three years.

II. Procedures

For tenured/tenure-track faculty:

1. All new tenure-track faculty will be appointed to Graduate Faculty status upon hiring. Successful completion of the pre-tenure review will automatically reappoint them to Graduate Faculty status. Newly hired tenured faculty will be automatically appointed to Graduate Faculty status automatically.

2. Tenure-track and tenured faculty members who have Graduate Faculty status will have their status reviewed by the departmental Graduate Faculty committee, and continuation will be recommended, or denied, as part of the tenure, or post-tenure review process to the Dean. The evidence for “current scholarly competence” beyond that defined in the
University policy will be based on the Department of Computer Science’s P & T manual and guidelines regarding Graduate Faculty.

(3) Tenure-track and tenured faculty from other departments who have joint appointments in Computer Science department will have their Graduate Faculty status determined at the time of the joint appointment and must be renewed every five years by the Graduate Faculty committee and department Chair.

(4) Tenure-track and tenured faculty who do not hold Graduate Faculty status may request consideration from the departmental Graduate Faculty committee at the beginning of Spring semester each year.

(5) Tenured faculty who do not participate in post-tenure review will have their Graduate Faculty status reviewed every five years (or as part of their regular review cycle) by either the Dean’s Office of Arts and Sciences (or the Provost’s Office) using the criteria from the department’s guidelines for Graduate Faculty status.

(6) All changes in a faculty member’s Graduate Faculty status must be approved by the Dean’s office.

For other faculty:

Non-tenure-track and adjunct faculty may be recommended for appointment to Graduate Faculty status by the departmental Graduate Faculty committee upon nomination by a member of the department’s Graduate Faculty.

(1) New NTT faculty and adjunct faculty will be reviewed for faculty status at the time of hire and receive Graduate Faculty status to be in cycle with the rest of the appointments.

(2) Other faculty may be nominated for Graduate Faculty status by a member of the Graduate Faculty at the beginning of the Spring semester each year.

(3) Every three years, the Graduate Faculty status of other faculty must be reviewed by the departmental Graduate Faculty committee and the recommendations sent to the Dean.

(4) All changes in an “other” faculty member’s Graduate Faculty status must be approved by the Dean’s office.

III. Specific Guidelines for Evaluation

For tenured/tenure-track faculty:

The candidate for renewal must submit: (1) an up-to-date resume (CV) which lists publications and grant support for the last five years; (2) printouts of (on-line) evaluations for graduate courses taught in the last five years; and (3) evidence of effective supervision/training/mentoring of M.S. and Ph.D. students. The committee will assess the material to determine if the candidate has demonstrated current scholarly competence based on the criteria in the departmental P&T manual.

For other faculty:

If nominated by a member of the Graduate Faculty, the candidate must submit: (1) a resume (CV) that lists publications for the last five years, and (2) statements of teaching philosophy and
evidence of teaching ability/effectiveness. The material will be assessed by the Graduate Faculty committee to determine current scholarly competence based on the criteria in the departmental P&T manual.

**For all faculty:**

If the committee recommends Graduate Faculty status, the department Chair will forward the name(s) and appropriate materials to the Dean’s office for approval.

Recommendations for removal from Graduate Faculty status must be sent to the Dean’s office for evaluation. Faculty who have been denied Graduate Faculty status must wait two years to apply for reconsideration.
## Appendix F2: List of Graduate Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
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<tbody>
<tr>
<td>Belkasim, Saeid</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Beyah, Raheem</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Bourgeois, Anu</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Harrison, Robert</td>
<td>Professor</td>
</tr>
<tr>
<td>Hu, Xiaolin</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>King, K. N.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Li, Yingshu</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Owen, Scott</td>
<td>Professor</td>
</tr>
<tr>
<td>Pan, Yi</td>
<td>Professor</td>
</tr>
<tr>
<td>Prasad, Sushil</td>
<td>Professor</td>
</tr>
<tr>
<td>Preethy, A. P.</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Sunderraman, Raj</td>
<td>Professor</td>
</tr>
<tr>
<td>Weeks, Michael</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Zelikovsky, Alex</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Zhang, Yanqing</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Zhu, Ying</td>
<td>Assistant Professor</td>
</tr>
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</table>
Appendix F3: Current Curriculum Vitae for Full-Time Faculty Members

This appendix contains curriculum vitae for the following faculty members:

Belkasim, Saeid
Beyah, Raheem
Bhola, Jaman
Bourgeois, Anu
Harrison, Robert
Henry, Louis
Hu, Xiaolin
Hundewale, Nisar
King, K. N.
Li, Yingshu
Nguyen, Ken
Pan, Yi
Prasad, Sushil
Preethy, A. P.
Sunderraman, Raj
Weeks, Michael
Zelikovsky, Alex
Zhang, Yanqing
Zhu, Ying

A curriculum vitae is not included for Professor Emeritus Scott Owen, who serves on a part-time basis.
S. O. BELKASIM  
E_Mail: sbelkasim@cs.gsu.edu  
Department of Computer Science, Georgia State University, Atlanta, GA 30303-3083  
FAX: (404)651-2246  Phone: (404)651-0674

I. EDUCATION

<table>
<thead>
<tr>
<th>Degree</th>
<th>Year (Year of Award)</th>
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<tr>
<td>Ph.D.</td>
<td>1990</td>
</tr>
<tr>
<td>M.ENG</td>
<td>1985</td>
</tr>
<tr>
<td>B.Sc.</td>
<td>1976</td>
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</table>

Institution:
- University of Windsor.
- McGill University.
- University of AlFateh.

Discipline:
- Electrical and Computer Engineering.
- Electrical and Computer Engineering.
- Electrical Engineering.

Research Focus:
- Pattern Recognition and Image Processing.
- Optical Fiber Communication.
- Electronics and communication.

II. PROFESSIONAL CREDENTIALS

LEADERSHIP AND MANAGEMENT EXPERIENCE

1978-79  
Plant Manager, Longitudinal-Steel Pipe Plant, Benghazi, Libya.

1977/78  
Head of the Electrical and Mechanical Maintenance Department  
Longitudinal-Steel Pipe Plant, Benghazi, Libya.

PROFESSIONAL ACTIVITIES

Served as a member of the graduate committee of the faculty of Engineering, Garyounis University, 1991-1993.

Served as a referee and reviewer for the following journals:
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- Journal of the Franklin Institute
- Pattern Recognition Journal
- Pattern Recognition Letters
- The International Journal of Computers and Electrical Engineering

PROFESSIONAL MEMBERSHIP

- IEEE member.
- Member of the Professional Engineers Society of Benghazi, Libya.
III. TEACHING EXPERIENCE (ACADEMIC)

Georgia State University, Dept. of Computer Science:

Undergraduate Courses:
- Computer Architecture - Spring, 2000-05
- Digital Image Processing - Fall, 2000-05
- Principles of computer programming II - Fall, 2000-04
- Data Structures - Summer, Spring, 2000-01

Graduate Courses:

Wilfrid Laurier University, Dept. of Physics and Computing:

Undergraduate Courses:

Garyounis University, Department of Electrical Engineering

Undergraduate Courses:
- Electromagnetic Fields-I - Fall, 1996.
- Microwave Engineering - Fall/Spring, 1990-91
- Electronics - Spring, 1991
- Circuit Theory - Fall, 1992
- Electromagnetic Fields-II - Fall/Spring, 1991/92

Graduate Courses:

University of Windsor, Department of Electrical Engineering,

Undergraduate Courses: 1993-1996
- Network Synthesis - Fall, 1993-1994

Graduate Student Supervision
Current PhD Students:
1- Somasheker Akkaladevi
2- Yong Li
3- Rizi Aznita

Current MSc Students:
1- Shaik, Nofiya N.
2- Madangopal, Sangeetha
3- Tokdemir, Serpil
MSc These supervised:
3- Mateena Syeda, “Bacterial Motion detection using image processing techniques”, November, 2004
4- Jian Gu, “Segmentation of color bacteria images using clustering and neural network techniques”, Graduation date, May 2003

IV. ADMINISTRATIVE EXPERIENCE (ACADEMIC)

Georgi State University, Dept. of Computer Science:
- Served in five Departmental committees:
  - Graduate Committee (member) 00-05
  - Honors Committee (member) 00-05
  - Library Committee (chair) 00-05
  - Ad-Hoc Committee (member) 02-03
  - Ph.D. Qualifying Committee (member) 03-05

Garyounis University, Department of Electrical Engineering
- Department Head, Electrical Engineering Dept., Garyounis University 91-93

V. EMPLOYMENT HISTORY AND PROFESSIONAL EXPERIENCE

2000-
- Assistant Professor, Department of Computer Science, Georgia State University, Atlanta, Georgia, 30303-3083.
  Main Projects:
  • Adaptive Techniques for Image segmentation and Analysis.
  • Fast Data-Base Search Algorithms for Image retrieval.
  • Efficient algorithms design for moment computation.

1998-00
- Visiting Assistant Professor, Department of Systems Design Engineering, University of Waterloo, Waterloo, Ontario, Canada, N1G 2W1.
  Main Projects:
  • Cooperative/Competitive and Adaptive Techniques for Image Analysis.
  • Fast Data-Base Search Algorithms for Gemprint Images.
  • Biomedical image processing for retina of diabetic patients.

1998-99
- Visiting Scholar, School of Engineering, University of Guelph, Guelph, Ontario, Canada, N1G 2W1.
  Main Projects:
  • Digital Image Segmentation, Reconstruction and Classification.
           2157 University Park Dr, Okemos, MI 48864, USA.
           Main Projects: .
           •Real Time Motion Detection Using Cellular Neural Networks.

1996-97  ☐Assistant Professor, Department of Electrical Engineering, Garyounis University,
           Courses Taught:
           •Electromagnetic Fields-I,   •Electrical Properties of Materials,
           •Image Processing (graduate),   •Active Network Synthesis (graduate).

1993-1996  ☐Sessional Instructor, Department of Electrical Engineering, University of Windsor,
           Courses Taught:
           •Network Synthesis,   •Computer-I,
           •Physical Electronics,   •Electromagnetic systems III.

1990-93  ☐Assistant Professor, Department of Electrical Engineering, Garyounis University,
           Courses Taught:
           •Microwave Engineering,   •Electronics,
           •Circuit Theory,   •Electromagnetic Fields-I.

           Courses Taught:
           •Electricity and Magnetism,   •Computer Aided Analysis,
           •Digital Signal Processing,   •Decision Support Systems.

           Courses Taught:
           •Circuit Theory,   •Electromagnetic Fields,   •Wave Propagation.

           Courses Taught:
           •Electronics,   •Electromagnetic Fields-I,
           •Antennas and Wave Propagation,   •Electromagnetic Fields-II.

1977/79 ☐Electrical Engineer, Longitudinal-Steel Pipe Plant, Benghazi, Libya.
           Main Projects:
           •Optimal performance improvement of high frequency welding machines.

VI. INTELLECTUAL CONTRIBUTIONS

PUBLICATIONS
A- Papers in Refereed International Journals and Conference Proceedings


8. Somasheker Akkaladevi, Ajay K Katangur, Saeid Belkasim, And Yi Pan, “Protein Secondary Structure Prediction Using Decision Fusion Of Genetic Algorithm and Simulated Annealing Algorithm” – Second International Conference on Neural Networks and Brain (ICNN&B), Beijing, China, 13-15 October 2005, Beijing, CHINA


10. Ying Zhu and Saeid Belkasim, “A 3D Reconstruction Algorithm Based on 3D Deformable Atlas”, accepted for publication in the Proceedings of The IEEE international conference on information technology and applications ICITA, Jul 4- 7 , Sydney, Australia, 2005


14 Y. Li, S. Belkasim, X. Chen, X. Fu, "Contour-based Object Segmentation Using Phase Congruency" ICIS’06, Rochester, New York (Accepted)


17 S. Belkasim, E. Hassan and T.Obeidi, “Radial Zernike Moment Invariants”, The proceedings of the 4th International Conference on Computer and Information Technology (CIT’04), Wuhan, China, 14-16 September 2004. pp. 790-795


31 S. O. Belkasim, A. Ghazal and O. Basir, "Edge enhanced optimum automatic thresholding", Proceedings of the 2000 international Computer Symposium, Taiwan, Dec. 6-8, 2000, pp. 78-86.


B- Un-refereed Papers


2. Saeid Belkasim and Gordana Derado, ““Zig-Zag” Block Method for the Discrete Cosine Transform””, Poster presented at the Yamacraw Industrial Advisory Board conference, Atlanta, Georgia, Apr.24, 2003


4. Sushil K. Prasad (Georgia State University, GSU), Vijay Madisetti (Georgia Institute of Technology, GIT), Raj Sunderraman (GSU), Erdogan Dogdu (GSU), Yi Pan (GSU), Anu Bourgeois (GSU), Michael Weeks (GSU), Alex Zelikovsky (GSU), Sham Navathe (GIT), Yanqing Zhang (GSU), Saeid Belkasim (GSU), and Raghupati Sivakumar (GIT), “System on Mobile Devices (SyD) Middleware Design
and Implementation”, Poster presented at the Yamacraw Industrial Advisory Board conference, Atlanta, Georgia, Oct.30, 2002


10. Saeid Belkasim and Pooja Bhatia, ”Image compression using one dimensional discrete cosine transform”, Poster presented at the Yamacraw Industrial Advisory Board conference, Atlanta, Georgia, Oct.30, 2002


C- Presentations in Professional Meetings and Conferences


D- Editorial and Reviewer Duties

2. Reviewed papers for IEEE Transaction on Image Processing


4. Reviewed papers for THE INTERNATIONAL JOURNAL FOR COMPUTERS AND THEIR APPLICATIONS.

5. Reviewed papers for The 2004 International Conference on Communication - ISCC 2004

6. Member of the Technical Committee of the Second Annual Workshop on Intelligent System Design and Applications, Atlanta, GA, 12-14 August 2002. Sponsored by World federation on soft computing


8. Member of the Technical Committee of the First International Workshop on Intelligent Knowledge Management Techniques (IKOMAT' 2002), Crème, Italy, Sept. 2002


### Ongoing Support

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<td>Type of Funding:</td>
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<td>Principal Investigator:</td>
<td>R.W. Harrison</td>
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<td>Years of Tenure:</td>
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### Previous Research Support

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<td>Responsibility:</td>
<td>Co investigator.</td>
</tr>
<tr>
<td>Principal Investigator:</td>
<td>Sushil K. Prasad.</td>
</tr>
<tr>
<td>Years of Tenure:</td>
<td>August, 2001- July, 2003</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>New Retrieval and Classification Techniques in High and Low Level Image Analysis.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Funding:</td>
<td>Contract.</td>
</tr>
<tr>
<td>Source of Funding:</td>
<td>GSU Research Team Grant</td>
</tr>
<tr>
<td>Amount:</td>
<td>$15,000.</td>
</tr>
<tr>
<td>Duration:</td>
<td>1 Year</td>
</tr>
<tr>
<td>Responsibility:</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Years of Tenure:</td>
<td>July, 2002- June, 2003</td>
</tr>
</tbody>
</table>

### Awards, Academic Honors and Recognition

**Awards**

1992 [The Eighteenth Annual Pattern Recognition Society Award (Honorable Mention).](#)

1988-1990 [University of Windsor Scholarship.](#)

1981-1987 [Garyounis University Post Graduate Scholarship.](#)


**Utility Patents**


**Citations in Refereed International Journals and Conference Proceedings**


8. Simon Warfield, “Fast k-NN Classification for Multichannel Image Data”, Pattern Rec-

of vectorized contours. In 13th International Conference on Pattern Recognition, volume
2(Track B) of Pattern Recognition and Signal Analysis, pages 735--739, Vienna, Austria,
August 1996

Object Detection on High Resolution Images”, EUSIPCO'96, September 10-13, 1996,
Trieste, Italy.

11. L. Yang and F. Albregtsen, “Fast and exact computation of cartesian geometric moments
using discrete Green's theorem,” Pattern Recognition, vol. 29, no. 7, pp. 1061--1073,
1996.

12. O.Trier, A. K. Jain, and T. Taxt, “Feature Extraction Methods for Character Recognition-

High Resolution Real Time Object Detection", International Symposium on Circuits and

14. Irene Rothe, Herbert Süsse, and Klaus Voss, “The Method of Normalization to Deter-
mine Invariants” , IEEE Transactions on Pattern Analysis and Machine Intelligence April
1996, Vol. 18, No. 4, pp. 366 -376

15. Atul Sajjanhar and Guojun Lu, A Grid Based Shape Indexing and Retrieval

of a binary image”, National Conference on Research and Development in Computer
Science and its Applications, School of Computer Sciences, Universiti Sains Malaysia,
Penang, Malaysia 27-29 Nov. 1997

17. E. Saber and A. M. Tekalp, “Region-based affine shape matching for automatic image
1, pp. 3-20, Mar. 1997.

18. Vito Di Gesù, Cesare Valenti, and Laurent Strinati, “ Local operators to detect regions of


38. Jesse Hoey, James J. Little, “Representation and Recognition of Complex Human Motion”, Computer Vision and Pattern Recognition (CVPR'00)-Volume 1, June 13 - 15, 2000, South Carolina USA, pp. 1752-1759


43. R. Mukundan, S. H. Ong, and P. A. Lee, Image Analysis by Tchebichef Moments, IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 10, NO. 9, SEPTEMBER 2001, p. 1357


50. P. Messmer, Dr. med., G. Long, Ph.D., N. Suhm, Dr. med., Dipl. Phys., P. Regazzoni, Prof. Dr. med., and A.L. Jacob, P.D. Dr. med., "Volumetric model determination of the tibia based on 2d radiographs using a 2D/3D database", Computer Aided Surgery 6:183–194 (2001)


66. Jan Flusser, Ji_rý’ Boldy_s, and Barbara Zitova,” Moment Forms Invariant to Rotation and Blur in Arbitrary Number of Dimensions”, IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, VOL. 25, NO. 2, FEBRUARY, 2003


79. Tomas Suk and Jan Flusser, “Projective Moment Invariants”, IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, VOL. 26, NO. 10, OCTOBER 2004


92. L. Kotoulas and I. Andreadis, "Real-Time Computation of Zernike Moments", IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, VOL. 15, NO. 6, JUNE 2005


95. Omar Tahri and François Chaumette, "Point-Based and Region-Based Image Moments for Visual Servoing of Planar Objects", IEEE TRANSACTIONS ON ROBOTICS, VOL. 21, NO. 6, DECEMBER 2005

96. Sung Yun Kim, Kaitlin Wilson-Remmer, Andrew L. Kun, W. Thomas Miller, "Remote Fleet Management for Police Cruisers", IEEE Intelligent Vehicles Symposium, Las Vegas, NV, June 6-8, IV 2005 paper #213


REFERENCES

Available upon request
Curriculum Vitae

Raheem A. Beyah
Department of Computer Science
Georgia State University
34 Peachtree St., Rm. 1451
Atlanta, Ga. 30303
(404) 651-0657 (office)
(404) 463-2888 (fax)
E-mail: rbeyah@cs.gsu.edu
Personal Web page: http://www.cs.gsu.edu/rbeyah
Group Web page: http://www.cs.gsu.edu/cap

Education

Ph.D. in Electrical and Computer Engineering, Georgia Institute of Technology
Atlanta, GA, August 2003
• Research areas: Network Security, Network Quality of Service, Wireless Networks
• Minor in Computer Science
• Ph.D. thesis: “A Deployable Framework for Providing Better Than Best-Effort Quality of Service
  for Traffic Flows” supervised by Dr. John A. Copeland

Master of Science in Electrical and Computer Engineering, Georgia Institute of Technology
Atlanta, GA, August 1999
• Minor in Computer Science

Bachelor of Science in Electrical Engineering, North Carolina Agricultural and Technical State University
Greensboro, NC, May 1998
• Graduated Summa Cum Laude

Research Experience

Georgia Institute of Technology
Atlanta, Georgia
School of Electrical and Computer Engineering
Adjunct Professor
April 2006 to Present

Georgia State University (also shown below under Teaching Experience)
Atlanta, Georgia
Department of Computer Science
Assistant Professor
August 2005 to Present

Georgia Institute of Technology
Atlanta, Georgia
Communications Systems Center
Research Engineer II and Member
August 2001 to August 2005
• Managed various projects with industry partners
• Conducted research in the areas of cable networks, network security, and wireless networks
• Determined scope, duration, and cost of specific projects
• Supervised and distributed work to staff and graduate students working on specific projects
• Assisted senior industry executives in the development of project scope and requirements
• Pursued outside funding via government proposals and industry partnerships

Georgia Institute of Technology
Atlanta, Georgia
Communications Systems Center
Graduate Research Assistant and Member
January 2001 to August 2001
• Researched materials in the areas of cable networking and IP quality of service
• Performed performance analysis of cable network In-band and Out-of-band communication channels

North Carolina A&T State University
Greensboro, North Carolina
Undergraduate Research Assistant
September 1997 to May 1998
• Researched materials on distributed shared memory architecture, NOW Technology and multi-processor scheduling to address performance issues involved with data transfer from secondary storage to memory
• Implemented a two-processor network using the Parallel Virtual Machine API
• Developed a preliminary algorithm for a multiprocessor scheduler to be implemented in C++

Teaching Experience

Georgia State University (also shown above under Research Experience)
Atlanta, Georgia
Department of Computer Science
Assistant Professor
August 2005 to Present

Georgia State University
Atlanta, Georgia
Department of Computer Science
Part-time Instructor
August 2004 to December 2004
• Developed and instructed senior-level undergraduate/graduate network programming course (CSc 4360/6360 – Network-Oriented Software Development)

Georgia Institute of Technology
Atlanta, Georgia
Graduate Teaching Assistant – TA for CmpE 3055 Computer Architecture
August 2000 to December 2000
• Assisted instruction of a junior level computer architecture and operating systems course
• Assisted students with homework/labs and general concerns relating to computer architecture
• Graded homework assignments

Georgia Institute of Technology
Atlanta, Georgia
Graduate Teaching Assistant – TA for CS 4270 Data Communications Laboratory
June 1999 to August 1999
• Instructed a senior level data communications lab with emphasis in the following: WAN technologies (HDLC) and analog communications (modems)
• Assisted with the set-up, configuration, and maintenance of lab equipment (Ethernet hubs, workstations running Linux/NT, Network Management software: SNMPc, HP Openview)
• Assisted students with homework and general concerns relating to data communications
Other Professional Experience

Georgia Institute of Technology
Atlanta, Georgia
Title: Coordinator - Facilitating Academic Careers in Engineering and Science (FACES) program
August 2004 to August 2005
- Developed and organized seminars for FACES fellows
- Oversaw stipend allocation process
- Facilitated mentoring between FACES faculty and FACES fellows
- Addressed inter-campus strategies for minority faculty recruitment and retention

Andersen Consulting (now Accenture)
Atlanta, Georgia
May 1998 to August 2000 (overall duration)
March 2000 to August 2000
Title: Consultant - Technical Architect/Team Lead
- Met with clients in order to assess their needs concerning their product/system, assisting in defining the scope of the project, as well as met with the vendor (Architel) to assess the capability of their product
- Created Detail Design of ASAP implementation - Architel product for the automated activation of the client's network elements (firewalls, routers)
- Supported Cable & Wireless with planning and managing the testing efforts for the implementation of an automated voice, data, and internet order entry and provisioning system. The system is comprised of a Siebel order entry front-end and Architel's Order Management System (OMS) which interfaces with the client's legacy provisioning system
- Managed the OMS pairwise testing team comprised of one to three analysts
- Ensured a structured and complete system/pairwise test by creating an overall test model
- Identified and organized key test scenarios, planned a detailed execution schedule and regression test procedures

May 1998 to March 2000
Title: Experienced Analyst
- Developed Next Generation Network Cost Approximation Model, which enabled Telcos to effectively cost out an entire network (NOC, personnel, equipment, management, back office, front office, etc.)
- Created optimized Visual Basic macros to serve as the functioning ‘back end’ of the model
- Researched surrogate router and ATM switch vendors, performing necessary cost and functionality comparisons
- Trained permanent personnel in development, maintenance, and modularizing of the cost model to enable reuse with separate clients and industries
- Instructed initial new hire training courses (C programming, Andersen Business Integration Methodology)
- Created user manual for the Next Generation Network Cost Approximation Model

Douglass High School
Atlanta, Georgia
September 1998 to May 1999
Consultant
- Assessed performance of network in Atlanta’s largest high school
- Met with Atlanta Public Schools Assistant Superintendent and technology staff to identify current network immediate requirements and long-term goals of APS
- Worked in conjunction with the director of the Georgia Center for Advanced Telecommunications Technology’s Communication Systems Center to develop a scalable hardware level network design to serve as a model for other area schools
• Assisted Principal with key technology decisions
• Performed cost analysis and vendor comparisons for next generation multimedia network
• Provided instruction for students and teachers on how to use new technology
  *for more info: http://www.csc.gatech.edu/douglass_high/douglass_index.html
  *copy of design available upon request

Andersen Consulting (now Accenture)
Atlanta, Georgia
May 1997 to August 1997
Title: Summer Intern
• Developed and maintained a Microsoft Access database application to support the entire team’s efforts
• Created complex programs using Access Basic to optimize the team’s efforts
• Designed data models, queries, and complex forms to keep track of deliverable status throughout the project
• Executed automated tests scripts on converted code
• Manually tested converted code and debugged test scripts

Andersen Consulting (now Accenture)
Atlanta, Georgia
May 1996 to August 1996
Title: Summer Intern
• Assisted in development of code structure charts
• Created structured COBOL programs

Invention Disclosures

Publications

Book Chapters

Journal / Magazine

Conference / Workshop


(3) Jian Liu, Raheem Beyah, and John Copeland. “Implementation of an Efficient Transport Scheme for Real-Time Game Applications on HFC Cable Networks”. In the Proceedings of IEEE International Conference on Communications (ICC), May 2003.


Refereed Presentations


Technical Reports


(4) Min Kim, Raheem Beyah, and John Copeland. “Performance Analysis of a Cable System In-band Channel”. April 2002. Scientific Atlanta. PROPRIETARY


Honors and Awards

**Georgia State University**
Faculty Mentored Grant
• Awarded April 2006

**Georgia State University**
Faculty Mentored Grant
• Awarded April 2006

**Who’s Who in Black Atlanta**
• Awarded December 2005

**Georgia Institute of Technology**
FACES Career Initiation Grant
• Awarded April 2005

**IBM Fellowship**
IBM FOCUS Fellowship
• Awarded April 2002

**Georgia Institute of Technology**
Graduate Wireless Networks Course – Best Student Award
• Awarded April 1999

**Georgia Institute of Technology**
GEM Fellowship
• Awarded April 1998

**North Carolina A&T State University**
Eta Kappa Nu Electrical Engineering Honor Society
• Awarded March 1997

**North Carolina A&T State University**
Tau Beta Pi National Engineering Honor Society
• Awarded April 1996

**North Carolina A&T State University**
Golden Key National Honor Society
• Awarded April 1996

**North Carolina A&T State University**
NASA-STDP Scholarship
• Awarded April 1996

**North Carolina A&T State University**
Alpha Lambda Delta Honor Society
• Awarded April 1996

**North Carolina A&T State University**
NACME Scholarship
• Awarded April 1996

Professional Affiliations / Activities
• Technical Program Committee Member, IFIP Networking 2007
• Reviewer, IEEE Transactions on Wireless Communications, 2006
• Technical Program Committee Member, Computer and Communications Network Security Symposium, IEEE ICC 2007
• Session Chair, Special Session on Computer Security and Data Privacy, IEEE GrC 2006
• Member, IEEE – ComSoc - Communications & Information Security Technical Committee (CISTC), April 2006 - Present
• Demo Chair, IEEE TridentCom 2007
• Technical Program Committee Member, IEEE WCNC 2007
• Technical Program Committee Member, IEEE Broadnets 2006
• Technical Program Committee Member, Session Chair, IEEE Information Assurance Workshop 2006
• Technical Program Committee Member, Computer and Network Security Systems Symposium, IEEE Globecom 2006
• Technical Program Committee Member, IEEE Symposium on Dependable, Autonomic and Secure Computing, 2006
• Reviewer, IEEE Transactions on Vehicular Technology, 2005, 2006
• Reviewer, EURASIP Journal on Wireless Communications and Networking: Special Issue on Wireless Security, 2005
• Technical Program Committee Member, Network Security and Information Assurance, IEEE ICC 2006
• Technical Program Committee Member, Computer and Network Security Symposium, IEEE Globecom 2005
• Reviewer, IEEE Transactions on Mobile Computing, 2004
• Reviewer, IEEE ICC, 2003

Association for Computing Machinery (ACM)
• Member since 2000

Institute of Electrical and Electronic Engineers (IEEE)
• Member since 1998
• Computer Society
• Communications Society

National Society of Black Engineers (NSBE)
• Member since 1998

Invited Talks
• National Security Agency’s Secure Mobility Forum, 2006
• IEEE Symposium on Reliable and Distributed Systems panel on Wireless and Mobile Security for Distributed Systems - (Panelist), 2005
• City of Atlanta Mayor’s Technology Summit, 2004

Civic Activities / Service

National Society of Black Engineers (NSBE)
• Charter Faculty Advisor, June 2006 - Present

L.E.A.D. Atlanta, Class of 2007

United Way Volunteer Involvement Program (V.I.P.), Class of 2005 (Spring)

Westlake High School, Atlanta Georgia
• Science and math fair judge - January 2004

Georgia Tech Summer Undergraduate Research in Engineering (SURE)
• Faculty advisor – Summer 2003, Summer 2004, Summer 2005, Summer 2006
• Student mentor – Summer 2001, Summer 2002

Douglass High School, Atlanta Georgia
• Tutor 1996 – 2004

Clara Muhammad High School, Atlanta Georgia
• Tutor 2002 – 2004

Citizenship
• United States

Security Clearance
• United States – Top Secret
Department of Computer Science Self Study 2006

Jaman L. Bhola

1015 Fox Street      Conyers, Ga. 30013      (678) 413-1595

Education

Master of Science in Computer Science (May, 1999).
Georgia State University, Atlanta, Georgia.

Major Courses  Math Model & Simulation, Graph Theory, Advanced Computer
Graphics and Animation, Advanced Human-Computer Interface
Design, Advanced Software Engineering, Objected Oriented
Testing Using C++, Rapid Application Development Prototyping
Using Java Studio 1.0, Database.

Bachelor of Science in Computer Science (March, 1995)
Georgia State University, Atlanta, Georgia.

Bachelor of Arts in Geography (July, 1981)
University Of Guyana, Georgetown, Guyana.

Research/Projects

- Contributed in writing the code for the Memory Module, CPU scheduling and Device scheduling of an Operating
  System using C.
- Contributed in the presentation of data in an animated format for Data Visualization using MovieMaker under
  IRIS.
- Contributed in the design and implementation of computer animation in 3D- Studio.
- Constructed numerous HTML documents with Claris HomePage, Visual Page.
- Simulate the Game of Life Model using Turbo Pascal.
- Contributed in the development of an evaluation tool to be used to evaluate a WEBSITE using Visual Basic.
- Written programs to display images in computer graphics using C.
- Contributed in developing a software package for student registration using Ada.
- Did several application programs for Windows 95/NT Windows.
- Did several application programs using both C and C++ to complete programming assignments.
- Developed a Software that could be used by a Cleaning Company to keep records using Visual Basic 4.0 & 5.0
- Used MS-Access to manipulate databases (using SQL statements) and generate reports.
- Used VRML 2.0 and Cosmo Player to create and run a Virtual World consisting of 3D images and animations.
- Used Flash3 to create a movie (Cartoon style).
- Did several Application projects using MS-Access, Ms Visual Interdev and Drumbeat (where the back end code
  is in Visual Basic, VBScript or JavaScript).
- Used Tango and Visual Café to help to develop database application.
- Used Oracle/SQL to create and manipulate database.

Experience

- Currently an Instructor in the Department of Computer Science at Georgia State University.
- Coached the St Catherine High School Debating team to a Second Place Finish in the Division Championship.
- Coached the West Demerara High School Debating team to a win in the Division Title.

Computing Skills

- Programming Languages: Pascal, Ada (including Concurrent Ada), Assembly Language for IBM-PC, C/C++,
  Scheme, Visual C++ (including MFC), HTML, DHTML, VRML, Cobol, SQL, Visual Basic, Java, Prolog,
  Visual Basic Script and Java Script.


**Personal**

*United States Citizen.*
CURRICULUM VITAE

Anu Goel Bourgeois
Associate Professor
Department of Computer Science
Georgia State University
Web page: www.cs.gsu.edu/agb

I. EDUCATION

- Ph.D., Electrical and Computer Engineering, Louisiana State University (LSU), Baton Rouge, LA, 2000
  Dissertation: *Algorithms and Simulations on Reconfigurable Meshes with Pipelined Optical Buses*
  Advisor: Jerry L. Trahan

- M. S., Electrical and Computer Engineering, LSU, 1997
- B. S., Electrical and Computer Engineering, LSU, 1994
- B. S., Electrical Engineering, LSU 1991

II. PROFESSIONAL CREDENTIALS AND TEACHING EXPERIENCE

- **Associate Professor**, Georgia State University, Atlanta, Georgia, Department of Computer Science, April 2006 – present
- **Assistant Professor** (tenure-track), Georgia State University, Atlanta, Georgia, Department of Computer Science, August 2000 – April 2006
- **Instructor of Record** (as a Graduate Teaching Assistant), Louisiana State University, Baton Rouge, Louisiana, Department of Electrical and Computer Engineering, January 1999 – August 1999, January 1997 – May 1997, June 1996 – August 1996
- **Graduate Teaching Assistant**, Louisiana State University, Baton Rouge, Louisiana, Department of Electrical and Computer Engineering, January 1995 – May 1996

III. ADMINISTRATIVE EXPERIENCE (ACADEMIC)

- Director of Undergraduate Studies, GSU, (2006 - )
- Academic Program Review, Member, GSU, (2006 - )
- Executive Committee, Member, GSU, (2005 - )
  - Advise Chair on different issues
  - Give recommendations on Merit Pay Raises based on annual reports and teaching portfolios submitted by faculty
- Learning Assessment Committee, **Co-Chair**, GSU, (2004 - )
  - Developed an assessment plan to measure student academic achievement and program effectiveness
  - Implemented the assessment plan within the department to be used for Southern Association of Colleges and Schools (SACS) reaccreditation review
Analyze data submitted by faculty for all department courses according to the assessment plan
Meet/correspond with Associate Provost for Institutional Effectiveness on a number of occasions

- Learning Outcomes Committee, Chair, GSU, (2003-2004)
  - Identified learning outcomes for the department program
  - Aligned learning outcomes with the courses offered by the department
  - Met/corresponded with Associate Provost for Institutional Effectiveness on a number of occasions
- Honors Program and Honors at Graduation Committee, Chair, GSU, (2002 - )
  - Confer awards to recipients at College of Arts and Science Honors Day annual program
  - Determine list of students to designate for Graduation with Distinction each semester
  - Select students to be designated as University Scholars
  - Select students receiving fee waivers
- Honors Program and Honors at Graduation Committee, Member, GSU, (2000-2002)
- ACM Chapter Committee, Member, GSU, (2002- )
- Ad Hoc Committee for CSc3210, Member, GSU, (2002)
- Ad Hoc Committee for Compensation Review, Member, GSU, (2001)
- Ph.D. Architecture Qualifying Exam Committee, Member, GSU, (2001- )
- Advisors for Undergraduate Program Committee, Member, GSU, (2000- )
- Dean Search Committee, Member, LSU, (1999-2000)

IV. BUSINESS AND PROFESSIONAL EXPERIENCE

- CDI Corporation, Baton Rouge, LA, Electrical Engineer, December 1991 – August 1994

V. INSTRUCTION

A. CLASSROOM TAUGHT COURSES

- CSC 8240 – Reconfigurable Networks
- CSC 8210 – Advanced Computer Architecture
- CSC 4520/6520 – Algorithm Design and Analysis
- CSC 4220/6220 – Computer Networks
- CSC 4210/6210 – Computer Architecture
- CSC 3210 – Computer Organization and Programming
- EE 3570 – Microprocessor Systems (LSU)
- EE 3571 – Microprocessor Systems Lab (LSU)
- Learning Java for AP Computer Science AB (Summer Institute for AP Computer Science Teachers) (June 2006)

B. STUDENT SUPERVISION
• Liang Chang, Ph. D. candidate, “Power management for ad hoc wireless networks,” (in progress, passed qualifying exam).
• Eunjung Cho, Ph. D. candidate, “Molecular dynamics simulations using FPGAs,” (in progress, passed qualifying exam).
• Feng Tan, Ph. D. candidate, “Sequence alignment using reconfigurable models,” (in progress, passed qualifying exam, passed proposal).
• Mathura Gopalan, M.S. candidate, “Simulating a PR-Mesh on an LARPBS,” (July 15, 2005)

C. McNair Program Mentor

• Shann Bernard, Undergraduate Student, Morehouse College, Atlanta, GA, (2005), “Routing in disjoint mobile sensor networks”

VI. INTELLECTUAL CONTRIBUTIONS

(Student co-authors are underlined in all publications.)

A. Publications – Journal Articles


B. PUBLICATIONS – BOOKS/MONOGRAPHS/CHAPTERS


C. PROCEEDINGS (REFEREED)

16. F. Tan, X. Fu, H. Wang, Y. Zhang, and A. G. Bourgeois, “A Hybrid Feature Selection Approach for Microarray Gene Expression Data,” International Workshop on Bioinformatics Research and Applications in conjunction with Interna-


D. Professional Presentations

• Have authored or co-authored 23 posters presented at the Georgia Electronic Design Center (GEDC), also called the State of Georgia’s Yamacraw Project, Industrial Advisory Board meetings between October 2001 and October 2004. GEDC is the world’s largest embedded software group. There are 8 participating universities in-
cluding Georgia State University, Georgia Institute of Technology, and University of Georgia. This group also includes many member companies. Many of the research projects presented as posters led to utility/provisional patents, as listed in Section F.

- “Reconfigurable Computing and FPGAs,” Neurons and Networks Lunchtime Research Talks, research group of the Brains and Behavior Program at Georgia State University, November 2004.
- “Reconfigurable Computing,” School of CSE Colloquium, Southern Polytechnic State University, November 2001
- “Reconfigurable Networks,” ACM local chapter meeting, GSU, October 2001

E. GRANTS AND EXTERNAL FUNDING


F. PATENT APPLICATIONS

Utility Patents:

Provisional Patents:


VII. PROFESSIONAL AND HONOR ORGANIZATION ACTIVITIES

A. MEMBERSHIP

- Institute of Electrical and Electronics Engineers (IEEE), Senior Member
- IEEE Computer Society
- International Association for Computer and Information Science (ACIS)
- Georgia Electronic Design Center (GEDC), formerly called the State of Georgia’s Yamacraw Project
- Tau Beta Pi (Engineering Honor Society)
- Eta Kappa Nu (Electrical Engineering Honor Society)

B. OFFICES/COMMITTEES

- Local Co-Chair, IEEE International Conference on Granular Computing, (May 2006)
- Treasurer, Atlanta Chapter of IEEE Computer Society, (2005 - )
- Local Arrangements Chair, 2nd Biannual SECAB Fall Workshop on Biocomputing, GSU, (Oct. 2005)
- Co-Chair, 1st International Workshop on Mobile Ad-hoc and Ubiquitous Sensor Networks, (Nov. 2005)
• **Scholarships Co-Chair**, 13th International Conference on High Performance Computing, (Dec. 2006)
• **Scholarships Co-Chair**, 12th International Conference on High Performance Computing, (Dec. 2005)
• **Session Chair**, 8th Workshop on Advances in Parallel and Distributed Computational Models, IPDPS 06, (Apr. 2006)
• **Session Chair**, 7th Workshop on Advances in Parallel and Distributed Computational Models, IPDPS 05, (Apr. 2005)
• **Session Chair**, 6th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 05, (Apr. 2005)

**Program Committee Member:**

• 2007 International Symposium on Parallel Architectures, Algorithms, and Networks, Program Committee Member (Dec. 2007)
• IEEE 21st International Conference on Advanced Information Networking and Applications, Program Committee Member, (May 2007).
• 9th Workshop on Advances in Parallel and Distributed Computational Models, IPDPS 07, Program Committee Member, (Mar. 2007)
• 8th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 07, Technical Committee Member, (Mar. 2007)
• 4th International Symposium on Parallel and Distributed Processing and Applications, Program Committee Member, (Dec. 2006)
• 2nd International Workshop on Wireless and Sensor Networks Security, MASS 06, Program Committee Member, (Oct. 2006)
• 9th International Conference on Computer Science and Informatics, Program Committee Member, (Oct. 2006).
• 2nd International Workshop on Self-Assembling Wireless Networks, SNPD 2006, Program Committee Member, (June 2006).
• 8th Workshop on High Performance Scientific and Engineering Computing with Applications, ICPP 06, Program Committee Member, (Aug. 2006)
• 8th Workshop on Advances in Parallel and Distributed Computational Models, IPDPS 06, Program Committee Member, (Apr. 2006)
• IEEE 20th International Conference on Advanced Information Networking and Applications, Program Committee Member, (Apr. 2006)
• IASTED International Conference on Networks and Communication Systems, Program Committee Member, (Mar. 2006)
• International Workshop on Wireless and Sensor Networks Security, MASS 05, Program Committee Member, (Nov. 2005)
• 18th ISCA International Conference on Parallel and Distributed Computing Systems, (Sept. 2005)
• 7th Workshop on Advances in Parallel and Distributed Computational Models, IPDPS 05, Program Committee Member and Session Chair, (Apr. 2005)
• 6th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 05, Technical Committee Member and Session Chair, (Apr. 2005)
• 3rd International Symposium on Parallel and Distributed Processing and Applications, Program Committee Member, (Nov. 2005)
• 6th International Conference on Communications in Computing, Program Committee Member, (June 2005)
• 1st International Workshop on Self-Assembling Wireless Networks, SNPD 2005, Program Committee Member, (June 2005).
• 8th Joint Conference on Information Science, Program Committee Member, (July 2005)
• 5th International Conference on Computational Science, Program Committee Member, (May 2005)
• 2nd International Symposium on Parallel and Distributed Processing and Applications, Program Committee Member, (Dec. 2004)
• 6th Workshop on High Performance Scientific and Engineering Computing with Applications, ICPP 04, Program Committee Member, (Aug. 2004)
• 5th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 04, Technical Committee Member, (Apr. 2004)
• 1st International Symposium on Parallel and Distributed Processing and Applications, ISPA 03, Program Committee Member, (July 2003)
• 7th International Conference on Computer Science and Informatics, JCIS 03, Program Committee Member, (Sept. 2003)
• 4th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 03, Technical Committee Member, (Apr. 2003)
• Data Base Management in Wireless Network Environments in conjunction with VTC (2003)
• 4th Workshop on High Performance Scientific and Engineering Computing with Applications, ICPP 02, Program Committee Member, (Aug. 2002)

C. REVIEWER ACTIVITIES

Reviewed papers for the following journals:
• Computers and Mathematics with Applications
• Information Processing Letters
• Information Sciences Journal
• IEEE Transactions on Parallel and Distributed Systems
• International Journal of Computers and Applications
• International Journal of Parallel and Distributed Systems and Networks
• Journal of Parallel and Distributed Computing Practices
• Journal on Parallel and Distributed Computing

Reviewed papers for the following conferences (besides those listed in Section B above):
• Mobile Wireless Networks Workshop, in conjunction with ICDCS 2003
• 8th Asia-Pacific Computer Systems Architecture Conference (ACSAC 2003)
• 11th International Conference on High Performance Computing (HiPC 2004)
• 18th International Parallel and Distributed Processing Symposium (IPDPS 2004)
• Workshop on Advances in Parallel and Distributed Computing Models in conjunction with IPDPS 2004
- 7th International Conference on Computer and Information Technology (ICCIT 2004)
- Euro-Par 2005 Conference
- 20th International Parallel and Distributed Processing Symposium (IPDPS 2006)
- 49th IEEE GLOBECOM Technical Conference (GLOBECOM 2006)

VIII. HONORS, AWARDS, AND RECOGNITION

- Nominee, Outstanding Junior Faculty Award awarded by College of Arts and Sciences, GSU, Spring 2005
- Who’s Who Among America’s Teachers, 2004 – 2005 [The only recognition program in the education field where only students are able to nominate a teacher. The students that are given this opportunity are the nation’s top 5% that were also recognized by similar publications. These students are then able to select one teacher from their entire academic career who has been most influential. Approximately only the top 2% of faculty are honored with multiple recognitions.]
- Over 45 citations in published work
- Board of Regents Fellowship for Doctoral Program at LSU, August 1996 – May 2000
- Vincent A. Forte Fellowship, 1998
- Gulf South Compression Scholarship, August 1988 – December 1991
- Tau Beta Pi (Engineering Honor Society)
- Eta Kappa Nu (Electrical Engineering Honor Society)
1. **Robert Wilson Harrison**

Professor  
Departments of Computer Science and Biology  
Georgia State University  
Atlanta, GA 30303  
(404) 651-0668, rharrison@cs.gsu.edu

2. **I. Education**

Ph.D. in Molecular Biophysics from Yale University awarded in 1985.  
Thesis advisor: Dr Thomas Steitz  
Thesis title: Crystallographic Refinement of Two Isozymes of Yeast Hexokinase and the Relationship of Structure to Function.

B.S. in Biophysics from the Pennsylvania State University awarded in 1979

3. **II. Professional Credentials**

I am an experienced research scientist in computational biology and bioinformatics. My professional experience includes the development and implementation of novel and important algorithms for structural modeling. I have also worked in the solution of protein and DNA crystal structures by both experimental and computational approaches. I am a Georgia Cancer Coalition Distinguished Cancer Scholar.

4. **III. Teaching Experience**

Tutorials and laboratory assistance in Mathematics for Biophysics and Laboratory Biochemistry; Department of Molecular Biochemistry and Biophysics, Yale University, New Haven, CT, 1980-1982

Graduate Courses, Department of Microbiology and Immunology, Thomas Jefferson University, Philadelphia, PA, 1991-2000

Graduate and Undergraduate courses in bioinformatics and computer science, Georgia State University, Atlanta, GA, 2001-present.
5. **IV. Administrative Experience**

**University Organizations**

Member, Internal Grants Peer Review, 2003

Member, Atlanta Structural Biology Core, 2001-present.

Member, GRID Group @ GSU, for Georgia State University participation in the NSF Middleware Initiative (NMI) Integration Testbed Program, Feb. 2003-present.

Director, Biomedical Computing Center, Georgia State University, Atlanta GA, June 2003-present.

Member, Executive Committee, Biomedical Computing Center, Georgia State University, Atlanta GA, June 2003-present.

Member, Scientific Review Committee, Biomedical Computing Center, Georgia State University, Atlanta GA, Sept. 2003-present.

Director, Biocomputing Collaboratory, Molecular Basis of Disease Area of Focus, Georgia State University, July 2004-present.

**Symposium Organizing Committee**

Member, Organizing Committee for University System Symposium, Applying Bioinformatics: From Genes to Systems, Georgia State University, Atlanta GA, Oct. 2002.

Member, Organizing Committee for SECABC Biotech/Biocomputing Symposium, Georgia State University, Atlanta GA, May 24-25, 2004.

Member, Organizing Committee for Winter Workshop on Biocomputing, SECABC, Georgia State University, Atlanta GA, Jan. 4, 2005.

Member, Organizing Committee for Fall Workshop on Biocomputing, SECABC, Georgia State University, Atlanta GA, Oct. 27, 2005.

**Department of Computer Science Committee Memberships:**

ACM
Learning Outcomes and Assessment (co-chair)
Graduate
Testing Standards
Website
Alumni Relations
6. **V. Business and Professional Experience**

8/06-present  Professor, Departments of Computer Science and Biology, Georgia State University, Atlanta GA.

1/01-8/06  Associate Professor, Departments of Computer Science and Biology, Georgia State University, Atlanta GA.

5/91-12/00  Assistant Professor, Department of Microbiology & Immunology, Kimmel Cancer Center, Thomas Jefferson University, Philadelphia PA.

3/88 – 2001  Member, time allocation committee at ASCL, Frederick, MD.

11/87 – 5/91  Scientist Associate, Macromolecular structure laboratory, NCI-Frederick Cancer Research Facility, with Dr. Alexander Wlodawer.


9/85 – 10/85  Postdoctoral Fellow, UCLA with Dr. David Eisenberg.

9/84 – 8/85  Computer programmer, BRC associates, Bethesda MD.

9/84 – 8/85  Graduate student with Dr Thomas Steitz, Yale University, New Haven CT.

7. **VI. Courses Taught**

**Thomas Jefferson University Graduate Courses:**


**Georgia State University Courses:**


CSc2310 Principles of Computer Programming1 Fall 2001

CSc3320 System-Level Programming Spring 2002

CSc8370 Data Security Fall 2002 (originated course), 2003, 2004


As part of my teaching responsibilities I oversee MS and PhD graduate students.

**Research Students**

I have trained graduate and medical students in computational biochemistry. Refereed publications have usually resulted. These students include:

- Jason Soss (medical student, Thomas Jefferson Medical College)
- Sean Scott (advisor J. Tanaka, University of Pennsylvania)
- Peter Bagossi (advisor J. Tozser, Debrecen University, Hungary)
- Charles Reed (advisor I. Weber, Thomas Jefferson University)
- John Petock (advisor I. Weber, Georgia State University)
- Xia Yang (advisor K. Grant, Georgia State University)
- Xiangxue Guo (Georgia State University)
MS Students
Shuai Liu (Georgia State University)
Hao Wang (Georgia State University)
Xiangxue Guo (Georgia State University)
Jinyue Li (Georgia State University)
Wenxuan Chai (Georgia State University)
Xianfeng Chen (Georgia State University)
Hai-Hua Fu (Georgia State University)
Cecily Haught (Georgia State University)
Rasmi Moan (Georgia State University)

Current PhD students include:
Patra Volarath (Georgia State University)
Hao Wang (Georgia State University)
Xianfeng Chen (Georgia State University)
Xuezheng Fu (Georgia State University)
Amit Sabnis (Georgia State University)

8. VII. Intellectual Contributions

List of Publications in Chronological Order


93. Zhong, W., Pan, Y., Harrison, R., and Tai, P.C. "Protein secondary structure prediction using different encoding schemes and neural network architectures," the SPIE conference on Data Mining and Knowledge Discovery: Theory, Tools, and Technology VI, 12-16, April 2004, in Orlando, FL USA.


Abstracts from professional presentations.


**Patents**

Symmetric Inhibitors of HIV Integrase, Mammalian Topoisomerase and Serine Protease. Provisional application No.60/215474 filed 6/30/2000.


**Grant Support**

11-85 to 10-87 Postdoctoral Fellowship at NBS from the National Academy of Science-National Research Council. (This was a competitive fellowship).

11-93 to 11-96 Co-PI with Roger Sorenson NIH grant "Structural Studies of Dendrotoxins."

1-94 to 1-95 TVBIG grant (Thomas Jefferson Internal grant in thrombosis) "Peptomimetic Inhibitors of Serine Proteases"

7-97 to 8-00 Co-PI with Irene Weber NIH R01 AI41380 “Activity of Resistant Variants of HIV protease”

4-97 to 4-99 Co-PI with Irene Weber, Else Pardee “Structural Analysis of MTCP-1 and TCL-1 Oncogene Products”


10-99 to 9-01 Co-PI with Dr. Govind Rao (University of Maryland Baltimore Campus) Juvenile Diabetes Fund "Minimally Invasive Glucose Monitoring."

9/1/00-8/31/03 Co-PI with Irene Weber, National Institutes of Health R01-GM62920: “Activity of Resistant Variants of HIV Protease”.

NIH/NIGMS R01 GM62999 (P.I.: J. Yang, Co-PI: R. Harrison), 4/1/01-3/31/06 Rational Design and Analysis of Calcium-Binding Proteins

NIH/Fogarty International Center R03 TW 01001-01 (P.I.: I. Weber, Co-PI: R. Harrison), 7/1/99-6/30/02
Specificity Studies of HIV and HTLV Proteases

Planning Grant: Georgia State University Biomedical Computing Center

119. **VIII. Professional and Honor Organization Activities**

**Membership In Professional Societies**

American Crystallographic Association
Association for Computing Machinery

**Editorship on International Journal.**

Member, Editorial Board for the International Journal of Bioinformatics Research and Applications (IJBRA), 2004-present.

120. **IX. Honors and Awards.**

Georgia Cancer Coalition Distinguished Cancer Scholar, 2002-2006.

Objective

To obtain a Development/Analyst position that will utilize my technical skills and interpersonal skills in the IT industry.

Education

Present  Georgia State University  Atlanta, Georgia  Ph.D., Computer Science  Summer 1999  The University of Maryland Eastern Shore  Princess Anne, Maryland  Master of Science, Computer Science  

- Completed a Thesis project in JAVA using JDK1.1.2. This Java application is designed to provide a “virtual” computer laboratory for solving linear programming using the Simplex Algorithm via the web

Spring 1997  The University of Maryland Eastern Shore  Princess Anne, Maryland  Bachelor of Science, Biology

Technical Skills

Languages: Cold Fusion 4.5, JAVA, JSP, JAVA SCRIPT, MYSQL, KORN, SQL, C++, CORBA, HTML, MS ACCESS/Front Page, FLASH, MVS, TSO, JCL, JAD, MS Project and Data Modeling

Operating Systems: MS-DOS, Windows 95/98/NT, UNIX

Applications: MS Visual Source Safe, Mercury Test Suite, Harvest, Corel Office, Office 2000 (Access, Word, PowerPoint), and Lotus SmartSuite

Experience

August 2001 to Present  Instructor, Permanent.  Georgia State University, Atlanta, Georgia  

- Teach Java and Computer Basics class to undergraduates and graduate students at the university.
- Design lectures and lab to instruct Object Orientated Programming using Java.
- Participate in student Advisement on a weekly basis.
- Teaching a new course 8910 to graduate students, this course will provide Graduate Students with a more sound teaching background.


- Developed Business-to-Business application called Ibank Suite for the banking Industry.
- Duties included: Onsite application support, gathering client requirements, designing, implementing, test changes and enhancements in a controlled environment.
- Maintained our own test environment for debugging using automated tools, and self
designed test tools/programs. Per our application, I have been through the entire software development life cycle.

- Code Reviews
- Used JDBC to query DB2 database for a statistical application designed by my group.
- Designed a servlet to gather client requirements through use of a form and related objects.
- Was responsible for the administration of my team’s source control server, setting up the branches per release and merging changes and fixes in per mainline and branch.
- Languages used for development are COLD FUSION, JAVASCRIPT, JAVA, C++, CORBA, and working with relational database MSQL/ORACLE.
- Assisted QA using Mercury Test Suite, which included TEST SCRIPTS, TEST CASES, REGRESSION TESTING and LOAD TEST. Applications functionality was designed for multiple banking transactions.
- Participated in JAD (Joint Application Development Session) technical studies, evaluated new and old business requirements and provided test scripts for all projects.

**August 1999 to September 2000 I/T Professional, Permanent.** INTERNATIONAL BUSINESS MACHINES CORPORATION (IBM). ALPHARETTA, GEORGIA.

- Designed the very first application in for the MVS Dept, which was used over the Internet using Java, Cold Fusion, HTML, JavaScript and DB2. *This had several capabilities and benefits to manage all aspects of OS/390 tapes, which ran on several boxes.*

**Features of the Software:**
- Creating and storing OS/390 tape orders online
- Providing N-1 information
- Tracking Batch production on a daily basis
- Payment Calculator
- Database Administrator who is responsible for updating Lotus Database for all OS/390 software’s
- Writing SQL queries to retrieve information from a Database
- Supporting and configuring TCP/IP Printers
- CA-7 Scheduler, MVS, AIX, AS400
- MVS JCL, UTILITIES, SMP/E, TSO
- Junior System Administrator for two Unix servers
- Coordinating and developing project plans, peer reviews for IBM OS/390 PROJECT
- Participating in technical studies; evaluating new and old business requirements and writing test scripts for all projects
- Monitoring progress of new business servers consolidation for the data center to ensure compliance and successful completion of project and migration to steady state
- Providing weekly updates and PowerPoint presentations
- Providing Framework for new business and developmental projects

**September 1998 - July 1999. Graduate Research Assistant, One year Contract.** DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF MD-SYSTEM. PRINCESS ANNE, MARYLAND.

- Created and maintained web pages for computer science club with the use of
JAVA/JAVA Script. Taught HTML and JAVA workshops to fellow peers and faculty at the University of Maryland. Provided oral and written presentation to faculty.

- Developed a software database that maintained the distribution and payments of traffic violations using tool such as JAVA, ODBC, and SQL for the University of Maryland System.
- Worked on a development team that created a software package, which included working with Artificial Intelligence in converting an African Language to Modern English; the back end was implemented in JAVA.

May 1998 - June 1999. **IT/Specialist, One year Contract.** INFORMATION TECHNOLOGY DEPARTMENT, PERDUE FARMS CORPORATE OFFICE. SALISBURY, MARYLAND.

- Developed Intranet web page using HTML Java and JAVA SCRIPT.
- Wrote small to medium range application in Natural Programming Language.
- Implemented Jobs for TSO and batch files in compliance with the Y2k problem.

September 1997- June 1998. **Graduate Research Assistant, Two year Contract.** DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF MD-SYSTEM. PRINCESS ANNE, MARYLAND.

- Installed computer software and tutored students.
- Taught a WEB/ HTML development class to undergraduates at the university.
- Facilitated JAVA and HTML workshops to staff members.

References Provided upon request.
Xiaolin Hu, Ph.D.
Assistant Professor
Department of Computer Science
Georgia State University

Contact Information
Mailing Address: Department of Computer Science, Georgia State University, 34 Peachtree Street, Suite 1450, Atlanta, GA 30303
Email: xhu@cs.gsu.edu
Phone: 404-463-9857
Webpage: http://www.cs.gsu.edu/~cscxlh

Education
Ph. D., Electrical and Computer Engineering, University of Arizona, Tucson, AZ, 2004
  Advisor: Bernard P. Zeigler
  Dissertation: A simulation-based software development methodology for distributed real-time systems
M. S., Institute of Automation, Chinese Academy of Sciences, China, 1999
B. S., Automatic Control, Beijing Institute of Technology, China, 1996

Research Interests

Grants
- Dynamic Data Driven Integrated Simulation and Stochastic Optimization for Wildland Fire Containment, (Co-PI), jointly with Lewis Ntaimo (PI, Texas A&M), National Science Foundation (NSF), $200K, 2005-2008
- Research Initiation Grant, Georgia State University, Xiaolin Hu (PI), 2006-2007 ----- Title: A Modeling and Simulation Framework for Computational Epidemiology
- Brain and Behavior Seed Grant, Xiaolin Hu (PI), Donald Edwards (Co-PI), 2005-2006, ---- -- Title: A two-layer mutual inhibition behavior network for adaptability & social behavior
- Faculty Mentoring Grant, Georgia State University, Xiaolin Hu (PI), 2005-2006 ----- Title: Applying Neurobiological Study of Crayfish to Designing Adaptive Robot Control Models
- Georgia State University Internal P20 Grant, Xiaolin Hu (PI), Donald Edwards (Co-PI), 2004-2006 -----Title: A Simulation Environment for Neural/Behavioral Models of Behavioral Choice

Professional Activities

Special Issue Editor

Program/General/Steering Chair
1. Program Chair, DEVS Integrative M&S Symposium, Spring Simulation Multiconference of SCS, 2007
2. Program Chair, DEVS Integrative M&S Symposium, Spring Simulation Multiconference of SCS, 2006
3. Special Session Co-Chair, Special Session on Computational Epidemiology at the IEEE International Conference on Granular Computing (GrC), 2006
4. Program Chair, DEVS Integrative M&S Symposium, Spring Simulation Multiconference of SCS, 2005

Program Committee
1. International Modeling and Simulation Multiconference 2007 (IMSM07), 2007
2. Agent-Directed Simulation (ADS'07), Spring Simulation Multiconference of SCS, 2007
4. 44th ACM Southeast Conference (ACMSE 2006), 2006
5. Agent-Directed Simulation (ADS'06), Spring Simulation Multiconference of SCS, 2006

Proposal Reviewing
1. University of North Texas Research Proposal, 2005

Journal Reviewing (List not complete)

Society Membership
1. Member, IEEE

Teaching
Fall 2006
• CSC 4350/6350: Software Engineering

Spring 2006
• CSC 8350: Advanced Software Engineering
• CSC 8910: Computer Science Topics Seminar – Object-oriented simulation / discrete event modeling

Fall 2005
• CSC 4350/6350: Software Engineering
Spring 2005
- CSC 8350: Advanced Software Engineering
- CSC 8910: Computer Science Topics Seminar -- Robots and multi-robot systems

Fall 2004
- CSC 4350/6350: Software Engineering

Publications

Books/Proceedings
1. **X. Hu**, B.P. Zeigler (Eds), Proceedings of the 2005 DEVS Integrative M&S Symposium, Spring Simulation Multiconference, 2005

Book Chapters

Journal Papers
1. L. Natimo, **X. Hu**, and Y. Sun, "DEVS-FIRE: Towards an Integrated Simulation Environment for Surface Wildfire Spread and Containment", submitted to *SIMULATION: Transactions of The Society for Modeling and Simulation International*
Conference Papers


Non-refereed Papers/Articles


CURRICULUM VITAE

NISAR HUNDEWALE

Department of Computer Science
Georgia State University
Office: 34, Peachtree Street, Suite 1455 Atlanta GA 30303
Postal Address: PO Box 2351 Atlanta GA 30301
Phone: (404) 463-2802 Cell Phone: (678) 760-0033 Fax: (425) 920-5907
E-mail: nisar@computer.org Web page: http://www.cs.gsu.edu/nisar

Research Interests

Bioinformatics, Computational Biology, Computational Intelligence, Parallel and Distributed Computing, Statistical Methods, Ad Hoc Mobile and Sensor Networks.

Education

2001-Dec 2006 Georgia State University  Atlanta, GA USA
   Ph.D., Computer Science.

1994–1995 University of Wollongong  Wollongong, Australia
   M.S., Computer Science.

1991–1993 National Institute of Industrial Engineering (NITIE)  Bombay, India
   Grad Diploma in Computer Applications.

1986–1989 Shivaji University  India
   B.S. (Honors)

Professional Experience

2001–Present Georgia State University, Dept. of Computer Science  Atlanta, GA
   Instructor

2000-2000 University of Arkansas At Pine Bluff  Pine Bluff, AR
   Assistant Professor (Visiting)

1998-1999 Arkansas Crime Information Center  Little Rock, AR
   Network Support and Application Developer (Internship)

1998-1999 University of Arkansas At Little Rock  Little Rock, AR
   Graduate Research Assistant
1997-1998 University of London External Programme at Informatics Singapore Lecturer

1995-1997 Millers Distributing Co. Sydney, Australia Unix System Administrator / Programmer

Publications

Journal Articles


Book Chapter


Refereed Conference Papers


Professional Services

2006 External Program Reviewer to Georgia Perimeter College, Atlanta, GA

2006 Referee of Networks and Communication Systems (NCS 2006)
2005 Referee of International Conference on Computational Science (ICCS2005)
2005 Contributed 110 Programming Problems and their C++ programming solutions for the textbook (Code-Mate) “Problem Solving with C++” fifth edition, 2005 authored by Walter Savitch. I have been acknowledged in the print.
2004-2005 Reviewer of several books published by Addison Wesley and Prentice Hall.

Membership
1997-present Member of Institute of Electrical and Electronics Engineers (IEEE) and IEEE Computer Society.
2005-present Member of International Society of Computational Biology (ISCB).

Teaching
Taught eight graduate/undergraduate courses per year at GSU:
CSC1310 Intro to Programming for Non-Majors (3.0 Credits, taught 1 semester)
CSC2010 Intro to Computer Science (3.0 Credits, taught 5 semesters)
CSC2310 Java Programming (3.0 Credits, taught 3 semesters)
CSC2311 C++ Programming (3.0 Credits, taught 5 semesters)
CSC3320 Unix Systems Programming (3.0 Credits, taught 7 semesters)
CSC3410 Data Structures (3.0 Credits, taught 2 semesters)
CSC4220/6220 Computer Networks (4.0 Credits, taught 5 semesters)
CSC4320/6320 Operating Systems (4.0 Credits, taught 2 semesters)
CSC4520/6520 Computer Networks (4.0 Credits, taught 2 semesters)
CSC4580/6580 Windowing Systems Programming (4.0 Credits, taught 1 semester)

Undergraduate Courses Taught at UAPB:
• Intro to Computer Science
• C Programming
• Database Systems
• Visual Basic Programming

Taught Undergraduate Courses of University of London at Informatics:
• Intro to Computer Science
• C Programming
• Machine Learning
• Discrete Mathematics
• Database Systems
• Artificial Intelligence
• Neural Networks

Course Proposal and Development
2005 Fundamentals of Web Development (3.0 Credits) proposed at GSU.
2005 Programming for non-majors (3.0 Credits) proposed at GSU.
2003 CSC4220/CSC6220 Computer Networks (4.0 Credits) developed at GSU.

Students Supervised
Masters Students co-supervised (all GSU):
2006-2006 Snehlata Badgujar (CS Dept.) – Software Integration IDE Development.
2004-2005  Sunsook Jung (CS Dept.) – Node caching enhancement to AODV routing.

Undergraduate Research Students Supervised (CSC4999):
CS GSU Students:
Fall 2006  
  Andre Everette – GUI for software integration IDE tool.
Summer 2006  
  Marcio DaSilva – Automatic generation of data format automata and parser.
Spring 2006  
  Adam Riyaznia – NLP for Smart Home.
Fall 2005  
  Valentine Avksentyev – Web services deployment of Bioinformatics Tools.
Summer 2005  
  Brad Mayfield – Development Environment for Software Integration.
  Brenda Coleman – Choosing Kernel Function in SVM for Classification.
  Sandra Terry - Modeling Genetic Regulatory Network using Bayesian Belief Network.
Spring 2005  
  Janet Pierce-- Survey of DNA, RNA and Universal Tag Microarray technologies.
  Henry O’Hara – Parallel implementation of Validation of Clustering Algorithms for High Throughput Data.
Fall 2004  
  Krystil Hogan – Survey of Gene Regulatory Networks Modeling.
  Antwan Nylor – Web Interface (Servlets) for Validating Clustering Algorithms.
Summer 2004  
Spring 2004  
Fall 2003  
  Sohaib Javed – Survey of Bioinformatics Problems and AI Techniques.
Summer 2003  

Advised undergraduate theses student of University of London at Informatics:
- Fuzzy Control System for Road Traffic Control & Monitoring
- Integration of Bayesian Network Classification and Rough Set Rule Generation in Data Mining
- Data Mining for Forecasting of Stock Prices in Stock Exchange
- Data Mining for Crime Analysis in Singapore Police Force
- Data Mining for Foreign Exchange using Rough Sets
- Comparative Study of Data Mining Tools
- Non-Binary Genetic Algorithm for Security Audit Trails Analysis – Lim Hui Kiong
- Evolving Daily Job Schedule with Parallel Genetic Algorithm – Chong Soon Hin
- Pronunciation Aid for Non-Native Arabic Speaker
- Comparative Study of Speech Recognition Techniques
- Neural Network for Speech Therapy - Pronunciation Correction
- Natural Language Processing in Intelligent Networks - In Asian Context
- Fuzzy Real Time System to Control Ultrasonic Vision Monitoring
- PVM Implementation of Parallel Genetic/Neural Net Learning Algorithm.

Research Applications Development

At GSU:

- Bioinformatics - Consolidated several tools to form an automated process to provide DNA chip design (Affymetrix type) from given biological organism genomic ID.
- Developed Combinatorial Optimization and SVM tools for disease susceptibility.
- Automatic Adaptor Generator for Data Transformation - Automatic adaptor created to transform data for connectivity between heterogeneous software tools.
- On-the-fly Workflow creation for Bioinformatics Applications – On the fly workflow creation environment with automatic adaptor creation for bioinformatics software tools integration.
- Networking – Designed and implemented enhancement to AODV Mobile Ad hoc Network routing protocol.
- Designed and implemented Mobile Sensor Network (dynamic disjoint clusters) routing protocol.

At UALR:

- Designed, implemented and tested self learning algorithm for Co-operative group of Mobile Robots’ navigation in an unknown terrain.
- Embedded System Programming.
- Simulations using Matlab.
- Statistical Analysis using SAS.
- Genetic Algorithms and Neural Networks.

Network/System Administration and Software Development

Services at GSU:

- Network/System Administration – Build from ground up and administered Yamacraw Lab Network contains Sun Ultra Spark Server running Solaris 9, 29 Redhat Linux Enterprise Server and Workstations and some Windows XP Workstations.
- Wireless LAN - Managed, Access Point and PDAs wireless connectivity configured and administered.
- User Management - Created and managed LDAP and Unix User Accounts.
- Databases – MySQL and Oracle Server Administered and managed database users.
- Mail - Sendmail, IMP Webmail Squirrelmail and Horde - Configured and Managed.
- Web Servers and Content Management - Apache with CGI Installed and Administered.
- Web Services – Tomcat, Apache Axis Installed, Administered and Developed Application.
- Directory Services – SunOne LDAP, Samba, Fedora Installed, and Administered. Installed
and managed LDAP server on Sun Server and clients on Redhat Linux workstations along with NFS mounts.

- Grid / Parallel Computing – PVM, MPI Installed and Developed Parallel Distributed Applications.
- Firewalls and Routers - Sunscreen, IPTables Configured and Administered.
- Systems Program/Utilities/Scripting - Developed Systems Programs and Utilities on Unix and Linux using PHP, Perl, and C/C++, Java, JSP, J2EE for administrative purpose.
- Scientific Software Applications: Installed and developed applications for Research and Teaching purpose using Matlab, Magic, NS-2.
- Network Printer and Plotter Management

Developed Client Server Database Application at ACIC:
- Designed Database application using Visual Basic, Access and SQL Server.
- Provided Training to the users.
- Developed Technical Documentation for the application.

Unix Network Administration tasks at Millers:
- User Management, User Systems Troubleshooting and management.
- Systems Programming and Support

Graduate Courses Taken

1. Algorithms for Bioinformatics
2. Artificial Intelligence
3. Computer Architecture
5. Computer Networks
6. Control Systems Programming
7. Data Security
8. Database Management Systems
9. Deductive Databases and Logic Programming
10. Design and Analysis of Algorithms
11. Design and Analysis of Experiments
12. Digital Signal Processing
13. Distributed Computing
14. Electronics I
15. Genetics
16. Genetics Lab
17. Integral Transform Theory
18. IT Project Management
19. Measurement Techniques
20. Neural Networks
21. Parallel Computing
22. Programming Language Concepts
23. Project Management
24. Robot Modeling
25. Robotics Perception & Planning
26. Software Engineering
27. Statistics for Bioinformatics
28. System Analysis and Design
29. Systems Programming
30. Telecommunication Management
31. Theory of Computing
32. VLSI CAD, Network Algorithms

Citizenship Information
- I am a citizen of India. I have valid US employment authorization document (EAD) that allows me to work with any employer in the United States without sponsorship from the prospective employer.
Curriculum Vitae

K. N. King

Associate Professor
Department of Computer Science
Georgia State University
University Plaza
Atlanta, GA  30303

Education

B.S.  1975  Case Western Reserve University  Computer Engineering
M.S.  1976  Yale University  Computer Science
Ph.D.  1980  University of California, Berkeley  Computer Science

Professional Experience

Assistant Professor
School of Information and Computer Science
Georgia Institute of Technology  1980–1986

Research Scientist II
Software Engineering Research Center and
School of Information and Computer Science
Georgia Institute of Technology  1986–1987

Visiting Associate Professor
Department of Mathematics and Computer Science
Georgia State University  1987–1988

Associate Professor
Department of Mathematics and Computer Science
Georgia State University  1988–1999

Associate Professor
Department of Computer Science
Georgia State University  1999–

Books

TopSpeed C Language Tutorial, Jensen & Partners International, 1989
TopSpeed C++ Language Tutorial, Jensen & Partners International, 1991
Java Programming: From the Beginning, W. W. Norton & Company, 2000

Edited Books


Publications

Stack languages and log \( n \) space (with C. Wrathall), Journal of Computer and System Sciences 17 (1978), 281–299.


A Fortran 77 interpreter for mutation analysis (with A. J. Offutt VI), *Proceedings of the SIGPLAN ’87 Symposium on Interpreters and Interpretive Techniques*. Published as *SIGPLAN Notices* 22, 7 (July 1987), 177–188.


What’s new with Modula-2?, *Dr. Dobb’s Journal* 16, 6 (June 1991), 42–49.

A Fortran language system for mutation-based software testing (with A. J. Offutt), *Software—Practice & Experience* 21, 7 (July 1991), 685–718.


The history of programming languages, *Dr. Dobb's Journal* 18, 8 (August 1993), 18–24.


**Technical Reports**

Iteration theorems for families of strict deterministic languages, Technical Report UCB-CS-KK-78-01 and Electronics Research Laboratory Memorandum ERL-M78/15, Computer Science Division, Department of Electrical Engineering and Computer Sciences, University of California at Berkeley, April, 1978.


An optimal algorithm for sink-finding (with B. Smith-Thomas), Technical Report GIT-ICS-81/10, School of Information and Computer Science, Georgia Institute of Technology, August, 1981.

Department of Computer Science Self Study 2006


Reviews


**Known Citations in Journals**


**Known Citations in Conferences**


**Known Citations in Books**


**Presentations**


“Will Java Survive?,” University of Alabama ACM chapter, November 6, 1997.


Session chair, Mutation 2000, San Jose, California, October 6–7, 2000.


“Careers in Computer Science,” Georgia Perimeter College (Dunwoody campus), April 20, 2006.

Research Grants and Contracts

“Research in Models of Computation and Algorithms,” (co-PI with R. DeMillo and R. Miller), National Science Foundation Grant No. MCS81-03608, 1981–84, $205,000.

Consulting


Teaching Experience

Courses taught at Georgia Institute of Technology:

<table>
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222
Courses taught at Georgia State University:

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<td>Csc 431/631</td>
<td>Organization of Programming Languages</td>
<td>Fall '87</td>
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<tr>
<td>Csc 821</td>
<td>Principles of Programming Languages</td>
<td>Winter '88</td>
<td>7</td>
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<tr>
<td>Csc 231</td>
<td>Data Structures</td>
<td>Spring '88</td>
<td>13</td>
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<tr>
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<td>Organization of Programming Languages</td>
<td>Spring '88</td>
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<tr>
<td>Math 220</td>
<td>Discrete Mathematics</td>
<td>Summer '88</td>
<td>20</td>
</tr>
<tr>
<td>Csc 415/615</td>
<td>Combinatorial Algorithms</td>
<td>Fall '88</td>
<td>27</td>
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CSc 821 Principles of Programming Languages Winter '92 17
CSc 431/631 Organization of Programming Languages Spring '92 31
CSc 343 Computer Organization and Programming Fall '92 28
CSc 431/631 Organization of Programming Languages Fall '92 39
CSc 437/637 Introduction to Compilers Winter '93 22
CSc 821 Principles of Programming Languages Winter '93 16
CSc 343 Computer Organization and Programming Spring '93 25
CSc 431/631 Organization of Programming Languages Spring '93 34
CSc 343 Computer Organization and Programming Fall '93 23
CSc 431/631 Organization of Programming Languages Fall '93 33
CSc 437/637 Introduction to Compilers Winter '94 15
CSc 821 Principles of Programming Languages Winter '94 21
CSc 431/631 Programming Language Concepts Spring '94 20
CSc 343 Computer Organization and Programming Fall '94 24
CSc 431/631 Programming Language Concepts Fall '94 29
CSc 437/637 Introduction to Compilers Winter '95 9
CSc 821 Principles of Programming Languages Winter '95 20
CSc 343 Computer Organization and Programming Spring '95 29
CSc 431/631 Programming Language Concepts Spring '95 32
CSc 343 Computer Organization and Programming Fall '95 36
CSc 431/631 Programming Language Concepts Fall '95 29
CSc 343 Computer Organization and Programming Winter '96 6
CSc 431/631 Programming Language Concepts Winter '96 12
CSc 343 Computer Organization and Programming Spring '96 45
CSc 431/631 Programming Language Concepts Spring '96 29
CSc 431/631 Programming Language Concepts Fall '96 41
CSc 432 Principles of Object-Oriented Programming Languages Winter '97 22
CSc 821 Principles of Programming Languages Winter '97 17
CSc 343 Computer Organization and Programming Spring '97 45
CSc 431/631 Programming Language Concepts Spring '97 39
CSc 431/631 Programming Language Concepts Fall '97 47
CSc 226J Principles of Computer Programming I (in Java) Winter '98 31
CSc 432/632 Principles of Object-Oriented Programming Languages Winter '98 32
CSc 226J Principles of Object-Oriented Programming Languages Spring '98 35
CSc 2310 Principles of Computer Programming I Fall '98 36
CSc 3410 Data Structures Fall '98 32
CSc 4330/6330 Programming Language Concepts Fall '98 34
CSc 2310 Principles of Computer Programming I Spring '99 37
CSc 4330/6330 Programming Language Concepts Spring '99 36
CSc 2310 Principles of Computer Programming I Fall '99 38
CSc 4330/6330 Programming Language Concepts Fall '99 45
CSc 2310 Principles of Computer Programming I Spring '00 36
CSc 3210 Computer Organization and Programming Spring '00 45
CSc 4330/6330 Programming Language Concepts Spring '00 41
CSc 2310 Principles of Computer Programming I Fall '00 38
CSc 4330/6330 Programming Language Concepts Fall '00 49
CSc 4330/6330 Programming Language Concepts Spring '01 38
CSc 4510/6510 Automata Spring '01 45
CSc 4330/6330 Programming Language Concepts (two sections) Fall '01 94
CSc 4330/6330 Programming Language Concepts Spring '02 45
CSc 4510/6510 Automata Spring '02 47
CSc 3360 Windowing Systems Programming Fall '02 35
CSc 6330 Programming Language Concepts Fall '02 12
CSc 4330/6330 Programming Language Concepts Spring '03 49
CSc 4510/6510 Automata Spring '03 45
CSc 3360 Windowing Systems Programming Fall '03 32
CSc 4330/6330 Programming Language Concepts Fall '03 61
CSc 4330/6330 Programming Language Concepts Spring '04 47
CSc 4510/6510 Automata Spring '04 47
CSc 3360 Windowing Systems Programming Fall '04 34
CSc 4330/6330 Programming Language Concepts Fall '04 65
CSc 4330/6330 Programming Language Concepts Spring '05 41
CSc 4510/6510 Automata Spring '05 31
CSc 2310 Principles of Computer Programming I Fall '05 10
CSc 4330/6330 Programming Language Concepts Fall '05 46
CSc 4330/6330 Programming Language Concepts Spring '06 33
CSc 4510/6510 Automata Spring '06 40
CSc 2310 Principles of Computer Programming I Fall '06 11
CSc 4330/6330 Programming Language Concepts Fall '06 50

Courses Developed

CSc 226J, Principles of Computer Programming I (in Java)
CSc 3360, Windowing Systems Programming
CSc 343, Computer Organization and Programming
CSc 432/632, Principles of Object-Oriented Programming Languages
CSc 437/637, Introduction to Compilers
CSc 830, Theory of Computation

Continuing Education


Developer and instructor, “Beginning C” (later renamed “ANSI C: Part 1”), Southern Polytechnic State University, 1988–.

Developer and instructor, “Advanced C” (later renamed “ANSI C: Part 2”), Southern Polytechnic State University, 1988–.

Developer and instructor, “Object-Oriented Programming Using C++,” Southern Polytechnic State University, 1990–.

Developer and instructor, “Introduction to Programming Using C,” Southern Polytechnic State University, 1992–.

Developer and instructor, “Java Programming,” Southern Polytechnic State University, 1996.


Developer and instructor, “Beginning Java,” Southern Polytechnic State University, 2006–.

Developer and instructor, “Accelerated Java,” Southern Polytechnic State University, 2006–.


Graduate and Undergraduate Students Supervised

Ph.D. Theses Supervised:


M.S. Theses Supervised:

Aouaouche Fazileit Foufa, “Some Results on Systolic Tree Automata as Acceptors,” 1985.

M.S. Theses Committee:

Yi Qin, 2000.

M.S. Examination Committee:

Charles R. Carpenter, 1989 (chair).
Quinton Gooden, 1990.
Pil J. Kim, 1990.
Allen Skinn, 1992 (chair).
Rama Tenjarla, 1992.
Ali Mansour, 1993 (chair).
Eric Camara, 1993.
Yang Gao, 1993 (chair).
Martin Kianos, 1993 (chair).
Bhavana Parmar, 1993 (chair).
Sasin Tosayanonda, 1994 (chair).
Christopher Rajiah, 1994.
Michel Robert, 1994 (chair).
Russell Peters, 1994 (chair).
James Wilson, 1995.
Hrishikesh Joshi, 1996.
Michael Sigmond, 1996.
Rajashri Arun, 1996.
Bindu Mohan, 1996 (chair).
Ron Bolin, 1998 (chair).
Richard Fox, 1998 (chair).
Laura Harris, 1998.
Bryan Krofchok, 1998 (chair).

Senior Honors Thesis Supervised:


Senior Honors Paper Supervised:


Senior Projects Supervised:


Committees – Georgia Tech


Committees – Georgia State – Department of Mathematics and Computer Science

CSc 231 Textbook Selection Committee (ad hoc), 1995 (chair).
Department Chair Search Advisory Committee, 1998.
Executive Committee, 1992.
Local Area Network Subcommittee (chair), 1991.
Peterson’s Guide Committee (ad hoc), 1993.
Screening and Ranking of Applicants in Computer Science Committee (ad hoc), 1995.

Committees – Georgia State – Department of Computer Science

Academic Program Review Committee, 2005– (chair).
Ad Hoc Advisory Committee on B.S. Requirements, 2002 (chair).
Ad Hoc Committee on Changing Credit Hours, 2000.
Alumni Relations Committee, 2002– (chair).
CSc 3410 Textbook Selection Committee (ad hoc), 2001 (chair).
Graduate Student Teaching Mentoring Committee, 2005–.
Ph.D. Qualifying Examination Committee, 2001–.
Pre-Tenure Review Committee for Erdogan Dogdu (ad hoc), 2004 (chair).
Pre-Tenure Review Committee for Michael Weeks (ad hoc), 2002 (chair).
Promotion and Tenure Committee of Tenured Associate Professors and Professors, 2000–.
Student Learning Outcomes Committee, 2003–.
Web Site Committee, 2000– (chair).

Committees – Georgia State – College of Arts and Sciences


Committees – Georgia State – University

University Career Services Faculty Advisory Committee, 2004–2005.
University Senate, Cultural Diversity Committee, 1994–95.
University Senate, Athletics Committee, 1995–96.

Committees – Outside

36th Annual ACM Southeast Conference Program Committee, 1998 (chair).
ACM Southeast Conference Steering Committee, 2003–.
Second SECABC Fall Workshop on Biocomputing Organizing Committee, 2005 (publicity chair).
Honors, Awards, or Recognitions

National Merit Scholarship, 1971–75.
Case Western Reserve University, Philip E. Bliss Prize (awarded to the senior attaining the highest academic record), 1975.
National Science Foundation Graduate Fellowship, 1975–78.
University of California, Berkeley, Regents Fellowship, 1978–79.
Outstanding Faculty Award (awarded annually to an ICS faculty member by the Georgia Tech ACM chapter), 1985.

Membership in Professional and Honor Societies

Tau Beta Pi
Association for Computing Machinery
SIGACT
SIGCSE
SIGPLAN
IEEE Computer Society

Service Activities

Service to the School of ICS:

Responsible for writing, producing, and distributing ICS Newsletter, 1981–84
Wrote copy for ICS brochure and supervised production, 1981–86
Wrote copy for ICS graduate study poster and supervised production, 1982–86
Supervised production of Equifax Doctoral Fellowships poster, 1986
Organized ICS Theory Seminar, 1982–83
Coordinator for Theoretical Computer Science portion of General Examination, 1982–83
Graduate Advisor, 1984–86 (responsible for graduate advising and admissions)
Faculty Secretary, 1984–87

Service to the Software Engineering Research Center:

Organized Software Engineering Seminar, 1986–87
Organized a series of software engineering courses for Sperry Corporation, 1986

Service to Georgia State University:

ACM student chapter co-advisor, 1988–2000
Career Panel on Information Technology moderator, January 18, 2005

Service to the Department of Computer Science:

Departmental liaison to the GSU library, 1999–2002
Webmaster for department Web site, 1999–

Service to the profession:

Editor, MODUS Quarterly, 1988–90
Coordinator, Modula-2 Validation Suite, 1988–90

Host for meeting of IEEE Microprocessor Standards Committee Working Group P1151, Atlanta, March 21–23, 1988

Judge for student paper competition, 35th Annual ACM Southeast Conference, Murfreesboro, Tenn., April 2–4, 1997

Judge for student paper competition, 38th Annual ACM Southeast Conference, Clemson, S.C., April 7–8, 2000


External reviewer for undergraduate program review, Department of Computer Science, Tennessee Technological University, 2002

Judge for student paper competition, 43rd Annual ACM Southeast Conference, Kennesaw, Georgia, March 18–19, 2005

Referee for
Communications of the ACM
Journal of the ACM
Theoretical Computer Science
SIAM Journal on Computing
Journal of Computer and System Sciences
Information Processing Letters
Transactions on Mathematical Software
ACM '85
24th SIGCSE Technical Symposium on Computer Science Education
31st Annual ACM Southeast Conference
ACM Letters on Programming Languages and Systems
IEEE Transactions on Education
25th SIGCSE Technical Symposium on Computer Science Education
26th SIGCSE Technical Symposium on Computer Science Education
33rd Annual ACM Southeast Conference
27th SIGCSE Technical Symposium on Computer Science Education
34th Annual ACM Southeast Conference
28th SIGCSE Technical Symposium on Computer Science Education
35th Annual ACM Southeast Conference
30th SIGCSE Technical Symposium on Computer Science Education
37th Annual ACM Southeast Conference
SIGCSE 2000
38th Annual ACM Southeast Conference
SIGCSE 2001
39th Annual ACM Southeast Conference
SIGCSE 2002
SIGCSE 2003
SIGCSE 2004
SIGCSE 2005
43rd Annual ACM Southeast Conference
SIGCSE 2006
44th Annual ACM Southeast Conference

Reviewer for Computing Reviews
Reviewer for the National Science Foundation

Book reviewer for
  Addison-Wesley
  Barnes & Noble
  Benjamin/Cummings
  Harper & Row
  Heath
  Jones and Bartlett
  Little, Brown
  Macmillan
  McGraw-Hill
  Reston
  Wadsworth
  Wiley
Dr. Yingshu Li

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Georgia State University
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1021 Lincoln Court Ave
Atlanta, GA 30329

Office Phone: 404-651-4557
Fax: 404-463-9912
Cell Phone: 612-396-2335
Email: yli@cs.gsu.edu
URL: http://www.cs.gsu.edu/yli/

EDUCATION:
• Ph.D. in Computer Science
• M.S. in Computer Science
• B.S. in Computer Science

WORK EXPERIENCE:
8/2005 - Present
Assistant Professor
Department of Computer Science
Georgia State University
34 Peachtree Street, Suite 1413
Atlanta, GA 30303, USA

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES:
• Member of the IEEE.
• Member of the ACM.
• Guest Editor (with Ion Mandoiu and Alexander Zelikovsky), Special Issue on "SAWN 2006" for International Journal of Wireless and Mobile Computing (IJWMC), to be published in 2007.
• Guest Editor, Special Issue on Theoretical and Algorithmic Aspects in Sensor Networks for International Journal of Sensor Networks (IJSN), to be published in 2006.
• Program Co-Chair, The International Workshop on Sensor Networks (IWSN2006) in conjunction with The 8th Asia Pacific Web Conference (APWeb2006), Harbin, China, January 16-18, 2006.
- Member, Graduate Committee, Computer Science Department, Georgia State University, 1/2006 – Present.
- Member, Ph.D. Qualifying Examination Committee, Computer Science Department, Georgia State University, 1/2006 – Present.
- Member, Graduate Admission Committee, Computer Science Department, Georgia State University, 8/2005 – Present.

REFEREE SERVICE FOR:
JOURNAL:
- Ad Hoc Networks Journal
- EURASIP Journal on Wireless Communications and Networking
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Mobile Computing
- IEEE Transactions on Parallel and Distributed Systems
- IEEE Transactions on Wireless Communications
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- International Journal of Computers and Applications
- Journal of Computer Science and Technology
- Journal of Information Science and Engineering
- Journal of Combinatorial Optimization
- Journal of Universal Computer Science
- Theoretical Computer Science

CONFERENCE (not serving as committee member):
- GLOBECOM 2006
- MILCOM 2006
- MSN 2005
- WCNC 2004

PUBLICATIONS:
JOURNAL ARTICLES:
• Maggie Xiaoyan Cheng, Jianhua Sun, Manki Min, Yingshu Li and Weili Wu, Energy-efficient Broadcast and Multicast Routing in Multihop Ad Hoc Wireless Networks, Accepted by Wireless Communications and Mobile Computing (WCMC), 2004.

CONFERENCE PAPERS:
• Ding-Zhu Du, My T. Thai, Yingshu Li, Dan Liu and Shiwei Zhu, Strongly Connected Dominating Sets in Disk Graphs with Unidirectional Links, 8th Asia-Pacific Web Conference (APWeb), Harbin, China, January, 16-18, 2006.

**BOOK CHAPTERS:**


**BOOKS IN EDITING:**


**RESEARCH SUPPORT:**

- ‘Coverage in Sensor Networks’, 2006 – 2007, Georgia State University Research Initiation Grant, USA.
Ken D. Nguyen

6309 Harbin Woods Drive
Morrow, GA 30260
(770) 960-0506
email: knnguyen@cs.gsu.edu

Education
Master of Science, Computer Science, 2001
Georgia State University

Bachelor of Science, Computer Science, 1999
Georgia State University

Professional Employment
January 2002 – Present, Computer Science Instructor
Georgia State University, Atlanta, GA

June 2001 – December 2001, Graduate Teaching Assistant
Georgia State University, Atlanta, GA

January 2001- June 2001, Graduate Lab Assistant
Georgia State University, Atlanta, GA

Worldspan L. P., Atlanta, GA

1996 –1999, Technical Training Coordinator
Ciba Vision Corporation, Gwinnett, GA

Publications

Teaching Experience
June 2001 – Present: instructing the following courses
CSc2010: Introduction to Computer Science, Georgia State University
CSc2310: Principles of Programming I, Georgia State University
CSc2311: Principles of Programming II, Georgia State University
CSc3210: Computer Organization and Programming, Georgia State University
CSc3320 System-Level Programming, Georgia State University
CSc3410: Data Structures, Georgia State University
Research Interests

Bioinformatics – Protein Structure Alignments
Micro-processing and Embedded Systems
Object-Oriented Databases, Object-Oriented Programming, and Networking
Open-source Operating Systems and Applications

Professional Certifications and Memberships

Yamacraw Certification (Networks), 2001
TPF Programming Certification, 2000
TPF-C Programming Certification, 2000
TPFDF Programming Certification, 2000
SabreTalk Programming Certification, 2000
Curriculum Vitae
Yi Pan
Department of Computer Science
Georgia State University
University Plaza
Atlanta, GA 30303
Phone: (404) 651-2245
Fax: (404) 651-2246
Email: pan@cs.gsu.edu
URL: www.cs.gsu.edu/pan

PERSONAL DATA

Date of Birth: 05/12/1960
Sex: Male
Citizenship: USA

RESEARCH INTERESTS

Parallel and Distributed Computing, Optical Networks, Wireless Networks, and Bioinformatics.

EDUCATION

• Ph.D. in Computer Science, University of Pittsburgh, August 1991.
• M.S. in Computer Science, University of Pittsburgh, 1988.
• M.E. in Computer Engineering, Tsinghua University, 1984.
• B.E. in Computer Engineering, Tsinghua University, 1982.

PROFESSIONAL EMPLOYMENT

• 1/05-present, Chair and Professor, Department of Computer Science, Georgia State University.
• 8/04-12/04, Professor, Department of Computer Science, Georgia State University.
• 8/00-8/04, Associate Professor, Department of Computer Science, Georgia State University.
• 8/96-8/00, Associate Professor, Department of Computer Science, University of Dayton.
• December/04, JSPS-NSF Senior Fellow, Department of Computer Science, University of Tsukuba, Japan.
• December/98, JSPS Senior Fellow, Institute of Information Science, University of Tsukuba, Japan.
• 8/98-10/98, Visiting Researcher, Department of Computer Hardware, University of Aizu, Japan.
• Summer/1998, Visiting Associate Professor, Department of Computer Science, University of Vermont.
• Summer/1997, AFOSR Summer Faculty Research Fellow, Wright-Patterson Air Force Base.
• Summer/1996, Visiting Assistant Professor, Department of Electrical and Computer Engineering, Louisiana State University.
• Summer/1995, Visiting Researcher, Department of Computing and Information Science, Kansas State University.
• 8/91-8/96, Assistant Professor, Department of Computer Science, University of Dayton.
• 1/87-8/91, Teaching Fellow/Teaching Assistant, Department of Computer Science, University of Pittsburgh.
• 9/86-1/87, Teaching Assistant, Department of Computer Science, University of Calgary, Canada.
• 9/82-8/86, Research Assistant/Teaching Assistant, Department of Computer Engineering and Science, Tsinghua University, China.

HONORS AND AWARDS

• Keynote Speaker at IECT '05, Chengdu, China, September 29, 2005.
• Keynote Speaker at IEEE CIT '05, Shanghai, China, September 21-24, 2005.
• Keynote Speaker at IEEE GrC '05, Beijing, China, July 25-27, 2005.
• Keynote Speaker at MAICS '05, Dayton, Ohio, USA, April 2005.
• Distinguished Speaker in the CS Distinguished Speaker Series, UD, April 15, 2005.
• Distinguished Speaker in the CIS Distinguished Speaker Series, IUPUI, Sept. 24, 2004.
• Keynote Speaker at ICCIC '04, Las Vegas, USA, June 2004.
• Keynote Speaker at PMEO-PDS '04, Santa Fe, USA, April 2004.
• Keynote Speaker at PDCAT '03, Chengdu, China, 27-29 August 2003.
• Keynote Speaker at ISPA '03, Aizu-Wakamatsu City, Japan, July 2-4, 2003.
• Keynote Speaker at PDSECA '02, Fort Lauderdale, Florida, April 19, 2002.
• Yamacraw Distinguished Speaker, Savannah, Georgia, Oct. 4, 2002.
• Achievement Award, The World Academy of Sciences (2002),
• Nominated as 'Expert Assessor of International Standing' by Expert Advisory Committees of the Australian Research Council, 2002.
• Invited Oversea Speaker at Workshop on Optical Switching, National Chiao Tung University, Taiwan, May 25-26, 2001.
• Visiting Researcher Support Program Award (240,000 Japanese Yen) from the International Information Science Foundation based in Japan (2001).
• 1999 Outstanding Scholarship Award of the College of Arts and Sciences at University of Dayton
• Senior Invitation Fellowship, Japan Society for Promotion of Science, 1998.
• Summer Faculty Research Fellowship, Air Force Office of Scientific Research, 1997.
• Best Paper Award, 2nd International Conference on Parallel and Distributed Processing Techniques and Applications, Sunnyvale, CA, August 1996.
• Research Opportunity Award, National Science Foundation, 1995, 1996.
• Summer Research Fellowship, University of Dayton Research Council, 1993.
• Teaching Fellowship, University of Pittsburgh, 1989-1990.
• First Rank in the College Entrance Examination in Jiangsu Province among all 1977 high school graduates (out of 70,000 students).

RESEARCH GRANTS

• External Grants
  o National Science Foundation (NSF), "High Performance Rough Sets Data Analysis in Data Mining," NSF Award No. CCF-0514750, $137,481.00, sole-PI, July 15, 2005 - July 14, 2008.
  o National Institutes of Health (NIH), "SecA: Membrane Protein Modeling - Supplement to "Protein Translocation Across Escherichia Coli Membranes," NIH Award No. 3 R01 GM34766-17S1, $327,375.00, Collaborator with PC Tai (PI) and Rob Harrison (Consultant), Feb. 1, 2003 - Jan. 31, 2006.
  o National Science Foundation (NSF), "Bandgap Engineered Ultrafast Heterostructure Avalanche Photodiodes," subcontract of NSF Award No. ECS-0334813 (from University of New Mexico), $20,000.00, sole-PI, October 1, 2003 - September 30, 2006.
o National Institutes of Health (NIH), "Georgia State University Biomedical Computing Center," NIH Award No. 1 P20 GM065762-01A1, $1,091,250.00, Senior Investigator with Robert Harrison (PI), and Irene Webb (co-PI), and several others, June 1, 2003 - May 31, 2006.

o National Natural Science Foundation of China, "Investigation on the optimization theory and applications of the resource management in cellular networks", Grant No. 60440420451 (Two-Base project), RMB200,000.00, Oversea Principal Investigator, January 1, 2005 - December 30, 2007.

o Hong Kong Research Grant Council CERG Program, "QoS Mobile Group Communications - A Unifying Framework," RGC Award No. PolyU 5170/03E, HK$377,149.00, Co-Investigator with Cao Jiannong (PI), Sajal Das (co-PI, University of Texas at Arlington, USA) and Xing-wei Wang (co-PI, Northeastern University, PRC), June 1, 2003 - May 31, 2005 (24 months).

o Hong Kong Research Grant Council CREG Program, "Supporting Efficient and Fault-Tolerant Location Management in Mobile-IP Systems," RGC Award No. CityU 1203/03E, HK$377,149.00, Co-Investigator with Xiaola Lin (PI), Rynson W. H. Lau (co-PI), June 1, 2003 - May 31, 2005 (24 months).


o Japan Society for Promotion of Science (Japan's NSF), "Automatic Parallelization and Optimization for Irregular Applications," JSPS Grant-in-Aid for Scientific Research (Basic Research (C)(2)) Program No. 14580386, 4,000,000 Yen, Co-PI with Minyi Guo and Ikuo Nakata, April 1, 2002 - March 31, 2004.


o Air Force Office of Scientific Research (AFOSR) Summer Faculty Research Fellowship, $7500.00, awarded April 1997.

o National Science Foundation, "Algorithmic Scalability in Reconfigurable Bus-based Models," $12,996.00, awarded July 1996, National Science Foundation's Research Opportunity Award program.

o Ohio Board of Regents Investment Fund Competition Grant, "OCARNet: Ohio Computing and Communications ATM Research Network," $1,721,730.00, (Co-PI with Raj Jain, Russ Clark et al.), awarded March 1996.


o National Science Foundation, "Distributed Composite Protocols," $15,640, awarded February 1995, National Science Foundation's Research Opportunity Award program.

- Internal Grants


  o GSU Research Initiation Grant Award, "More Efficient Location Management for Wireless Networks," $8,000.00, Sole PI, July 1, 2001 - June 30, 2002.


  o University of Dayton Research Council Grant (Grants-In-Aid and Summer Research Fellowship), "Image Processing on Reconfigurable Meshes," $4000.00, sole PI, January - August 2000.

  o University of Dayton Research Council Grant (Grants-In-Aid and Summer Research Fellowship), "Design and Analysis of Distributed Election Algorithms," $4000.00, sole PI, January - August 1993.

  o University of Dayton Research Council Grant (Grants-In-Aid and Equipment Grant), "Interconnection Networks for Parallel Processing," $5000.00, sole PI, January - August 1992.
JOURNAL EDITORSHIP

• Editor-in-Chief

• Associate Editor
  o *IEEE Transactions on Parallel and Distributed Systems*, 2005-present.

• Editorial Board
  o *LNCS Transactions on Computational Systems Biology*, 2004-present.
  o *INFORMATION, an International Journal*, 2003-present.

• Guest Editor
  o Special Issue on ``Selected Papers from IWBRA '06'' of *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 2007.
  o Special Issue on ``Computational NanoBioscience'' of *IEEE Transactions on NanoBioscience*, 2006.
o Special Issue on `Mobility, Paging and Quality of Service Management for Future Wireless Networks' of *Wireless Communications and Mobile Computing Journal*, 2005.


o Special Issue on "Distributed and Parallel Data Mining" of *Distributed and Parallel Databases*, Vol. 11, Issue 2, March 2002.


**PATENTS**


PUBLICATIONS

• Books/Proceedings


**Refereed Journals**


64. H. Shen, K. Li, Y. Pan, G.H. Young, and S.-Q. Zheng, "Performance analysis for dynamic tree embedding in k-partite networks by random walk," *Journal of Parallel and Distributed Computing*, Special Issue on Ir-


- **Book Chapters**


- **Refereed Conferences**
10. Hae-Jin Hu, Robert Harrison, Phang C. Tai, Jieyue He, and Yi Pan
    "Transmembrane Segments Prediction based on Support Vector Machine with Position Specific Scoring Matrix," The Ninth Annual International


31. Wei Zhong, Yi Pan, Robert Harrison, and Phang C. Tai, "Protein secondary structure prediction using different encoding schemes and neural network architectures," the SPIE conference on Data Mining and Knowledge Discovery: Theory, Tools, and Technology VI, 12-16 April 2004 in Orlando, FL USA, pp. 74-79.


44. Jim Buckley, Jennifer Seitzer, Yongzhi Zhang, and Yi Pan, "Logical Identities Applied to Knowledge Discovery in Databases," The 16th AAAI International FLAIRS (Florida Artificial Intelligence Research Symposium) Conference, St. Augustine, Florida, May 12-14, 2003, pp. 266-270.


50. M. Syeda, Y. Zhang and Y. Pan, "Parallel Credit Card Fraud Detection Using Fuzzy Neural Networks," (invited) FUZZ-IEEE 2002 of World Con-
gress of Computational Intelligence 2002, Special Session on Granular Computing and Data Mining, pp. 572-577, May 2002.


62. J. Seitzer, J.P. Buckley, and Y. Pan, "Interconnected Knowledge-Based Systems," Proceedings of the Third Grace Hopper Celebration of Women in
Computing 2000, Cape Cod, Massachusetts, September 2000, In proceedings (on CD) under AI 10:30 - 12noon session.


73. Y. Han, Y. Pan and H. Shen, "Fast Parallel Selection on the Linear Array with Reconfigurable Pipelined Bus System," 7th IEEE Symp. on the Fron-
tiers of Massively Parallel Computation, Annapolis, Maryland, Feb. 21-25, 1999, pp. 286-293.


93. Y. Pan and K. Li, "The Radon and Hough transforms on a reconfigurable mesh," Proceedings of 8th International Conference on Parallel and Distributed Computing and Systems, Chicago, IL, October 1996, pp. 82-86.


95. K. Li and Y. Pan, "Characterizations of communication overhead for scalable random parallel algorithms on multicomputer systems," Proceedings


- **Refereed Chinese Journals**

- **Research Reports**

**RECENT INVITED KEYNOTE/COLLOQUIUM TALKS**

1. **Keynote Speaker** at IECT '05, Chengdu, China, September 29, 2005.
2. **Keynote Speaker** at IEEE CIT '05, Shanghai, China, September 21-24, 2005.
5. **Colloquium Speaker**, Institute of Computer Technology, Chinese Academy of Science, (June 28, 2004).
8. **Colloquium Speaker**, Hong Kong Polytechnic University, Hong Kong (March 12, 2004).
12. **Colloquium Speaker**, Florida Atlantic University, Florida (June 10, 2003).
13. **Colloquium Speaker**, Southern Polytechnic State University, Georgia (February 3, 2003).
14. **Colloquium Speaker**, Hong Kong Polytechnic University, Hong Kong (Dec. 23, 2002).
15. **Distinguished Alumni Speaker**, Celebration of Our Alumni Symposium, University of Pittsburgh, (Nov. 15, 2002).
16. **Yamacraw Distinguished Speaker**, Savannah State University, jointly hosted by Armstrong Atlantic State University, Georgia Southern University, Savannah State University, and Georgia Tech Regional Engineering Program (October 4, 2002).
17. **IEEE Distinguished Speaker**, University of New Mexico, New Mexico, (August 30, 2002).
23. **Shell Oil Colloquium Speaker**, University of Texas at El Paso, (February 15, 2002).
24. **Colloquium Speaker**, Yangzhou University, China (December 26, 2001).
25. **Colloquium Speaker**, Suzhou University, China (December 24 and 25, 2001).
26. **Colloquium Speaker**, University of Hong Kong, Hong Kong (December 18, 2001).
27. **IEEE Distinguished Speaker**, University of Texas at Dallas, (Nov. 30, 2001).
30. **Colloquium Speaker**, National Taiwan University of Science and Technology, Taiwan (May 29, 2001).
31. **Invited Oversea Speaker**, National Chiao-Tung University, Taiwan (May 25/26, 2001).
32. **IEEE Distinguished Speaker**, IEEE Computer Society Atlanta Chapter, Bell South, Atlanta, (March 22, 2001).
33. **Colloquium Speaker**, University of Alabama (Nov. 2000).
34. **Colloquium Speaker**, GSU ACM Student Chapter (Oct. 2000).
38. **Colloquium Speaker**, Purdue University (1999).
40. **Colloquium Speaker**, Kent State University (1999).
42. **Colloquium Speaker**, University of Tsukuba in Japan (1998).
44. **Colloquium Speaker**, Old Dominion University (1998).
47. **Colloquium Speaker**, Florida State University (1998).
49. **Colloquium Speaker**, Tsinghua University, Beijing, China (1994).
50. **Colloquium Speaker**, Northern Jiaotong University, Beijing, China (1994).

**TEACHING EXPERIENCE**

  - Introduction to Programming with FORTRAN
  - Introduction to Programming with PASCAL
  - Data Structures and Intermediate Programming
  - Assembly Language Programming
  - Advanced Computer Architecture
  - Operating Systems
  - Discrete Event Simulation
  - Parallel Programming
  - Compilers I
  - Compilers II
  - Algorithm Design
  - Discrete Structures
  - Programming for Engineering and Science
- **Georgia State University (2000-present)**
VISITING SCHOLARS SPONSORED/SUPERVISED

- Prof. Jieyue He, Associate Professor, Department of Computer Science and Engineering, Southeast University, Nanjing, China, Oct. 25, 2004 - Oct. 24, 2005 (supported by China Scholarship Council, Beijing, China).
- Dr. Muhammad Ali, Assistant Professor, Department of Computer Science, Tuskegee University, Alabama, USA, June 2003 - August 2003 (supported by the National Science Foundation of USA).
- Dr. Muhammad Ali, Assistant Professor, Department of Computer Science, Tuskegee University, Alabama, USA, June 2002 - August 2002 (supported by the National Science Foundation of USA).
- Dr. Minyi Guo, Assistant Professor, University of Aizu, Japan, August 2001 - March 2002 (supported by the Ministry of Education, Culture, Sports, Science and Technology of Japan).
- Dr. Pingzhi Fan, Professor and Dean, College of Computer and Communication Engineering, Southwest Jiaotong University, China, May 2001 - August 2001 (supported by the National Committee of Oversea Study Fund of China).
- Dr. Shi-Jinn Horng, Professor, Department of Electrical Engineering, National Taiwan University of Science and Technology, Taiwan, June 2000 - September 2000 (supported by the National Science Council of Taiwan).

PhD DISSERTATIONS ADVISED

- "Clustering System and Clustering Support Vector Machine for Local Protein Structure Prediction," Wei Zhong, completed in Summer 2006 (now Assistant Professor of Computer Science at University of South Carolina Upstate, USA).
• "Topology Control, Routing Protocols and Performance Evaluation for Mobile Wireless Ad Hoc Networks," Hui Liu, completed in Fall 2005 (now Assistant Professor of Computer Science at Missouri State University, USA).
• "Upper Bound Analysis and Routing in Optical Benes Networks," Jiling Zhong, completed in Fall 2005 (now Assistant Professor of Computer Science at Troy State University, USA).
• "Routing Algorithms and Performance Evaluation for Optical Multistage Networks with Limited Crosstalk," Ajay K. Katangur, completed in Fall 2004 (now Assistant Professor of Computer Science at Texas A&M University - Corpus Christi, USA).

M.S. THESES ADVISED

• "Implementation of Vertical Handoff Algorithm between IEEE802.11 WLAN and CDMA Cellular Networks," Mary Kavitha Narisetti, completed in Summer 2006.
• "Parallel Algorithm for Memory Efficient Pairwise and Multiple Genome Alignment in Distributed Environment," Nova Ahmed, completed in Fall 2004.
• "Parallel Implementation of Support Vector Machines with Applications to Protein Structure Prediction," Shilpa Panaganti, completed in Fall 2004.
• "Parallel implementation of genomic distances under deletions and insertions," Vijaya Smita Kolli, completed in Summer 2004.
• "Parallel Implementations of Biofilm Modeling with OpenMP, HPF and Pthreads," Zhiyi Li, completed in Summer 2004.
• "An Improved Dynamic Database Location Management Scheme for PCS Networks," A. Gudipati, completed in February 2003.
• "An Improved Movement-Based Location Management Scheme for PCS Networks," Lei Li, completed in November 2002.
• "Neural Network Solution to Network Routing," V. Krishnamoorthy, completed in October 2001.

M.S. PROJECTS SUPERVISED

• "Design and Implementation of Scheduling Domains in AI Planning System" by Huikang Shi, completed June 1995.
• "Overview of AI Planning Systems and Their Potential Use in Scheduling" by Srinivasa Satrasala, completed in February 1995.
• "List Scheduling and User Interface in Visual C++" by Ravi Madugala, completed in February 1996.
• "Client-Server System" by Ligong Zhu, completed in 1998.
• "A Parallel Genetic Algorithm for Task Scheduling" by Michael Bohler, completed in 1998.
• "Internet Relay Chat Client with GUI" by Harimohan S. Bawa, completed in 1998.
• "Visual Point of Sale System," by Chien-ming Kuo, completed in 1999.
• "An Information Management System For University International Office," by Yunchang Li, completed in August 1999.
• "Logical Identities Applied to Knowledge Discovery in Databases," by Tony Zhang, completed in Dec. 1999.
• "Simulation of Channel Assignment Algorithms in Wireless Networks," (M.S. Project), Xiannong Fu, completed in August 2002.
PhD COMMITTEE MEMBER/REVIEWER

- "Service Integration and Authentication in WLAN/Cellular Networks" by Minghui Shi, Department of Electrical and Computer Engineering, University of Waterloo, Canada, completed in Fall 2006.
- "Distributed Web Service Coordination for Collaborative Applications and Biological Workflows," by Janaka Balasooriya, Department of Computer Science, Georgia State University, completed in Fall 2006.
- "Algorithms for Computational Population Genetics: Phasing, Tagging and Disease Susceptibility," by Jingwu He, Department of Computer Science, Georgia State University, completed in Fall 2006.
- "CAD Tools for DNA Micro-Array Design, Manufacture and Application," by Nisar Hundewale, Department of Computer Science, Georgia State University, completed in Fall 2006.
- "SVM-Based Negative Data Driven Compensating Hypothesis Approach to Binary Classification," by Fuhua Jiang, Department of Computer Science, Georgia State University, completed in Summer 2006.
- "Efficient Table Lookup Algorithms for the Next Generation IP Networks," by Zhen Xu, Carleton University, Canada, January 2005.
- "Application of Fast and Robust Equalization in Communication Technology," by Hua Ye, School of Computing and Mathematics, Deakin University, Australia, completed in October 2003.
- "Some topic in Intelligent Agents and Security," by Ramdane Issolah, Department of Computer Science, Georgia State University, graduation date unknown.
- "Some Topic in Graphics and Visualization," by Anthony S. Aquilio, Department of Computer Science, Georgia State University, graduation date unknown.
- "Efficient Computation of Replacement Shortest Paths and its Applications," by Sven Venema, School of Computing and Information Technology, Griffith University, Australia, completed in March 2002.
- "Fault Tolerant Models and Fault Tolerant Routing Algorithms in Hypercube Networks with Large Number of Faulty Nodes," by an anonymous PhD student, Department of Computer Science, Central South University, China, completed in March 2002.
- "A Reactive System Model for Building Fault-Tolerant Distributed Applications" by Changgui Chen, School of Computing and Mathematics, Deakin University, Australia, completed in July 2001.
• "Wavelength Division Multiplexed (WDM) Fiber Optic Computer Communication Networks" by Mohammad F. Alam, Electro-Optics Program, University of Dayton, completed in 2000.
• "Java-Based Heterogeneous Distributed Programming Framework" by Nenad Stankovic, Department of Computing, Macquarie University, Australia, completed in 2000.
• "A Toolkit for Constructing Service Replication Systems" by Li Wang, School of Computing and Mathematics, Deakin University, Australia, completed in October 1999.
• "The Reconfigurable Mesh: Programming Model, Self-Simulation, Adaptability, Optimality, and Applications" by Manzur Murshed, Department of Computer Science, Australian National University, completed in August 1999.
• "Enhanced Artificial Neural Network Performance Using Multidimensional Complex Numbers" by Howard Michel, Department of Computer Science and Engineering, Wright State University, completed in May 1999.

M.S. COMMITTEE MEMBER/REVIEWER

• "Simulating a Pipelined Reconfigurable Mesh on a Linear Array with a Reconfigurable Pipelined Bus system," by Mathura Gopalan, completed in summer 2005.
• "Wavelet Neural Network-based Audio Compression," by Huaxin Johnny Ye, completed in Fall 2004.
• "Balancing power in consumption in AODV wireless networks," by Bo Hyun Yu, completed in Nov. 2003.
• "Distributed algorithms for ad hoc wireless newtorks," by Chintan Shah, completed in Nov. 2003.
• "Personal Stock Portfolio Management System on iPAQ," by Jingwu He, M.S. Project, completed in May 2002.

PAPERS AND TALKS RELATED TO TEACHING

• Yi Pan, "Experience in Teaching Parallel Computing at UD," A talk given at the Ohio College Educators in Parallel Processing meeting, Ohio Supercomputing Center, Columbus, Ohio, May 17, 1996.
• Yi Pan, "Teaching Parallel Programming Using Both High-Level and Low-Level Languages," A Talk given in the Workshop on Education in Computational Sci-
ences of the 2002 International Conference on Computational Science, Amsterdam, the Netherlands, April 21 - 24, 2002.


UNIVERSITY COMMITTEE SERVICES

- Georgia State University (2000-present)
  - Chair of University Senator Information Systems and Technology (IS&T) Committee (2005-present).
  - Chair of IS&T Student Tech Fee Sub-Committee (2006-present).
  - Member of Information Technology Steering Group (2005-present).
  - Member of University Senator Information Systems and Technology (IS&T) Committee (2003-2005).
  - Member of University Senator Planning and Development Committee (2005-present).
  - Member of Classroom Facilities Council (2005-present)
  - College Promotion and Tenure Committee (2004-2005).
  - University Committee on Minority Mentoring (2004-2005).
  - Provost's University Strategic Planning Committee (2004).
  - Senator Library Advisory Committee (SLAC) (2004 - 2005)
  - Member of University IS&T Data Warehouse Subcommittee (2003).
  - Member of Student Tech Fee Committee (2004 - present).
  - Member of Executive Committee for University Biomedical Computing Center, (2003 - present).
  - Member of Scientific Review Committee for University Biomedical Computing Center, (2003 - present).
  - Member of University Internal Grants Program Faculty Peer Review Committee, 2003-2005.
  - Member of University Instructional Innovation Review Committee (2003).
  - Member of GSU Grid Computing Group (2003-present).
  - Member of Campus Wide Advisory Committee on GSTEP (Georgia State Test of English Proficiency), 2001.
  - Member of APACE Ad hoc Subcommittee on Language Proficiency Screening for Non Native English-Speaking TAs (2001-2002).
  - Chair of Faculty Search Committee (2002-present).
  - Member of Pre-Tenure Review Committee for Dr. Dogdu (2004).
  - Chair of Ph.D. Qualifying Exam Subcommittee on Architectures (2001-present).
o Member of Departmental Executive Committee (elected) (2001-present).
o Member of Ad Hoc Committee on Testing Protocols in CS (2003).
o Member of Ad Hoc Committee on Learning Outcomes in CS (2002-2003).
o Member of Ad Hoc Advisory Committee on BS Requirements (2002).
o Member of Ad Hoc Committee on Compensation Review (2001).
o Member of Faculty Search Committee (2000-2002).
o Member of Graduate Committee (2000-present).
o Member of Ph.D. Qualifying Exam Subcommittee on Algorithms (2001-2003).
o Member of Colloquium Committee (2000-2002).
o Member of Honors Program and Honors at Graduation Committee (2000-2002).

- University of Dayton (1991-2000)
  o Member of College's Scholarship Award Sub-Committee, 2000.
  o Co-Director of Graduate Studies in Computer Science, 1997-2000.
  o Member of Departmental Student Appeal Committee, 2000.
  o Chair of Departmental Promotion and Tenure Committee, 1999-2000.
  o Member of Departmental Promotion and Tenure Committee, 1998-1999.
  o Member of Colloquium Series Committee, 1999-2000.
  o Member of Departmental Sabatical Leave Review Committee, 1998-2000.
  o Computer Science Representative of MIS Curriculum Committee, 1997-2000.
  o Member of CSAB Recommendation Committee, 1995.

EXTERNAL ASSESSOR/REVIEWER FOR GRANT AGENCIES

- Served as a panelist/reviewer for the National Science Foundation (NSF) (2002-present).
- Served as an external referee for the Natural Sciences and Engineering Research Council of Canada (NSERC).
- Served as an expert assessor for the Australian Research Council (ARC).
- Served as an oversea assessor for research proposals for the Hong Kong Research Grants Council (RGC).
- Served as an external referee for the University of Missouri Research Board Grant Systems.
- Served as an oversea assessor for the Research Council of the City University of Hong Kong.
- Served as an out-of-state expert for Louisiana Board of Regents Support Fund Research and Development program.
• Served as an external referee for research proposals for Ohio Supercomputing Center.

EXTERNAL REVIEWER FOR PROMOTION AND/OR TENURE APPLICATIONS

• Tenure and promotion to the rank of associate professor at University of Toledo, 2005.
• Promotion to the rank of full professor at Universiti Sains Malaysia (USM), Malaysia, 2005.
• Tenure and promotion to the rank of associate professor at Queen's University, Canada, 2005.
• Tenure and promotion to the rank of associate professor at Indiana University-Purdue University Indianapolis, 2005.
• Promotion to the rank of full professor at University of Nebraska at Lincoln, 2005.
• Tenure and promotion to the rank of associate professor at University of Alabama, 2004.
• Tenure and promotion to the rank of associate professor at Southern Illinois University at Carbondale, 2004.
• Tenure and promotion to the rank of associate professor at Texas State University, 2004.
• Promotion to the rank of full professor at Wayne State University, 2003.
• Tenure and promotion to the rank of associate professor at University of New Mexico, 2002.
• Tenure and promotion to the rank of associate professor at University of North Texas, 2002.
• Tenure at the rank of full professor at Japan Advanced Institute of Science and Technology, 2002.
• Tenure and promotion to the rank of associate professor at University of Missouri at Columbia, 2002.
• Promotion to the rank of full professor at Western Oregon University, 2002.
• Tenure and promotion to the rank of associate professor at University of Texas at Dallas, 1998.
• Tenure and promotion to the rank of associate professor at Colorado School of Mines, 1998.
• Tenure and promotion to the rank of Western Oregon University, 1997.
• Tenure and promotion to the rank of associate professor at Southwest Missouri State University, 1996.
REVIEWER FOR PAPERS, BOOKS AND OTHERS

- Reviewed over a few hundred of papers for more than 20 international journals and numerous international conferences.

CONFERENCE CHAIR

- General Co-Chair, 2006 IEEE International Conference on Granular Computing, GSU, Atlanta, USA, May 10-12, 2006.
- General Co-Chair, The 2nd IEEE International Symposium on Dependable Autonomic and Secure Computing (DASC'06), Indianapolis, USA, September 29-October 1, 2006.
- Program Co-Chair, Third International Symposium on Parallel and Distributed Processing and Applications (ISPA '05), Nanjing, China, Nov. 2-5, 2005.
- Workshop Co-Chair, Second SECABC Fall Workshop on Biocomputing, GSU, Atlanta, Oct. 27, 2005.
- Program Co-Chair, 2005 International Workshop on Bioinformatics Research and Applications, Emory University Atlanta, USA, May 22-25, 2005.
- Publicity Co-Chair, the 16th IEEE International Parallel and Distributed Processing Symposium (IPDPS '05), Denver, USA, April 4-8, 2005.
- Steering Committee Chair, The 5th Workshop on Parallel and Distributed Scientific and Engineering Computing Santa Fe, New Mexico, April 26-30, 2004.
- Publicity Co-Chair, the 15th IEEE International Parallel and Distributed Processing Symposium (IPDPS '04), Santa Fe, New Mexico, USA, April 2004.
- Co-Chair, IEEE Symposium on Data Base Management in Wireless Network Environments at IEEE Semiannual Vehicular Technology Conference, October 4-9, 2003, Orlando, Florida, USA.
- General Co-Chair, The 5th Workshop on High Performance Scientific and Engineering Computing with Applications, Kaohsiung, Taiwan, ROC, October 6-9, 2003.
- General Co-Chair, The 4th IEEE Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, Nice, France, April 22-26, 2003.
• Conference Co-Chair, 11th International Conference on Parallel and Distributed Computing and Systems, MIT, MA, Nov. 3-6, 1999.
• Program Chair, 3rd IPPS Workshop on Optics and Computer Science, San Juan, Puerto Rico, April 12 - 16, 1999.
• Program Chair, 10th International Conference on Parallel and Distributed Computing and Systems, Las Vegas, Nevada, October 28-31, 1998.
• Program Vice Chair, 9th International Conference on Parallel and Distributed Computing and Systems, Washington, D.C., October 13-16, 1997.
• Publicity Chair, 3rd International Conference on Parallel and Distributed Processing Techniques and Applications, Las Vegas, June 30-July 2, 1997.

CONFERENCE STEERING AND ADVISORY COMMITTEE

• The IEEE 20th International Conference on Advanced Information Networking and Applications April 18-20, 2006, Vienna, Austria.
• The 19th International Conference on Advanced Information Networking and Applications (AINA 2005), Tamkang University, Taiwan, March 28 - March 30, 2005.
• Thirteenth IASTED International Conference Parallel and Distributed Computing and Systems (PDCS 2001) August 21-24, 2001 Anaheim, USA
• 5th IPDPS Workshop on Optics and Computer Science, Cancun, Mexico, May 1-5, 2000.

• Twelfth IASTED International Conference Parallel and Distributed Computing and Systems (PDCS 2000), Nov. 2000, Las Vegas, USA.


CONFERENCE SESSION CHAIR

• Session on "Communication," the 2003 International Conference on Parallel and Distributed Computing, Applications and Technologies, Chengdu, China, August 27-29, 2003.


• Session on "Computing on Bus-Based Architectures", 3rd International Conference on Parallel and Distributed Processing Techniques and Applications, Las Vegas, June 30-July 2, 1997.


• Session on "Computing on Bus-Based Architectures", 2nd International Conference on Parallel and Distributed Processing Techniques and Applications, Sunnyvale, California, August 9-11, 1996.

• Chair, Session on "Performance and Operating Systems", 1992 International Conference on Parallel Processing, St. Charles, IL, August 17-21, 1992.

• Chair, Session on "Scientific Computing", Fifth International conference on Parallel and Distributed Computing and Systems, October 1992.

• Chair, Session on "Networks", 1993 ACM Symposium on Applied Computing, February 1993.

CONFERENCE COMMITTEE MEMBER

• The 16th IEEE International Parallel and Distributed Processing Symposium (IPDPS '05), Denver, USA, April 4-8, 2005.

• 3rd International Workshop on Mobile Distributed Computing (MDC'05), Columbus, Ohio, USA, June 5-10, 2005.
• 40th Annual IEEE International Conference on Communications (ICC) Symposium on Next Generation Networks for Universal Services, Seoul, Korea, 16-20 May 2005.
• The 2004 International Conference on Parallel Processing (ICPP '04), Montreal, Canada, August 15-18, 2004.
• The First International Conference on Embedded Software and System December 9-10, 2004, Zhejiang University, Hangzhou, P. R. China.
• International Symposium on Computational and Information Sciences, December 16-18, 2004, Shanghai, China.
• International Conference on Bioinformatics and its Applications (ICBA '04), December 16-19, 2004, Nova Southeastern University, Fort Lauderdale, Florida, USA.
• First Biotechnology and Bioinformatics Symposium: A Community and Academic Forum (BIOT-04), September 24, 2004, Colorado Springs, Colorado, USA.
• The 4th International Conference on Computer and Information Technology, Wuhan, China, 14-16 September 2004.
• 7th International Workshop on High Performance and Distributed Mining, Lake Buena Vista, Florida, April 2004.
• The 1st IEEE International Conference on Mobile Ad-hoc and Sensor Systems, October 24-27, 2004, Fort Lauderdale, Florida, USA.
• The 15th IEEE International Parallel and Distributed Processing Symposium (IPDPS '04), Santa Fe, New Mexico, USA, April 2004.
• The 23rd Annual Joint Conference of the IEEE Computer and Communications Societies (IEEE INFOCOM '04), Hong Kong, March 7-11, 2004.
• 2003 IEEE Global Communications Conference (Globecom '03), San Francisco, CA, USA, December 1-5, 2003.
• The second International Workshop on Grid and Cooperative Computing (GCC'03), Shanghai, P.R. China, December 7-10, 2003.
• 2003 IEEE International Conference on Communications (ICC '03), 11-15 May, 2003, Anchorage, AK, USA.
• The 2nd International Conference on Web-based Learning (ICWL 2003), August 18-20, 2003, Melbourne, Australia.
• 16th ISCA International Conference on Parallel and Distributed Computing Systems, August 13-15, 2003, Atlantis Hotel, Reno, Nevada, USA.
• 5th Workshop on Advances in Parallel and Distributed Computational Models, to be held in conjunction with International Parallel and Distributed Processing Symposium April 22-26 April, 2003.
• 2003 IEEE Workshop on Mobile and Wireless Networks, to be held in conjunction with the 23rd International Conference on Distributed Computing Systems, May 19-22, 2003, Providence, Rhode Island, USA.
• IASTED International Conference on Wireless and Optical Communications, July 14-16, 2003, Banff, Canada.
• 2002 International Workshop on Grid and Cooperative Computing (GCC 2002),
• International Symposium on Cyber Worlds: Theories and Practices, November 6-
  8, 2002, Tokyo, Japan.
• 5th International Workshop on High Performance Data Mining: Resource and Lo-
  cation Aware Mining, April, 2002, Washington, USA.
• The Third International Conference on Parallel and Distributed Computing, App-
  lications and Technologies (PDCAT'02), 4-6 September 2002 - Kanazawa
  Bunka Hall, Kanazawa, Japan.
• The 5th IEEE International Conference on Algorithms & Architectures for Paral-
• IASTED International Conference on Wireless and Optical Communications, July
  17-19, 2002, Banff, Canada.
• 4th IEEE Workshop on Advances in Parallel and Distributed Computational
  Models, April 15-19, 2002, Fort Lauderdale, Florida.
• The 16th Annual International Symposium on High Performance Computing Sys-
• Third International Conference on Communications in Computing, June 24 - 27,
  2002, Las Vegas, Nevada, USA.
• 35th Annual Simulation Symposium San Diego, California, April 14-18, 2002.
• Tenth ACM International Conference on Information and Knowledge Manage-
  ment, Atlanta, Georgia, November 5-10, 2001.
• 30th Annual Conference International Conference on Parallel Processing, Valen-
  cia, Spain, September 3-7, 2001.
• ICPP Workshop on Wireless Networks and Mobile Computing, Valencia, Spain,
• 2001 International Conference on Parallel And Distributed Systems, KyongJu
• Second International Conference on Parallel and Distributed Computing, Applica-
• The 2001 IEEE International Workshop on Cluster Infrastructure for Web Server
  and E-Commerce Applications, May 16 - 18, 2001, Brisbane, Australia.
• Second International Conference on Communications in Computing, June 25-28,
  2001, Monte Carlo Resort, Las Vegas, Nevada, USA.
• 3th IEEE Workshop on Advances in Parallel and Distributed Computational
• 4th IEEE International Workshop on Parallel and Distributed Data Mining, San
• The 34th Annual Simulation Symposium, Seattle, Washington, April 22-26, 2001.
• The 4th IEEE International Conference on Algorithms and Architectures for Par-
 allel Processing, Hong Kong, December 11-13, 2000.
• 2000 IEEE International Symposium on Parallel Architectures, Algorithms and
  Networks (I-SPAN), Dallas/Richardson, Texas, December 7-9, 2000.
• The Seventh IEEE International Conference on Parallel and Distributed System, Iwate Prefectural University, Iwate, Japan, July 4-7, 2000.
• SPIE Conference on Parallel and Distributed Methods for Image Processing IV (AM205), San Diego, California, July 30-August 4, 2000.
• First International Conference on Parallel and Distributed Computing, Applications and Technologies, Hong Kong, May 22-24, 2000.
• The Fourth IEEE International Conference/Exhibition on High Performance Computing in Asia-Pacific Region, May 14-17, 2000, Beijing, China.
• 12th ISCA International Conference on Parallel and Distributed Computing Systems, Fort Lauderdale, Florida, August 17-20, 1999.
• 1999 International Conference on Young Computer Scientists, Nanjing, China, August 1999.
• 1999 International Conference on Parallel and Distributed Processing Techniques and Applications, June 28 - July 1, 1999, Las Vegas, Nevada, USA.
• 1999 International Conference on Imaging Science, Systems, and Technology, June 28 - July 1, 1999, Las Vegas, Nevada, USA.
• 1999 Asia Pacific Web Conference, Hong Kong, Sept. 27-29, 1999.
• 2nd International Conference on Parallel and Distributed Computing and Networks, Brisbane, Australia, December 16-18, 1998.
• 4th International Conference on Parallel and Distributed Processing Techniques and Applications, Las Vegas, NE, July 13-16, 1998.
• 3rd International Conference on Parallel and Distributed Processing Techniques and Applications, Las Vegas, NE, June 30-July 2, 1997.
• 8th International Conference on Parallel and Distributed Computing and Systems, Chicago, Illinois, October 16-19, 1996.
• 2nd International Conference on Parallel and Distributed Processing Techniques and Applications, Sunnyvale, California, August 9-11, 1996.
• Ohio Symposium on Advances in Information, Science and Technology, Dayton, Ohio, May 1995.

PANEL CHAIR AND PANELIST

• Chair of panel on "What makes Grids a real advancement?" International Workshop on Grid and Cooperative Computing, Sanya, China, December 27, 2002.
• Member of panel on "Run-time Reconfiguration: Hurdles and Promises," 7th Reconfigurable Architectures Workshop (RAW 2000), May 1, 2000, Cancun, Mexico.

OTHER PROFESSIONAL SERVICES

• Secretary of the IEEE Computer Society Dayton Chapter, 1996-1997.
• Executive Committee Member of IEEE Computer Society Technical Committee on Scalable Computing (2004-2005).
• Advisory Committee Member of IEEE Task Force on Cluster Computing (1999-2004).
• Chairman of the IEEE Computer Society Student Chapter at University of Pittsburgh, 1990.
• Vice President of the Computer Science Department Chapter of the Graduate Student Organization at the University of Pittsburgh, 1989-1990.
• President of the Computer Science Department Chapter of the Graduate Student Organization at the University of Pittsburgh, 1990-1991.

COMMUNITY SERVICE

• President of Tsinghua Alumni Association in Georgia, 2002-2003.
• Vice Principal of Greater Dayton Chinese Language School, 1995-1996.
• Trustee Member of Dayton Association of Chinese Americans, 1992-1995.

MEMBERSHIPS

• Senior Member of the IEEE and Member of the IEEE Computer Society.
• Member of the IEEE Technical Committee on Distributed Processing.
• Member of the IEEE Technical Committee on Parallel Processing.
• Member of the IEEE Technical Committee on Computer Architecture.
• Member of the IEEE Technical Committee on Simulation.
• Biographical profile listed in the 24th edition of Marquis' Who's Who in the Midwest USA.
• Biographical profile listed in the 56th edition of Marquis' Who's Who in America.
• Biographical profile listed in Asian American Net's *Who's Who of Asian Americans*.
• Biographical profile listed in the 16th edition of International Biographical Center's *Men of Achievement*. 
Sushil K. Prasad  
Professor of Computer Science  
Director, GSU-GEDC Distributed and Mobile Systems (DiMoS) Laboratory  
Georgia State University

Education

- **B. Tech. (Hons.):** May 1985; Computer Sc. & Engg. Indian Institute of Technology (IIT), Kharagpur.  
- **M.S.:** Aug. 1986; Computer Sc. Washington State University (WSU), Pullman, WA.  
- **Ph.D.:** Dec. 1990; Computer Sc. University of Central Florida (UCF), Orlando, Florida  
  Advisor: Narsingh Deo

Current Research Interests:

*Parallel and Distributed and Networked Computing:* Parallel Algorithms and Data Structures, Parallel Discrete Event Simulation, Middleware and Collaborative Applications for Heterogeneous Mobile Devices, and Web-based Distributed and Collaborative Computing and Workflows.

Work Experience

2006 Summer:  
Visiting Professor, University of Melbourne, Dept. Of Computer Science and Software Engineering, Australia, and National Information and Communications Technology Australia (NICTA) - Australia’s Research Centre of Excellence (June-Aug). Invited to collaborate in distributed and grid computing research.

2005 -  
Professor, Georgia State University, Computer Science Department. Supervising five Ph.D. and seven M.S. students at the DiMoS lab.

2005 Summer:  
Visiting Professor, University of New Brunswick, Faculty of Computer Science, Frederickton (July-Aug). Invited to collaborate in parallel and distributed computing research.

2000 - 2004:  
Director, GSU-GEDC Distributed and Mobile Systems Research (DiMoS) Program: Directed a GSU team of seven faculty and about two dozen Ph.D./M.S. students, with active collaboration of three Georgia Tech faculty and their students, and managed 6,000 Square Feet of research space in the Technology Square Research Building on Georgia Tech campus with an 800 SF of soft-
ware/hardware laboratory space. Led this group in designing and prototyping System on Devices (SyD) middleware. Five utility patent applications and over two dozen provisional patent filings have resulted, in addition to several publications and work on theses and dissertations. Average Annual Budget: $200K.

1998 - 99:
Founding Graduate Program Director, Computer Science Dept. Georgia State University, Atlanta (GSU). Developed a 72-hour curriculum for the newly-installed Ph.D. program in Computer Science including its examinations, admission requirements, and over 20 new courses at 8000 and 9000 level.

1998 - 05:
Associate Professor, Dept. of Computer Science, Georgia State University. Directed and funded about two dozen students annually on parallel and distributed computing and middleware projects. Instrumental in establishing the Ph.D. program. Established the DiMoS program.

2000 - 01:
Software Architecture Consultant, Inst. for Customer Relationship Management, Atlanta. Led a team of computer science professors to design a smart advisor system based on fuzzy logic for high school students to gain admission into colleges.

1996 - 98:
Associate Professor, Dept. of Mathematics and Computer Science, GSU. Instrumental in developing thesis-only M.S. program.

1990 - 96:
Assistant Professor, Dept. of Mathematics and Computer Science, GSU. Established parallel computing infrastructure and courses.

1987 - 90:
Graduate Research Assistant, Dept. of Computer Science, UCF, Orlando.

1985 - 86:
Teaching Assistant, Dept. of Computer Science, WSU, Pullman.

1985:
Assistant Software Engineer, Hindustan Computers Ltd., New Delhi.

Honors and Editorial Activities

Invited Research Visits:

*University of Melbourne and NICTA, Australia (June-Aug 2006):*
An all-expense paid invited visit to University of Melbourne and to National Information and Communications Technology Australia (NICTA) - Australia’s Research Centre of Excellence, to collaborate in distributed and grid computing research, and to give research seminars.

*University of New Brunswick, Canada (July-Aug 2005):*
A funded visit to University of New Brunswick to collaborate in parallel and distributed computing research, and to give research seminars.
**Tutorials Chair:**
Intl. Parallel and Distributed Processing Symposium (IPDPS 2007), Long Beach, CA.

**Program Committee Member:**
Intl. Parallel and Distributed Processing Symposium (IPDPS 2007), Long Beach, CA.

**Program Committee Member:**
4th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2007), CA.

**External Reviewer for Tenure:**
Dr. Eyas El-Qawasmeh, Assistant Professor, Jordan University of Science and Technology, by President Wajih Owais, June 2006.

**Program Committee Member:**
Intl. Conf. on Distributed Computing and Networking, ICDCN 2006, Guwahati, 2006

**Proceedings Chair:**
Intl. Conference on High Performance Computing (HiPC 2006), Bangalore, India.

**Program Committee Member:**
Intl. Parallel and Distributed Processing Symposium (IPDPS 2006), Greece.

**Scientific Committee Member:**
20th International Symposium on High Performance Computing (HPCS 2006), Memorial University of Newfoundland May 14 - 17, Canada

**Program Committee Member:**
Third High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2006), Greece.

**Program Committee Member:**
Intl. Parallel and Distributed Processing Symposium (IPDPS 2005), Denver, Colorado.

**Proceedings Chair:**

**Program Committee Member:**
5th Intl. Conf. on Algorithms and Arch. for Parallel Processing (ICA3PP 2005), China.

**Commemorative Plaque.**

**Advisory Comm. Member:**

**Program Committee Member:**
Intl. Conference on High Performance Computing (HiPC 2004), Bangalore, India.

**Proceedings Chair:**
Intl. Conference on High Performance Computing (HiPC 2004), Bangalore, India.

Program Committee Member:
Intl. Conference on Computer and Information Technology (CIT 2004), Wuhan, China.

Invitation for External Reviewer for Tenure.
Dr. Bruce R. Millard, Associate Professor, Department of Electronics and Computer Engineering, Arizona State University East, Mesa, AZ, by Associate Dean Timothy Lindquist, Sept. 2003.

Yamacraw Research Center Committee Member:
Advisory board to Yamacraw (now Georgia Electronics Design Center funded by Georgia Research Alliance) to help it define its mission and activities, and obtain funding from Governor, State of Georgia, beyond its initial mandate of five years. 2003.

Commemorative Plaque.
Presented by HiPC Steering Committee Chair, IEEE Computer Society and ACM, Dec. 18, 2003.

Proceedings Chair:
Intl. Conference on High Performance Computing (HiPC 2003), Hyderabad, India.

NSF Panel.
National Science Foundation proposal review panel in Networking Research Program (April, 02).

Program Committee Member:
5th Intl. Conf. on Algorithms and Architectures for Parallel Processing (ICA3PP 2002), China.

Was interviewed
by Mike Dickerson from eHatchery on study on commercialization of the state university research and the directions that Yamacraw, a State of Georgia research agency, should take. 2002.

Featured Article in Research Magazine.
Yamacraw's Quaterly magazine "Forward," vol. 4, no. 1, April 2002, published individual and group photos with caption "Professor Sushil Prasad leads Georgia State University's Yamacraw 20-person research team in their efforts to design cell phone systems and e-business infrastructure," and cited two dozens research publications, posters and patent filings.

Publicity Chair:
Workshop on Parallel and Distributed Simulation (PAD' 2001), LA.

Program Committee Member:

Program Committee Member:

Program Committee Member:
The Second International Conf on Parallel and Distributed Computing, Applications and Technologies (PDCAT' 2001), Taiwan.
Referee for Proposals
U.S. Civilian Research and Development Foundation, Cooperative Grants Program 2001

Invited luncheon with Governor Roy Barnes,
Yamacraw, GCATT, April 28, 2000.

Guest Editor.

Program Committee Member:

Program Committee Member:
5th International Conference on Computing and Information, Sudbury, Ontario, May 1993.

Nominated for Outstanding Junior Faculty in Research Award.
1993. College of Arts and Sciences, GSU.

Jagadish Bose National Science Talent Search Scholarship
(1981-1985) during B.Tech. at IIT.

Invited Talks
Oak Ridge National Laboratory
Sept. 2006. SyD: A Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and SyD: A Middleware for Collaborative Applications over Small Heterogeneous Devices and for Distributed Workflows over Web Services. (Host: Dr. James Nutaro)

University of Melbourne and NICTA
July 2006. SyD: A Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and SyD: A Middleware for Collaborative Applications over Small Heterogeneous Devices and for Distributed Workflows over Web Services. (Host: Prof. Rajkumar Buyya)

College of Computing, Georgia Tech,
Fall 2005. SyD: Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and Data Stores. (Host: Prof. Shamkant Navathe - class presentation to seniors and graduate students)

Kanwal Rekhi School of Information Technology, Indian Institute of Technology, Bombay,
Dec 2004. SyD: A Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and Data Stores. (Host: Prof. Krithi Ramamritham, Chair)

Tata Institute of Fundamental Research, School of Technology and Computer Science, Bombay, Dec 2004. SyD: A Middleware Testbed for Collaborative Ap-
Indian Institute of Technology, Madras, Computer Science and Engineering Department, Dec 2004. SyD: A Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and Data Stores, (Host: Prof Timothy A. Gonzales and Prof Hema A Murthy)

Indian Research Laboratory, Bangalore, Dec 2004. SyD: A Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and Data Stores, (Host: Rajeev D. Muralidhar)

IBM India Research Lab, New Delhi, SyD: A Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and Data Stores, Dec 24, 2004. (Host: Dr. Ponani Gopalakrishnan, Head, and Dr. Neeran Karnik)

Industry Advisory Board Conference, Georgia Electronic Design Center (GEDC), State of Georgia, Distributed and Mobile Systems research (DiMoS), April 2004. (Organizers: Dr. V. Madisetti, Thrust Leader in Embedded Software, Professor of Electrical Engg., GIT, and J. Laskar, Director, GEDC, Professor of Electrical Engg., GIT)

Industry Advisory Board Conference, Yamacraw, State of Georgia, April 2002. Networked Portable Platform Technology (NP2), (Organizers: Dr. V. Madisetti, Thrust Leader in Embedded Software, Professor of Electrical Engg., GIT, and H. Lehman, Director, Yamacraw)

Industry Advisory Board Conference, Yamacraw, State of Georgia, Oct., 2002. System on Devices (SyD): Method and System for Developing and Deploying Collaborative Applications over heterogeneous Data Stores, (Organizers: Dr. V. Madisetti, Thrust Leader in Embedded Software, Professor of Electrical Engg., GIT, and H. Lehman, Director, Yamacraw)


Invited Half Day Tutorial, IEEE Conference on Distributed Processing & Networking, Kharagpur, India, Dec 5-7. 1997. Introduction to Parallel and Distrib-
Research Grants and Contracts

Awarded about $850,000 in external funds as Principal Investigator. Participated in external grants and contracts with funds totaling about $4M and in internal grants worth over $400K. Currently, as P.I. of the Georgia Electronic Design Center (GEDC - formerly Yamacraw) Embedded Software Research Contract, leading a GSU team of seven faculty and over dozen and a half Ph.D./M.S. students. It resulted in about 6,000 Square Feet of research space in the Technology Square Research Building on Georgia Tech campus with a 800 SF of software/hardware laboratory space, and offices for seven faculty members and over 50 students, and numerous workstations, handheld devices, and other equipments.

External Grants and Contracts

National Institute of Health
(Lead Investigator with P. Katz, R. Sunderraman and Y. Zhu), "NeuronBank: Knowledgebase of Identified Neurons and Synaptic Connections," 2006-08, $200,000.

IBM
(co-PI with M. Swaminathan, Georgia Tech) "16-Processor Linux Cluster for Mixed Circuit Simulation."

Georgia Research Alliance - Georgia Electronic Design center (GEDC)
(Principal Investigator), "Distributed and Mobile Systems Research," 2003-04, $93,780.

National Institute of Health
(Lead Investigator with R. Harrison and others), "Georgia State University Biomedical Computing Center (Planning Grant)," 2003-06, $1,090,000

Georgia Research Alliance - Yamacraw
(PI), "System on Devices: A Middleware for Collaborative Applications on handheld devices," 2002-03, $318,000.

Georgia Research Alliance - Yamacraw

Georgia Research Alliance - Yamacraw
(PI), "Yamacraw Embedded Software Research," 2000-02, $325,000.

National Science Foundation

Internet2 Network Research Workshop Planning Committee
(Co-PI with Y. Zhang), "Intelligent Internet2 Agents for Distributed Data Mining," 2000, Travel Funds.

National Science Foundation
(Investigator with Ed Dubinsky and others), "IPCURT Project," 1998-99. $100,000.

**Georgia Research Alliance**

(Co-PI with Kay Beck, Gary Moss, others) "Cineon Project: Establishment of a Digital Imaging Laboratory." 1996-97. **$1,500,000.**

**Georgia Research Alliance**

(Co-PI with Akyldiz, I.), "Multimedia Applications and Internetworking in ATM Networks." 1995-96. **$187,769.**

**Georgia Research Alliance**

(Co-PI with Fraser, M. D. and R. M. Fujimoto), "A Resource-Sharing Communications Subsystem for SCSI LANs." 1995-96. **$214,000.**

**Texas Advanced Technology Program Grant**

(Consultant with Sajal K. Das), "Parallel Discrete Event Simulation: Theory and Implementations." 1993-95, **$120,000.**

**Internal Grants**

- **Research team Grant, GSU.** (co-PI with Chun Jiang and Markus Germann), Structure-functional Relationship of Macromolecules such as K+ Channels: High-level Modeling and Effective Simulation. July 2006 - June 2007, **$10,000.**
- **Brains and Behavior Program** (co-PI with S. Pallas and A. Shilnikov), "Modeling circuits for stimulus velocity tuning in the superior colliculus," **$26K.**
- **Brains and Behavior Program** (co-PI with P. Katz, R. Sunderraman and Y. Zhu), "NeuronBank: Knowledgebase of Identified Neurons and SynapticConnections," **$25K.**
- **Research team Grant, GSU.** (PI), Smart Web Browsing and Searching on PDAs and Cell Phones. July 2001 - June 2002, **$14,900.**
- **State University System and GSU: Y2K Funds.** (PI), "Acquisition of 16-Processor Origin-2000 Silicon Graphics High-Performance Multiprocessor."1999 (Replaced 8-CPU Power Series Multiprocessor). **$158,000** (with $150,000 research discount from Silicon Graphics).
  - Added another 8 CPUs, 3 GB additional main memory and 180GB hard-drive for **$150,000** in FY 2000 with $39,000 research discount from Silicon Graphics.
- **Research Initiation Grant, GSU.** (PI): "Automatic Parallelization of Existing Discrete Event Simulators." July 1997 - June 98. **$5,000.**
- **Quality Improvement Funds, GSU.**, (P.I.) "High Performance ATM Testbed." Jan. 1997 - June 1997, **$8,000.**
- **Y2K allocation (P.I.), "Acquisition of Silicon Graphics Multiprocessor for Dept. of Mathematics and Computer Science."** 1996 (Replaced by a 16-CPU Origin-2000, $158,000, 1999.)
• **GSU Chancellor's Initiative Fund**, (co-P.I. with Owen, S.), "Research into the Design, Development, and Network Delivery of Hypermedia Systems." July 96 - June 1997, **$21,000**.

• **Research Initiation Grant, GSU. (PI:)** "High Performance VLSI Logic Simulators." July 1995 - June 96. **$5,000**.

• **GSU Chancellor's Initiative Fund** (co-PI with Owen, S.), "Research into the Design, Development, and Network Delivery of Hypermedia Systems." July 95 - June 1996, **$21,400**.


• **Instructional Improvement Grant, GSU. (PI:)** "Parallel Computation in Computer Science Curriculum." July 1994 - June 1995. **$2,000**.

• **Research Initiation Grant, GSU. (PI:)** "Parallel Discrete Event Simulation of Bounded Degree Networks." July 1993 - June 94. **$4,800**.

• **Research Enhancement Program, GSU (PI:)** "Implementation of Parallel Priority Queues on Shared-Memory Computers." July 1992 - June 1993, **$5,000**.

## Publications & Patents

**Refereed Publications (Students Co-AuthorsItalicized)**


Autonomous Agents and Multi Agent Systems (AAMAS-04), New York, July 19-20 (LNCS).


**Patent Applications**


Teaching Experience

Graduate and undergraduate courses:
including Parallel and Distributed Computing, Parallel Algorithms, Distributed Systems and Web Service Architectures, Design and Analysis of Algorithms, Automata and Language Theory, Data Structures (in C++), and Programming Languages Pascal and ADA. Developed and updated several courses and offered independent studies.

Directed graduate students:
in parallel and distributed computing, and middleware and mobile computing projects, theses and dissertations in parallel and distributed computing area on state-of-the-art Silicon Graphics 24-CPU Origin-2000 high-performance CC-NUMA computer as well as on NCUBE-II, BBN Butterfly, Maspar's MP-1, SGI Power Challenge and a network of UNIX Workstations running PVM/MPI (C/C++/Java). Resulted in several joint research publications with students.

PH.D. Program Development:
The most exciting achievement for me personally has been the long sought Ph.D. program. I am involved with the program intensely, interacting with all Ph.D. students, encouraging the promising M.S. and B.S. students to consider carrying out Ph.D. work, preparing and grading qualifier examinations, and, currently, training and partially supporting about a dozen Ph.D. students. The Yamacraw/GEDC contract activity has lent a crucial support for our new Ph.D. program, attracting and retaining students through its quality research facility, vigorous research activity and a competitive assistantship amount, and has supported several full-time Ph.D. students (2000-2004).
Ph.D. Dissertations and M.S. Theses Supervision:

Dissertation Research


- Balasooriya, Janaka, Distributed Web Service Coordination for Collaborative Applications and Biological Workflows, Defense Aug. 2006. Joined Univ. of Missouri, Rolla.


Theses Research

- Joshi, Jaimini, Distributed Workflow configuration and execution platform, Fall, 2005.
- Kalgaonkar, Smruti, Time-warp and Parallel Heap for Parallel Simulation, Expected Spring 2006
- Padhye, Mohini, BondFlow: A System to Develop Workflow over Web Services, Fall, 2004.
• Fendy Tjahjadi. ATM LAN and Distributed Computing. April 2000


Administrative Experience (Academic)

2000 - : Director, GSU-GEDC Distributed and Mobile Systems Research (DiMoS) Laboratory.
As P.I. of the Georgia Electronic Design Center (GEDC - formerly Yamacraw) Embedded Software Research Contracts (2000-04), led a GSU team of seven faculty and over dozen and a half Ph.D./M.S. students, with active collaboration of three Georgia Tech faculty and their students. It had resulted in about 6,000 Square Feet of research space in the Technology Square Research Building on Georgia Tech campus with a 800 SF of software/hardware laboratory space (housing Distributed and Mobile Systems Laboratory (DiMoS)), and offices for seven faculty members and their students, and numerous workstations, handheld devices, and other equipments. Five utility patent applications and over two dozen provisional patent filings have resulted, in addition to several publications and work on theses and dissertations.
The lab is now located in the Georgia Tech campus at Room 109, 85 Spring Street, Atlanta, GA, and currently houses about a dozen Ph.D./M.S. students. Current research thrusts includes distributed workflows over web services, flexible security architecture in grids, ad-hoc sensor networks, distributed simulation data structures and algorithms, collaborative editing systems, and platform technologies for collaborative and distributed applications.

2003 - 05: College Bylaws Committee
(member 03-04, elected chair 2004) Revamped the bylaws working with the Dean's Office, with focus on college committee structure.

1996 - Present: Help direct the Core Facility on High Performance Computing currently consisting of an Origin -2000 with 24-CPU, 4G main memory, and 200GB hard-drive. Was appointed Director of this core facility by the Dean in 2002, with a formal proposal pending. Directed the software and hardware upgrades, maintenance, and operations in conjunction with Chair, Dr. Fraser, System Administrator, Shaocheih Ou, and the faculty at large from CS, Biology, and Chemistry departments. Activities included acquisition of 8-CPU Silicon graphics 'SGI1' from computing center under my direct initiative in 1996, and its subsequent replacement by a 16-CPU Origin-2000 high performance computer in 1999 and then its extension by another eight CPUs in 2000, representing a total investment of $308K on the part of the college and the university.
Also participated in a successful proposal process to Georgia Research Alliance to procure funding for an 80-CPU myrinet-based linux cluster - configured and negotiated with several vendors and obtained bids.

2000 - Present: Chaired Committee for Ph.D. Qualifier Examinations in Algorithms Area
for setting up syllabus, preparing the qualifier exam, and grading papers in spring and in fall. Also, served on the corresponding Committee for Automata area (2000 - 03).

2000 - 02: College Graduate Council.
I was elected to the at-large position in 2000, nominated by Chair of Physics and Astronomy, Prof. Nelson. I brought my experiences as the Graduate Director of CS, and have actively participated in all deliberations and contributed to key issues.

2002: Chair Evaluation Committee
of Prof. Fraser, Chair of Computer Science (triennial review) for the College of Arts & Sciences.

2000 - 01: GSU Internal Grants Programs Peer Review Committee.
This was the unique first-time committee organized by VP for Research to review all the proposals submitted through a number of programs that provide financial support for faculty research, scholarships, and artistry.

1998 - 2000: College Curriculum Committee:
Evaluated over 100 course proposals in each spring.

1999 - 00: Chair, Ad Hoc Committee on Changing Credit Hours.
Proposed, revised, and obtained faculty approval on changing all senior and graduate courses to four hours, and on the new B.S. program based on concentrations, and the new M.S. program. This work resulted while serving on the department and college curriculum committees and has helped reduce course load for students and number of courses taught by faculty as we went through semester conversion.

1998 - 99: First Director of Graduate Studies, Computer Science Dept.
I developed a 72-hour curriculum for the Ph.D. program in computer science including its examinations, admission requirements, and over 20 new courses at 8000 and 9000 level. I was instrumental in leading the department to implement a thesis-only M.S. program in computer science, which led to the reation of Ph.D. program in 2000. Also, I revamped the degree and admission requirements for M.S. in computer science and developed and installed a web site for graduate program in computer science with online request and download facility for application material.

Took lead role in defining the criteria for professional development category, and participated in defining the criteria for instruction and service categories.

1998: College Ad Hoc Committee for Faculty Selection in Newly-Created Dept. of Computer Science.
A high-powered committee that defined the criteria for defining memberships to the newly-created department as it split from earlier Dept. of Mathematics and Computer Science, and reviewed faculty credentials to create initial set of faculty
members in the CS dept (other members included Associate Dean Boykin and Prof. Nelson, Chair of Physics and Astronomy).
Curriculum Vitae

Name: Adimathara P. Preethy

Rank: Assistant Professor

Department: Computer Science

I. EDUCATION

Ph.D. Computer Engg. (2000): Nanyang Technological University, Singapore

Dissertation Title: A High Performance Multiply Accumulate Unit for Residue Number System Based DSP Core.


II. PROFESSIONAL CREDENTIALS

Assistant Professor Georgia State University: (Dec 2000 – present).


Assistant Professor (Postgraduate Department) Cochin University of Sci. & Tech., India: (Feb. 1987 – Dec. 1996).

Project Associate Cochin University of Sci. & Tech., India (Aug. 1985 – Feb. 1987)

III. TEACHING EXPERIENCE

Georgia State University (Dec 2000 – present)


Ph.D. Advisement (in progress, pending conversion from Masters to Ph.D.): Mary Hudachek-Buswell
M.S. Advisement (in progress): Shibi Thankachan (expected to graduate in Fall, 2006).


Courses taught:

8000 level: CSC 8215 High Performance Arithmetic
4000/6000 level: CSC 4210/6210 Computer Architecture
 : CSC 4230/6230 VLSI Design

3000 level : CSC 3210 Computer Organization and Programming

2000 level: Electronics I 
 : Logic Circuits


IV. ADMINISTRATIVE EXPERIENCE (Academic)

Departmental Level:

1. Faculty Search Committee
2. Graduate Committee
3. Library Committee
4. Ph.D. Qualifying Examination Committee
5. Student Learning Outcome Committee
6. Alumni Relations Committee
6. Adhoc Committee on CSc3210 (as chair).

**College Level:**


**University Level:**

Attendance in the Commencement Ceremony – Years 2002 -2006.

**V. BUSINESS AND PROFESSIONAL EXPERIENCE**


Coordinator for Oak Grove K-6 team for Wednesday league Chess Championship (2004 Fall, 2005 Spring, 2006 Spring).

**VI. A. COURSES TAUGHT**

**Georgia State University**

(Dec 2000 – present).

CSC 8215 High-performance Arithmetic

CSC 4210/6210 VLSI Design

CSC 4210/6210 Computer Architecture
CSC 3210 Comp. Organization and Programming.
CSC 6999 Directed Reading
CSC 4999 Directed Reading

Electronics I
Logic Design

Advanced Microprocessors
Advanced Computer Architectures
Digital Design

VII. INTELLECTUAL CONTRIBUTIONS

A. Publications Journal Articles


B. Publications Books/Monographs/Chapters


C. Proceedings (All conferences are refereed)


D. Professional Presentations

10 out of 12 presentations are included in Item C, marked with a ‘*’. #11 and #12 are given below.


E. Editorial/Reviewer Projects


2. Member, Program committee, The 2003 International Conference on VLSI, VLSI’03: June 23-26, 2003, Las Vegas, Nevada, USA.


F. Grants and External Funding

Awarded:

Internal: PI

Pilot Mentoring Program: Professional Development Stipends, Georgia State University, FY 2005-2006, $800.00 – Travel Grant

External:

Title: MAX+ PLUS II/QUATRUS II for Unix work station.  
Amount: CAD tools worth $3,970.00.

External as PI

Submitted, but not awarded:

Internal - as PI with Dr. Michael Weeks as Co PI:

Internal - as PI with Dr. Syed Belkasim as Co PI:
Biomedical Computing Center seed Grant, $29,000.00, submitted to GSU, 2005.

External as Team Member:
Member of the team: SECABC Biocomputing Center grant submitted to NIH in Jan. 2004.
Member of the team: SECABC Biocomputing Center grant submitted to NIH in Jan. 2005.

VIII. PROFESSIONAL AND HONOR ORGANIZATION ACTIVITIES

A. Membership

Member, Institute of Electric and Electronics Engineers(IEEE), U.S.A.

Member, Association for Computing Machinery, (ACM) U.S.A.
Life Member, Indian Science Congress Association (ISCA), India.

Life Member, Indian Society for Technical Education (ISTE), India.

**B. Offices/Committees/ Presentations**


Member, Program committee, The 2003 International Conference on VLSI, VLSI'03: June 23-26, 2003, Las Vegas, Nevada, USA.

Member, Program committee, The 2003 International Workshop on Methodologies in Low Power Design (MLPD'03), in conjunction with The 2003 International Multiconference in Computer Science and Computer Engineering, Monte Carlo Resort, Las Vegas, Nevada, USA, June 23 - 26, 2003


Member, GSU Brain and Behavior Research Group.

Actively involved in IEEE (Atlanta) committee on K-12 outreach program (2002-2004).


**IX. HONORS, AWARDS, AND RECOGNITION**


Yamacraw Design Contest 3rd place, 2003, awarded to graduate Students of CSC 4230 class taught and advised by Dr. A.P. Preethy.


CURRICULUM VITAE

Name: Rajshekhar Sunderraman
Rank: Professor
Department: Computer Science, Georgia State University
Web Page: http://tinman.cs.gsu.edu/~raj

I. EDUCATION

• Ph.D. Computer Science, Iowa State University, Ames, Iowa (1988).
  Dissertation: *Indefinite and Maybe Information in Deductive Relational Databases.*
  Advisor: Ken-Chih Liu

• M. Tech. Computer Engineering, Indian Institute of Technology (IIT), Delhi, India (1982).

• B.E. (Honors) Electronics Engineering, Birla Institute of Technology and Science (BITS), Pilani, India (1980).

II. PROFESSIONAL CREDENTIALS

2006- Professor and Director of Graduate Studies
  Department of Computer Science, Georgia State University, Atlanta, Georgia

1999-2006 Associate Professor and Director of Graduate Studies
  Department of Computer Science, Georgia State University, Atlanta, Georgia

1996-1999 Assistant Professor
  Department of Mathematics and Computer Science, Georgia State University, Atlanta, Georgia

1994-1996 Associate Professor and Chair
  Department of Computer Science, Wichita State University, Wichita, Kansas

1988-1994 Assistant Professor
  Department of Computer Science, Wichita State University, Wichita, Kansas

1982-1988 Graduate Teaching Assistant
  Department of Computer Science, Iowa State University, Ames, Iowa

III. TEACHING EXPERIENCE (ACADEMIC)

1982-1988: Iowa State University, Graduate Teaching Assistant
1988-1996: Wichita State University, Assistant (88-94) and Associate Professor (94-96)
1996-present: Georgia State University, Assistant (96-99) and Associate Professor (99-present)
IV. ADMINISTRATIVE EXPERIENCE (ACADEMIC)
(Key Committees and service roles at Georgia State University and Wichita State University)

At Georgia State University (1996-present)

1999-present: Director of Graduate Studies, Computer Science Department.

As Director of Graduate Studies for the past six years, I am intimately involved in all matters pertaining to graduate education in the department. Among the responsibilities are graduate admissions, assistantship decisions, GTA/GLA scheduling, and graduation audits.

College/University Wide Service

2006-present: Member of Promotion and Tenure Committee, College of Arts and Science, Georgia State University

2005-present: Member of University Senate, Georgia State University
Committees: Information System and Technology (ISAT), Budget
Senator since April 2005.

2005-present: Member of By-Laws Committee, College of Arts and Sciences, Georgia State University

2002-present: Member of College Graduate Committee (formerly Graduate Council).

As member of this committee, I have participated in all discussion pertaining to graduate matters college-wide and have been involved in the formulation of several policies.

2003-04: Member of Petitions Sub-Committee, Graduate Council, College of Arts and Sciences, Georgia State University.

As member of the petitions committee, I have reviewed numerous petitions by graduate students in the College of Arts and Sciences to deviate from regulations. This committee met once each semester and reviewed about 20 petitions each time.

2004-2005: Member of Triennial Evaluation Committee for Dean of Arts and Sciences (Dean Adamson)

As member of this committee, I have analyzed the survey data, discussed the analysis, and wrote one section of the report submitted to the Provost.

2002: Chair of Triennial Evaluation Committee for Chair of Computer Science Department (Dr. Fraser).
As chair of this committee, I conducted the review for Dr. Fraser. The process involved distributing a survey to eligible faculty, collecting responses, tabulating, and assessing the data to write a final report. This report was then presented to the Dean in a meeting.

1999-2002: Member of the Ad-Hoc Committee to Respond to Yamacraw RFP.

I actively assisted the Chair in preparing proposals each year to respond to the Yamacraw Request for Proposals for faculty positions.

Departmental Service

2006-present: Member of Curriculum Committee.

2006-present: Member of Academic Program Review Committee.

2005-present: Member of Program Review Committee.

2000-present: Chair of Ph.D. Qualifier Examinations Committee

I have coordinated the Ph.D. Qualifier Examination since it was first offered in Fall 2000. The exam is offered to students twice each year.

2000-present: Chair of Ph.D. Qualifier Examinations Sub-Committee in Automata area

As chair of this sub-committee, I have prepared questions, proctored and graded the exams, and finalized the results.

2001-present: Member of Executive Committee, Computer Science Department

As member of the executive committee, I have advised the Chair of the Department on many issues. I have given recommendations on merit pay raises each year based on the annual reports and teaching portfolios submitted by faculty.

1999-present: Search Committee (Chair 99-03, Member 03-present), Computer Science Department

As chair of the search committee for 4 years and as a member for the past 2 years, I have been actively involved in all faculty searches in the past 6 years when the department has hired 11 tenure track faculty and 4 lecturers. I have given valuable advice to the Chair in the search process.

2004-present: Member of Computer Security Advisory Committee, Computer Science Department

As member of this committee I have advised the Chair of the department on computer security matters on numerous occasions.
2004-present: Member, Students Learning Outcomes Committee

As member of this committee, I have been involved in the development of learning outcomes as well as assessment instruments for each of our degree programs. I have also been involved in the data collection process.

1999-present: Chair of Graduate Committee, Computer Science Department

As chair of the Graduate Committee, I have periodically reviewed catalog changes to each of our graduate programs and concentrations. I have also coordinated catalog changes concerning our graduate coursework. I have also developed several policies for graduate students involving assistantships, ESL requirement compliance, proctoring and student contact.

1999-present: Promotions and Tenure Committee, Computer Science Department

In this mandatory committee, I have participated in the tenure and promotion reviews as well as mid-tenure reviews for several faculty members including writing final reports for many.

2000-2004: Contract Renewal Advisory Committee, Computer Science Department

I have advised the Chair on contract renewals of un-tenured faculty on a yearly basis until 2004.


I actively participated in the preparation of the Ph.D. program proposal. I also actively assisted the Chair in preparing the response to the Board of Regents based on which they approved the Ph.D. program.

1998-1999: Member of Joint Departmental Computing Advisory Committee (with Mathematics)

As member of this committee, I have advised the Chair of the joint department on computing matters.

1996-1998: Member of Curriculum Committee, Department of Mathematics and Computer Science

As member of the curriculum committee, I contributed significantly to the current B.S. Computer Science curriculum including the introduction of Java and C++ into the curriculum and addition of various concentrations to enable students to get sufficient depth and breadth in the discipline.

1996-1998: Member of Textbook Selection Committee, Department of Mathematics and Computer Science
As a member of this committee, I reviewed many textbooks and suggested new ones for all 300-level and below courses.

**1996-1998: Member of Computer Science Committee, Department of Mathematics and Computer Science**

As member of this committee, I participated and contributed to the Computer Science issues in the department.

**At Wichita State University (1988-1996)**

**1994-1996: Chair, Computer Science Department.**

Due to the sudden resignation of the chair, I was asked by the Dean to step in as interim Chair of the CS Department in December 1994. In July 1995, I was appointed Chair of the CS department. Within a year, I decided to move on to Georgia State University.

**College/University Wide Service**

**1992-1996: Member of Computing and Telecommunications Strategy Planning, University Committee.**

As a member of this important university wide committee, I participated in the improvement of computing and telecommunication facilities across the university. Several university wide initiatives such as digital voice mail boxes, university web site, university wide servers etc. were approved and installed during my tenure in this committee.

**1992-1996: Member of Liberal Arts and Science College Computer Use Committee.**

As member of this committee, I advised the Dean’s office on College wide computing issues.

**1992-1996: Member of Natural Science Advisory Committee for Program Review, Liberal Arts and Science College.**

As member of this committee, I performed college wide reviews of undergraduate as well as graduate programs.

**Departmental Service**

**1988-1994: Chair of Curriculum, Communications, Search, Library, and Equipment Committees, Department of Computer Science.**
As chair of the search committee, successfully recruited 6 tenure track faculty, 1 external chair, and several instructors. As chair of Curriculum committee, created an updated B.S. curriculum in 1992 in tune with ACM and IEEE recommendations.

V. BUSINESS AND PROFESSIONAL EXPERIENCE


VI. COURSES TAUGHT

A. CLASSROOM TAUGHT COURSES:

At Georgia State University

2006:
- CSc 4998, Web Programming
- CSc 8711, Databases and the Web

2005:
- CSc 8710, Deductive Databases and Logic Programming
- CSc 8711, Databases and the Web

2004:
- CSc 4340/6340, Introduction to Compilers
- CSc 8711, Databases and the Web

2003:
- CSc 4710/6710, Database Systems
- CSc 8710, Deductive Databases and Logic Programming

2002:
- CSc 6710, Database Systems
- CSc 8710, Deductive Databases and Logic Programming

2001:
- CSc 4710/6710, Database Systems
- CSc 8711, Databases and the Web

2000:
- CSc 3320 System-Level Programming
- CSc 4710/6710, Database Systems
• CSc 8710, Deductive Databases and Logic Programming
• CSc 8711, Databases and the Web

1999:
• CSc 2310, Principles of Computer Programming I (Java)
• CSc 3210, Computer Organization and Programming
• CSc 3320 System-Level Programming
• CSc 4710/6710, Database Systems
• CSc 8710, Deductive Databases and Logic Programming

1998:
• CSc 3210, Computer Organization and Programming
• CSc 481/681, Automata
• CSc 8710, Deductive Databases and Logic Programming
• CSc 8711 Databases and the Web

1997:
• CSc 227, Principles of Programming II (Pascal)
• CSc 343, Computer Organization and Programming
• CSc 481/681, Automata
• CSc 880, Deductive Databases and Logic Programming

1996:
• CSc 226, Principles of Programming I (Pascal)

I proposed the following courses:

• CSc 4370/6370 Web Programming
• CSc 4710/6710, Database Systems
• CSc 8710, Deductive Databases and Logic Programming
• CSc 8711, Databases and the Web

I updated the following courses significantly:

• CSc 3320 System-Level Programming: I prepared the initial sets of notes for this class and taught it the first two times it was offered.
• CSc 4340/6340: I revived this course in Fall 2004 (the previous time it was taught was in 1996). I revamped the course by including latest parsing technologies such as JFlex and JCup and by designing a new compiler project for the SQL language with a Database Engine as the back end.
At Wichita State University

1988-1996:

- CS 210, Introduction to Computer Science (Breadth First)
- CS 320, Discrete Structures for Computer Science
- CS 350, Oracle Programming
- CS 405, File Systems
- CS 410, Programming Paradigms
- CS 420, Automata and Formal Languages
- CS 440, Computer Architecture
- CS 560, Analysis of Algorithms
- CS 665, Introduction to Database Systems
- CS 697, Internet Programming
- CS 771, Artificial Intelligence
- CS 750, Data Structures
- CS 821, Advanced Algorithms
- CS 862, Advanced Database Systems

I proposed the following courses:

- CS 410, Programming Paradigms
- CS 350, Oracle Programming
- CS 665, Introduction to Database Systems
- CS 862, Advanced Database Systems.

B. RESEARCH CLASSES

Ph.D. Dissertations Directed

Completed


In Progress

M.S. Thesis Directed

At Georgia State University

10. Arunkumar Mothe, Querying Unconventional Data Sources, Design and Implementation of a Java API, Fall 2003.
25. Yan He, A JDBC Implementation for Datalog, Fall 1999.
29. Xiaoguong Li, Querying Unified Web Sources of Data, Summer 1999.
At Wichita State University


M. S. Projects Directed

At Georgia State University


At Wichita State University


C. RESEARCH COMMITTEES

**PhD Dissertation Committees**


**MS Thesis Committees**

1. Kelly Westbrooks, Inferring the Structure of Signal Transduction Networks from Interactions Between Cellular Components and Inferring Haplotypes from Informative SNPS, Summer 2006.
7. Jaimini Joshi, A System for Rapid Configuration of Distributed Workflows over Web Services and their Handheld-Based Coordination, Fall 2005.
19. Swetha Desetty, SOAP-JDBC: A Bridge Between Heterogeneous Clients and Data Sources, Fall 2003.
30. Lei Li, An Improved Movement-Based Location Management Scheme for PCS Network, Fall 2002.
32. Peter Vo, Real Time Internet-Based 2D Graphical Chinese Chess Game with Agents Based on the Client and Server Architecture, Summer 2002.
34. Mike Broadbear, A Java-Based Integrated Parallel and Distributed Simulation Environment, Spring 2002.
53. Yi Qin, A Study of Statistical Data Mining in Rule-Based Knowledge Systems, Fall 2000.
54. Tushar Dave, Agent in a Multi-User Server Environment, Fall 2000.

D. DIRECTION OF INDEPENDENT STUDIES

CSc 8980R Research in Computer Science


**CSc 8950 Directed Research in Computer Science**


**CSc 6999 Directed Readings**

2. Christopher Hector, Fall 2002.

**CSc 4999 Directed Readings**

41. James Naftel, *HTML to Relational Data Converter for Bibliography Information (DBLP site)*, Fall 1997.
42. Michael Rodriguez, *HTML to Relational Data Converter for Bibliography Information (DBLP site)*, Fall 1997.
53. Patrick Kline, *Student Information System on the Web (using mSQL, w3-mSQL, Lite)*, Winter 1997.
54. Sunitha Katta, *Student Information System on the Web (using mSQL, w3-mSQL, Lite)*, Winter 1997.

**VII. INTELLECTUAL CONTRIBUTIONS**

**CURRENT RESEARCH INTERESTS:**


**A. PUBLICATIONS – JOURNAL ARTICLES**

*Student co-authors are italicized in all publications*

B. PUBLICATIONS – BOOKS/MONOGRAPHS/CHAPTERS


C. PUBLICATIONS – PROCEEDINGS (REFEREED)


D. PROFESSIONAL PRESENTATIONS (Invited)

• Overview of Networked Portable Applications Development Platform (NP2), *Yamacraw Industrial Advisory Board Conference*, Atlanta, Georgia, April 2003.
• SydQL: Design and Implementation of a Java API for global querying, *Yamacraw Industrial Advisory Board Conference*, Atlanta, Georgia, April 2002.

E. EDITORIAL/REVIEWER PROJECTS

F. GRANTS AND EXTERNAL FUNDING

I have participated in external grants and contracts with funds totaling over $4,6M and in internal grants with funds totaling over $80K. External grants and contracts were from National Science Foundation, National Institutes of Health, Centers for Disease Control and Prevention, Georgia Electronic Design Center (GEDC – formerly Yamacraw), Boeing Defense and Space Group, Department of Defense, and Federal Aviation Administration.

External Grants

4. PI: Robert W. Harrison, Lead Investigator: Rajshekhar Sunderraman, Georgia State University Biomedical Computing Center (Planning Grant), *National Institute of Health*, 2003 to 2006, ~$1,090,000.


**Internal Grants**

1. PIs: Rajeshekhar Sunderraman, Paul Katz, and Ying Zhu, Identified Neuron Database, *Brains and Behavior Seed Grant*, Georgia State University, 2004 to 2006, approx. $50,000.


6. PI: Rajshekhar Sunderraman, Temporal Deductive Databases, Wichita State University, *Faculty Summer Research Award*, June 1991, $3,000.


G. PATENT APPLICATIONS

Utility Patents:


Provisional Patents:


7. Sushil K. Prasad, Vijay Madisetti (GIT), Rajshelhar Sunderraman, Erdogan Dogdu, Yi Pan, Anu Bourgeois, Michael Weeks, Alex Zelikovsky, Sham Navathe (GIT), Yanqing Zhang, Saied Belkasim, and Raghupati Sivakumar (GIT). Janaka Balasooriya, Pooja Bhatia, Wei
VIII. PROFESSIONAL AND HONOR ORGANIZATION ACTIVITIES

A. MEMBERSHIP

- Member of ACM
- Member of IEEE
- Member of Kansas Academy of Science
- Member of Hypermedia and Visualization Laboratory, CS Department, GSU
- Phi Kappa Phi (Honor Society)

B. OFFICES/COMMITTEES

- Member of Industrial Advisory Board, School of Computing and Software Engineering, Southern Polytechnic State University, Marietta.
- Faculty Associate, Georgia Electronic Design Center (GEDC), formerly called the State of Georgia’s Yamacraw Project, 2001-present.
- Session Chair, Database Systems, 36th Annual ACM Southeast Conference, Marietta, Georgia, April 1998.
- Faculty Associate, Information Systems Laboratory, National Institute of Aviation Research, Wichita State University, 1990 to 1996.
- Member of the Organizing Committee, 1993 Midwest Conference on Combinatorics, Computing, and Cryptography, Wichita, Kansas.

C. REVIEWER ACTIVITIES

Reviewed papers for following journals:

- IEEE Transactions on Systems, Man and Cybernetics (SMC)
- ACM Transactions on Database Systems
- IEEE Transactions on Knowledge and Data Engineering
- Data and Knowledge Engineering
- Annals of Mathematics and Artificial Intelligence
- Journal of Automated Reasoning
- Journal of Computational Intelligence
• Journal of Database Administration
• DATA BASE Journal
• Journal of Very Large Data Bases

Reviewed papers for the following conferences:

• International Symposium for Methodologies for Intelligent Systems
• International Conference on Data Engineering
• International Conference in Information and Knowledge Management
• ACM Southeast Conference
• International Conference on Management of Data (COMAD)

IX. HONORS, AWARDS AND RECOGNITION

• 1994 Emory Lindquist Mentor (Teaching Award), Wichita State University
• Member of Phi Kappa Phi
• Over 100 citations in published work
CURRICULUM VITAE

Michael Weeks
Associate Professor
Department of Computer Science
Web page: http://www.cs.gsu.edu/~mweeks

I. EDUCATION

University of Louisiana at Lafayette - Ph.D. in Computer Engineering 1998
University of Louisiana at Lafayette - M. S. in Computer Engineering 1996
University of Louisville Speed School - M. Eng. in Engineering Math and Computer Science (EMACS) 1994
University of Louisville Speed School - B. E. S. in Engineering Math and Computer Science (EMACS) 1993

II. PROFESSIONAL CREDENTIALS

I have attended the following professional development talks:

- Embedded Linux Seminar, hosted by LynuxWorks, Duluth, Georgia, December 12, 2001.
- Texas Instruments TMS320C6711 DSK Workshop, Atlanta, Georgia, April 26, 2001.
- Basic DSP and Matlab workshop (given by Jim McClellan and Ron Schafer), Atlanta, Georgia, December 14, 2000.

III. TEACHING EXPERIENCE (ACADEMIC)

- Georgia State University Associate Professor August 2005 to present.
  I proposed and taught the following at GSU:
  1. CSc 8270 - Digital Signal Processing (Advanced) (Graduate/Research level)
  2. CSc 4270/6270 - Introduction to Digital Signal Processing (Senior/Graduate level)
  3. CSc 4250/6250 - VLSI CAD & Computer Architecture Lab (Senior/Graduate level)
  4. CSc/PHYS 4110/6110 - Introduction to Embedded Systems Lab, Software based (Senior/Graduate level) (Replaces CSc/PHYS 3510)
  5. CSc/PHYS 3510 - Introduction to Embedded Systems Lab, Hardware based
  6. CSc 3610/7610 - Introduction to MATLAB Programming

  I taught the following:
  1. CSc 4210/6210 - Computer Architecture
  2. CSc 3320 - System Level Programming (C and Unix)
3. CSc 3210 - Computer Organization and Programming (Assembly Language)
4. CSc 2311 - Principles of Computer Programming II (C++)
5. CSc 2010 - Introduction to Computer Science

- Georgia State University Assistant Professor August 1999 to August 2005.
- University of Louisiana at Lafayette Visiting Assistant Professor August 1998 to May 1999.

I taught the following:
1. CMPS 150 - Introduction to Computer Science
2. CMPS 261 - Data Structures and Software Engineering
3. CMPS 300 - Computer Literacy

- Center for Advanced Computer Studies (CACS) Instructor/ Graduate Teaching Assistant January 1995 until August 1995. I taught the following:
  1. CMPS 307 - Computers in Organizations class (dBase for non-CS majors)
  2. CMPS 307 - Computers in Organizations class (FORTRAN for technology majors)
- Disability Resource Center (University of Louisville) Equipment Room Monitor, Graduate Service Assistant January 1993 until January 1994. Duties included helping disabled students learn to use computer equipment and adaptive technology. I wrote a grant proposal for the Disability Resource Center which generated over $30,000 for computer equipment.

IV. ADMINISTRATIVE EXPERIENCE (ACADEMIC)

- Association for Computing Machinery - chapter advisor (Committee Chair), 2002-present
- Graduate Admissions Committee, 2000-present
- Honors Committee, 2001 - present
- Learning Outcomes Committee, 2003-2004
- Ph.D. Qualifying Exam Committee: Computer Architecture, 2001- present, Subcommittee Chair: 2004- present
- Faculty Search Committee, 1999-2001

V. BUSINESS AND PROFESSIONAL EXPERIENCE

- Center for Hazards Research and Policy Development (CHRPD), University of Louisville (Graduate Research Assistant) February 1994 until June 1994.
• University of Louisville Computing and Telecommunications (C&T, formerly OCIS) (Promoted to Terminal Deployment Group) January 1988 until August 1989.
• University of Louisville Office of Computing and Information Services (OCIS) between February 1987 and May 1987, and from September 1987 until December 1987.
• Worked on my own to develop and release several share-ware programs while in high school. Most notable were a disk editor, a terminal (modem communications) program, and an assembler for the 6502 microprocessor. See Copyrights section.

VI. COURSES TAUGHT

2006
1. CSc 3610/7610 - Introduction to MATLAB Programming, Fall
2. CSc 8270 - Digital Signal Processing, Summer
3. CSc 4110/6110 - Embedded Systems, Spring
4. CSc 4270/6270 - Introduction to Digital Signal Processing, Spring

2005
1. CSc 4250/6250 - VLSI CAD & Computer Architecture Laboratory, Fall
2. CSc 8270 - Digital Signal Processing, Summer
3. CSc 4110/6110 - Embedded Systems, Spring
4. CSc 4270/6270 - Introduction to Digital Signal Processing, Spring

2004
1. CSc 4250/6250 - VLSI CAD & Computer Architecture Laboratory, Fall
2. CSc 8270 - Digital Signal Processing, Summer
3. CSc 4110/6110 - Embedded Systems, Spring
4. CSc 4270/6270 - Introduction to Digital Signal Processing, Spring

2003
1. CSc 4250/6250 - VLSI CAD & Computer Architecture Laboratory, Fall
2. CSc 8270 - Digital Signal Processing, Summer
3. CSc 4110/6110 - Embedded Systems, Spring
4. CSc 4270/6270 - Introduction to Digital Signal Processing, Spring

2002
1. CSc 4250/6250 - VLSI CAD & Computer Architecture Laboratory, Fall
2. CSc 3210 - Computer Organization and Programming, Fall
3. CSc 8270 - Digital Signal Processing, Summer
4. PHYS/CSc 3510 - Intro Embedded Systems Lab, Spring
5. CSC 4270/6270 - Introduction to Digital Signal Processing, Spring

2001
1. CSc 4250/6250 - VLSI CAD & Computer Architecture Laboratory, Fall
2. CSc 8270 - Digital Signal Processing, Summer
3. CSc 3320 - System Level Programming, Spring
4. PHYS/CSC 3510 - Intro Embedded Systems Lab, Spring

2000
1. CSc 3210 - Computer Organization and Programming, Fall
2. CSc 2311 - Principle of Computer Program II (C++), Fall
3. CSc 4210 - Computer Architecture, Summer
4. CSc 3510 - Intro Embedded Systems Lab, Spring
5. CSc 4210/6210 - Computer Architecture, Spring

1999 (Fall only)
1. CSc 2010 - Intro to Computer Science
2. CSc 2311 - Principle of Computer Program II (C++)

A. RESEARCH CLASSES (CSc 8981, 8982, 8999, and 9999)

Theses and Dissertations Directed


Master's Projects Directed

**Currently directing the following Ph.D. students (dissertation in progress)**

1. Ferrol Blackmon
2. Evelyn Brannock

**Currently directing the following Master's students (thesis in progress)**

1. Sean McKeon
2. Idzam Baharudin
3. Karan Rana

**B. RESEARCH COMMITTEES**

**Completed Dissertations (Committee)**


**Completed Theses (Committee)**

Dissertations in progress

1. Jeffrey Chastine

Master's Theses in progress

1. Larry Fitzgerald (Math)

VII. INTELLECTUAL CONTRIBUTIONS

A. PUBLICATIONS - Journal Articles


B. PUBLICATIONS - Books/Monographs/Chapters


C. PUBLICATIONS - Conference Proceedings (refereed)


34. Vidya Rangaswamy and Michael Weeks, "Phoneme Classification using Wavelet Packets," Communications, Internet and Information Technology (CIIT 2006), St. Thomas, Virgin Islands, USA, November 29 - December 1, 2006. (Accepted for publication).

D. Professional Presentations

- Evelyn Brannock, Michael Weeks, and Vincent Rehder, "Detecting Filopodia using Wavelets", Poster at the Second SouthEast Collaborative Alliance Biocomputing Center (SECABC), Atlanta, GA, October 27, 2005.
- October 4, 2005 - Topic: Detecting Filopodia with Wavelets
  Evelyn Brannock gave this presentation, but we worked on it and answered questions as a team. It was presented to the Molecules and Brains Group at GSU.
- August 31, 2005 - Topic: What's A Wavelet?
  Presented to the GSU student chapter of the Association for Computing Machinery.
- April 12, 2005 - Topic: Computer analyses of neuroscience data
  Presented at the "Brains and Behavior" Adaptability and Behavior group meeting.
- Have authored or co-authored 45 posters at the Georgia Electronic Design Center (GEDC), also called the State of Georgia's Yamacraw Project, Industrial Advisory Board meetings between April 2001 and October 2004. GEDC is the world's largest embedded software group. Participating universities include Georgia State University, Georgia Institute of Technology, University of Georgia, and Southern Polytechnic State University. This group include many member companies. Approximately 75% of these posters have student co-authors.
  Poster presented at the SouthEast Collaborative Alliance Biocomputing Center (SECABC) held at Georgia State University. Janki Vora (graduate student) is a co-author.
- October 22, 2003 - Topic: Networked Portable Platform Technology (NP2) Presented at the Yamacraw/Georgia Electronic Design Center industrial advisory board meeting.
- August 26, 2002 - Topic: Architectures for the Discrete Wavelet Transform Presented at a colloquium at Southern Polytechnic State University.
- June 18, 1998 - Topic: Architectures for the 3-D Discrete Wavelet Transform Presented to seminar class at the University of Louisville.

E. Editorial/Reviewer Projects

I have reviewed papers for the following journals/books/conferences:

1. Discrete Wavelet Transform Architectures, I reviewed this book proposal for Imperial College Press, May 22, 2005
2. 12 papers for the IEEE Workshop on Signal Processing Systems (SiPS 2005)
3. *International Conference on Advanced Computing & Communications (ADCOM-05)*, 2005
4. 2 papers for *Transactions on Advanced Research (journal)*, 2005
5. *Transactions on Internet Research*, 2005
7. Wiley's *Embedded Software Technology* book (the author's name is Gupta).
17. Integration, the VLSI Journal (Mar 7, 2006).
18. Two papers for IPSI transactions, (June, 2006).

**F. Grants and External Funding**

1. **Internal Grants**

   **Funded**
   3. Co P.I. for a $26,000 Research Team Grant proposal for High Speed Distributed Trigger Algorithm for the PHENIX/RHIC experiment at GSU, 2000. (Funded)
   4. P.I. for a proposed novel, inexpensive, VLSI design laboratory for $28,000 of Quality Improvement Funds for instructional equipment for FY 2001. ($18,000 Funded)

   **Not Funded**
   3. P.I. for a $15,000 proposal, Brains and Behavior seed grant application/proposal, "Molecules and Brains" sub-group, “Measuring Filopodia with Wavelet Analysis”.
2. External Grants

Funded
1. Michael Weeks (P.I.) and Jenny Yang (Co-P.I.) “Understanding conformational change using cellular automata,” NIH P20 Planning Grant, awarded $14,500, 2004-2005. This is part of the NIH planning grant, see “external grants” section. (Funded)
2. Sushil Prasad (P.I.), Michael Weeks (Co-P.I.), et al., “Distributed and Mobile Systems Research,” Georgia Research Alliance/Georgia Electronic Design Center (GEDC) (continuation of Yamacraw) proposal for November 1, 2003 to June 30, 2004, we were awarded $93,780. (Funded).
3. Sushil Prasad (P.I.), Michael Weeks (Co-P.I.), et al. “System on Devices: A Middleware for Collaborative Applications on Wireless Handheld Devices,” Yamacraw Embedded Software (YES) Research Proposal for FY 02-03. We were awarded $318,000. (Funded).
4. Co P.I. for a $233,000 Yamacraw Research in Embedded Software Systems grant for FY 01-02. (Funded).
5. Co P.I. for a $200,000 Yamacraw Research in Embedded Software Systems grant for FY 00-01. (Funded).
6. Robert Harrison (P.I.), (others), Michael Weeks (Senior Investigator), et al., “Georgia State University Biomedical Computing Center,” NIH Planning Grants: National Centers for Excellence in Biomedical Computing, PAR-00-102, proposed $1,559,616 budget, 2002 ($1,090,000 Funded).

Not Funded
1. P.I. for a proposed $637,000 National Science Foundation CAREER grant, 2000. (Not Funded).
2. Co-P.I. for $12,422,884 National Science Foundation's Information Technology Research (ITR) proposal submitted November, 2001 (Not Funded).
6. Michael Weeks (P.I.) and Vincent Rehder, “Dendrite Measurement Using Image Processing”, NIH P20 Planning Seed Grant. This is part of the NIH planning grant, see “external grants” section. (Not Funded).
7. Office of Naval Research 2006 summer faculty research program, $19,000.
8. NASA 2006 Summer Faculty Fellowship Program.

Pending
G. Government Publications

1. Patents


2. Copyrights

1. 12/21/87 Assembler 124 - An assembler program for the 6502 microprocessor. This program was written in assembler. TXu 309 842

2. 11/30/87 Readin - A BASIC program which reads test / survey cards. TXu 304 286

3. 11/30/87 Translat - A Pascal program which translates raw card data into an easily recognizable form. TXu 306 333

4. 11/27/87 Card Reader - A Pascal program which cross-references and analyses test / survey information. TXu 304 955

5. 03/13/89 Entry - A Pascal program which allows entry of test / survey card answers automatically or manually. TXu 363 403
H. Pending Publications


VIII. PROFESSIONAL AND HONOR ORGANIZATION ACTIVITIES

A. Membership

- Georgia Electronic Design Center (GEDC), formerly called the State of Georgia's Yamacraw Project.
- Institute of Electrical and Electronics Engineers (IEEE) - Senior Member
- IEEE Computer Society
- IEEE Signal Processing Society
- IEEE Circuits and Systems Society
- IEEE Communications Society
- Association for Computing Machinery (ACM)
- Upsilon Pi Epsilon (UPE) Computer Science Honor Fraternity
- Member of Triangle Fraternity (Fraternity of Engineers, Architects and Scientists)

B. Offices/Committees/Presentations

- Review Committee Member for IEEE Workshop on Signal Processing Systems (SiPS 2005) (this involves not only reviewing papers, but assigning others to review papers, collecting the results, and recommending to the program chair which papers to accept.)
- Review Committee Member for International Symposium on Circuits and Systems (ISCAS 2005) (this involves not only reviewing papers, but assigning others to review papers, collecting the results, and recommending to the program chair which papers to accept.)
- Review Committee Member for International Symposium on Circuits and Systems (ISCAS 2004) (this involves not only reviewing papers, but assigning others to review papers, collecting the results, and recommending to the program chair which papers to accept.)
- Review Committee Member for International Symposium on Circuits and Systems (ISCAS 2003)
• Session chair, Session 9 entitled “Applications and the Internet - I,” Communications, Internet and Information Technology (CIIT 2002) conference (part of IASTED), St. Thomas, Virgin Islands, USA, November 18-20, 2002.
• Technical Committee Member of the IEEE Workshop on Signal Processing Systems (SIPS 2001)
• Reviewed papers for International Symposium on Circuits and Systems (ISCAS 2001)
• Technical Committee Member of the IEEE Workshop on Signal Processing Systems (SIPS 2000)
• Reviewed papers for IEEE Workshop on Signal Processing Systems SIPS 2000
• Helped to run the Eighth Great Lakes Symposium on VLSI (GLSVLSI '98) in Lafayette, Louisiana, February 19-21, 1998.

C. Participation in International and National Organizations

• I mentored a team of participants in the 2001 IEEE Computer Society's International Design Competition (CSIDC) with undergraduate students Eric Vega, Jean Dillard, and Darren Vick. Eric and Jean were Computer Science students, while Darren was a physics major. This included a written report, "Bluetooth Enabled Law Enforcement."
• I served as the faculty advisor for the 2002 IEEE Computer Society's International Design Competition (CSIDC) project "The Mall Navigator," with undergraduate students Marjorie Moss, Gene Oh, Alex Reznik, and Frank Tuan. This included a written report.
• I served as the faculty advisor for the 2003 IEEE Computer Society's International Design Competition (CSIDC) project "Project WREKvX - Interactive 3-D Graphical Floorplan Display System on Mobile PDA," with undergraduate students Rob (Truman) Cole, Vladimir Manetin, Darrel Elmore, and Kelly Keen. This included a written report.
• I served as the faculty advisor for the 2004 Microsoft "ChallengE" competition (using Windows CE on embedded devices) project "eLANE Driving Tracker," with undergraduate students David Hillman, Anthony Lin, and Sherod Emerson. We traveled to Microsoft's headquarters in Redmond, Washington in March 2004 for this competition. Our project was selected to go on to compete in the 2004 CSIDC.
• I served as the faculty advisor for the 2004 IEEE Computer Society's International Design Competition (CSIDC) project "eLANE Driving Tracker," David Hillman, Anthony Lin, Sherod Emerson and Ben Cherian. This project is the same as the one listed above, except that we added Ben to the team, and we had an additional six weeks to work on the project and write the report.
• I served as the faculty advisor for the 2006 Microsoft "ChallengE" competition (using Windows CE on embedded devices) project "ReActive Irrigation Nexus (RAIN)," with
undergraduate students Drew Phebus, Mike McGreevey, David Tomaschik, and Kyle Cooper. We traveled to Microsoft's headquarters in Redmond, Washington in June 2006 for this competition. Our project was one of the top 10% internationally.

IX. HONORS, AWARDS AND RECOGNITION

- 2005 Promoted to Associate Professor, with Tenure
- 2004 Senior Member, IEEE
- 2003 Instructional Innovation Award, Georgia State University
- Recognized at University of Louisiana, Lafayette Honors Convocation
- Louisiana Board of Regents Fellowship
- 1994 ACM Distinguished Student Award, University of Louisville
- 1993 Outstanding Senior Award, University of Louisville Speed Alumni Foundation
- 1992 Engineers' Days First Place, Engineering Math and Computer Science exhibit, University of Louisville
- 1991 Engineers' Days Second Place, Engineering Math and Computer Science exhibit, University of Louisville
- 1986 University of Louisville Honors Program
CURRICULUM VITAE

Alexander Zelikovsky

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Personal Data
Date of Birth: 03/25/1960
Sex: Male
Citizenship: U. S. A.

Education
03/89 Ph.D. in Computer Science, Institute of Mathematics, Byelorussian Academy of Sciences, Minsk, Belarus
09/82 M. S. in Computer Science and Mathematics, Department of Mathematics and Cybernetics, Moldova State University, Kishinev, Moldova
09/80 B. S. in Mathematics, Department of Mathematics and Cybernetics, Moldova State University, Kishinev, Moldova

Professional Experience
08/04- Associate Professor, Department of Computer Science, Georgia State University, Atlanta, Georgia
01/99-07/04 Assistant Professor, Department of Computer Science, Georgia State University, Atlanta, Georgia
09/97-01/99 Postdoctoral Scholar, Computer Science Department, University of California at Los Angeles, Los Angeles, California
11/95-09/97 Research Scientist, Computer Science Department, University of Virginia, Charlottesville, Virginia
09/95-11/95 Visitor, Intl Computer Science Institute, University of California at Berkeley, California
01/89-09/95 Senior Research Scientist, Department of Mathematics and Cybernetics, Moldova State University, Kishinev, Moldova
04/90-09/95 Senior Research Scientist, Institute of Mathematics, Moldova Academy of Sciences, Kishinev, Moldova
12/88-03/90 Junior Research Scientist, Institute of Mathematics, Moldova Academy of Sciences, Kishinev, Moldova
09/82-11/85 Software Engineer, Institute of Mathematics, Moldova Academy of Sciences, Kishinev, Moldova

Research Interests
Discrete Algorithms and Combinatorial Optimization; Bioinformatics, Computer-Aided Design for Very Large System Integration: Physical Design & Design for Manufacturing; Computational Biology; Ad Hoc and Sensor Networks; Graph Theory; Computational Geometry.
Funding

**Internal Grants**
1. GSU Research Initiation Grant "New Approaches in Optimizing Layout Manufacturability", $5,000, 1999-2000, PI

**External Grants**
2. NSF Grant CCF-0429735 "Collaborative Research: New Directions for Advanced VLSI Manufacturability", $93,000, 8/15/2004-7/31/2007, PI

Honors
1. Best Poster Award, Fifth Georgia Tech Intl Conf on Bioinformatics, November 2005.
3. Best Paper Award, Joint Intl VLSI Design and Asia and South Pacific Design Automation Conference, Bangalore, India, January 2002
4. Humboldt Scholarship, Saarbrücken, Germany, 1995
5. Moldova Academy of Sciences Young Investigator Award, Kishinev, Moldova, 1993

Professional Service

Chair
1. (Program Committee) Intl Symposium on Bioinformatics Research and Applications, Atlanta, GA, May 2007
2. 2nd ACIS Intl Workshop on Self-Assembling Wireless Networks, Las Vegas, NV, June 2006
4. (Poster) 2nd SECABC Workshop on Biocomputing, Atlanta, GA, October 2005
5. 1st ACIS Intl Workshop on Self-Assembling Wireless Networks, Baltimore, MD, June 2005
6. Intl Workshop on Bioinformatics Research and Applications, Atlanta, GA, May 2005
7. (Session) Intl Symposium on Mathematical Programming Atlanta, GA, September 2000

Member of Program Committees
1. ACM Intl Workshop On System-Level Interconnect Prediction, Austin, TX, March 2007
3. 1st Intl Workshop on Mobile Ad-hoc and Ubiquitous Sensor Networks (MASN'05), Nanjing University, China, 2005
5. ACM Intl Workshop On System-Level Interconnect Prediction, San Diego, CA, April 2002

NIH/NSF Panelist
7. NSF Panel on Physical Design, October 2005
8. NSF Panel on Theory of Computing, March 2005
9. NSF Panel on Theory of Computing, February 2005

Editorial Activity

**Special Issues**
5. *LNCS Transactions on Computational Systems Biology*, Springer, 2005

**Patents**

**Patent Applications**

**Publications** (The authors are (mostly) in the alphabet order)

**Book Chapters**


Journal Articles
40. Zelikovsky, “Graph transformation categories which reconstruct graphs up to isomorphism,” Matematicheskie Issledovaniia 76, 1984, pp. 24-29.
Refereed Conference Articles


Other Conference Articles & Posters

Membership
ACM, IEEE, SPIE, ISCB
Industrial Contacts

- Cadence Design Systems, Inc., San Jose, CA
- Intel Inc., Santa Clara, CA
- Numerical Technologies, San Jose, CA
- Rockwell Semiconductor Systems, Inc., Newport Beach, CA
- Integrated Device Technology, Inc., Atlanta, GA
- StarCore Technology Center, Lucent Technologies, Atlanta, GA
- Affymetrix, Inc., San Jose, CA
- Blaze, Sunnyvale, CA

Invited Talks
1. Max-Plank-Institut fuer Informatik, Saarbrucken, Germany, June 1992
2. Max-Plank-Institut fuer Informatik, Saarbrucken, Germany, November 1994
3. Bonn University, Bonn, Germany, June 1995
4. University of California at Berkeley, Berkeley, CA, October 1995
5. University of Virginia, Charlottesville, VA, October 1995
6. Max-Plank-Institut fuer Informatik, Saarbrucken, Germany, December 1996
8. Pennsylvania State University, University Park, PA, September 1998
9. Georgia Tech, Atlanta, GA, March 1999
10. Integrated Device Technology, Inc., Atlanta, GA, April 2000
11. StarCore Technology Center, Lucent Technologies, Atlanta, GA, March 2000
12. Bonn University, Bonn, Germany, June 2002
14. University of Georgia, Athens, GA, April 2004
15. CEBC Symposium, GSU, Atlanta, GA, May 2004
16. University of California at San Diego, La Jolla, CA, August 2004
17. Georgia Tech, Atlanta, GA, February 2005
18. Kent State University, OH, February 2005
19. University of Connecticut, Storrs, CT, May 2005
20. SECABC Symposium, GSU, Atlanta, GA, October 2005
21. Bonn University, Bonn, Germany, April, 2006
22. IWAP Symposium, University of Connecticut, Storrs, CT, May 2006

Refereeing
Journals
1. Journal on Parallel and Distributed Computing
2. Bioinformatics
3. IEEE Transactions on Bioinformatics & Computational Biology
4. Journal of Combinatorial Optimization
5. Algorithmica
6. Information Processing Letters
7. Intl Journal of Computational Geometry & Applications
8. Computational Geometry: Theory and Applications
10. Networks
11. Discrete Applied Mathematics
12. IEEE Transactions on VLSI
13. Discrete & Computational Geometry
14. IEE Proc. - Computers and Digital Techniques
15. IEE Electronics Letters
17. ACM Mobile Networks and Applications
18. IEEE/ACM Transactions on Networking
19. Geometriae Dedicata

Conferences
20. ACM/SIAM Symposium on Algorithms
21. ACM European Symposium on Algorithms
22. ACM/IEEE Design Automation Conf
23. ACM/SIGDA Intl Symposium on Physical Design
24. ACM Intl Workshop on System-Level Interconnect Prediction
25. IEEE INFOCOM, Annual Joint Conf of the IEEE Computer and Communication Societies
26. IEEE GLOBECOM, Communications: The Global Bridge

Other
27. Australian research council – grant proposal
29. Israel Science Foundation – grant proposal

Teaching
CSc 2010 “Introduction to Computer Science”, Spring/Fall 1999, GSU
CSc 4520/6520 “Algorithms: Design and Analysis”, Spring/Fall 2000-2006, GSU
CSc 8520 “Applied Combinatorics and Graph Theory”, Spring 2000, GSU
CSc 3420 “UNIX and C”, Summer 2000, GSU
CSc 4230/6230 “VLSI Design”, Fall 2000, GSU
CSc 8550 “Advanced Algorithms for VLSI CAD and Networks”, Fall 2001-2005, GSU
CSc 8221 “Optical and Wireless Networks”, Spring 2005, GSU
CSc 8980 “Topics in Computer Science: Algorithms in Bioinformatics”, Fall 2005, GSU
CSc 8540 “Algorithms in Bioinformatics”, Fall 2006, GSU

Course and Program Development
2000 CSc 4230/6230 “VLSI Design”
2001 CSc 8550 “Advanced Algorithms for VLSI CAD and Communication Networks”
2005 CSc 8980 “Topics in Computer Science: Algorithms in Bioinformatics”
2005 CSc 6540/4540 “Algorithms in Bioinformatics”
2005 CSc 8540 “Algorithms in Bioinformatics”

Students Supervised
Ph. D. students:
S. Mantik, Y. Chen (UCLA), B. Liu (UCSD), I. Mandoiu (Georgia Tech), J. Nale, W. Mao, N. Hundewale, J. He, D. Brinza, S. Gremalschi, I. Astrovsakaya, Q. Cheng (all GSU)

Master students:

Undergraduate students:
C. D. Bateman (University of Virginia), A. Olshevsky (Georgia Tech), S. Zavulunova (GSU)

Dissertations/Theses Committee Chair
PhD Dissertations

Master Theses

**Internal Service**

**College of Arts and Sciences**
- Member of University Panel for Internal Proposals

**College of Arts and Sciences**
- Member of Award Committee

**Department of Computer Science**
- Chair of Assessment Committee
- Chair of Faculty Search Committee
- Member of Executive Committee
- Member of Ad Hoc Committee on Changing Credit Hours
I. EDUCATIONAL/PROFESSIONAL CREDENTIALS
Ph.D. in Computer Science, University of South Florida, August 1997.
M.S. in Computer Science, Tianjin University, June 1986.
B.S. in Computer Science, Tianjin University, July 1983.

II. TEACHING EXPERIENCE (ACADEMIC)
A. 1/99-now: teach undergraduate and graduate courses in the Department of Computer Science at Georgia State University.
B. 9/97-12/98: teach undergraduate and graduate courses in the School of Computer and Information Sciences at Georgia Southwestern State University.

III. ADMINISTRATIVE EXPERIENCE (ACADEMIC)
Publication Chair of the Second Annual Fall Workshop on Bio-Computing (SECAB 2005), Atlanta, October 27, 2005.
Chair of the Best Paper award committee of IEEE-GrC2005.
Chair of the Session on Machine Learning, Data Mining, Theory and the Session on Granular Computing at IEEE-GrC2005.
Chair of the Session on Data Mining and Related Topics of SPIE’s Defense&Security 2004: Conference on Data Mining and Knowledge Discovery: Theory, Tools, and Technology.
Chair of the Stream on Computational Web Intelligence of the Third International Workshop on Intelligent Systems Design and Applications 2003.
Chair of the Special Sessions of the Third International Workshop on Intelligent Systems Design and Applications 2003.
Chair of the Session on Web and E-Commerce Applications of SPIE’s AeroSense 2003: Conference on Data Mining and Knowledge Discovery: Theory, Tools, and Technology.
Chair of the Session on Information Fusion and Knowledge Discovery of SPIE’s AeroSense 2003: Conference on Data Mining and Knowledge Discovery: Theory, Tools, and Technology.
Chair of 2002 IEEE International Conference on Fuzzy Systems of World Congress of Computational Intelligence 2002: Special Session on Computational Web Intelligence.
Chair of the Second International Workshop on Intelligent Systems Design and Applications 2002: Session on Knowledge Discovery and Data Mining.
Chair of the Session on Image and Web Mining of SPIE’s AeroSense 2001: Conference on Data Mining and Knowledge Discovery: Theory, Tools, and Technology.
Chair of the Session on Soft Computing, Rough Sets and Fuzzy Logic of SPIE’s AeroSense 2001: Conference on Data Mining and Knowledge Discovery: Theory, Tools, and Technology.
Chair of SCI/ISAS1999 Invited Session on Intelligent Data Mining and Knowledge Discovery.

IV. BUSINESS AND PROFESSIONAL EXPERIENCE
A. 5/04-now: Associate Professor in the Department of Computer Science at Georgia State University.
B. 1/99-4/04: Assistant Professor in the Department of Computer Science at Georgia State University.
C. 9/97-12/98: Assistant Professor in the School of Computer and Information Sciences at Georgia Southwestern State University.

V. COURSES TAUGHT
A. Undergraduate Courses Taught
B. Graduate Courses Taught
GSU Courses (Jan. 1999 – now): CSc 6810 Artificial Intelligence, CSc 8810 Computational Intelligence, and CSc 6320 Operating Systems.
C. One New Course Development
CSc 8810 Computational Intelligence was newly created in Summer 2000. One textbook and one reference book were selected. A lot of new teaching materials including new slides, relevant publications, important journals, books and conferences, software systems, and related Web sites have been prepared and improved.
D. 1 Successful Ph.D. Dissertation Supervised
1. Fall 2005: Yuchun Tang, “GRANULAR SUPPORT VECTOR MACHINES BASED ON GRANULAR COMPUTING, SOFT COMPUTING AND STATISTICAL LEARNING”.
E. Current Ph.D. Candidates Supervised
1. Bo Jin.
F. 16 Successful M.S. Theses Supervised
2. Fall 2000: Yi Qin, “A Study of Statistical Data Mining in Rule-Based Knowledge System”.

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3. Fall 2000: Steinberg Marina, “Mining Large Data Sets with Fuzzy Reasoning Methods”.
5. Spring 2001: Yu Tang, “Data Mining based Online Library”.
7. Summer 2001: Yuchen Wang, “Proxistant - a personal proxy server with remote cache retrieving”.
9. Fall 2001: Mubeena Hashmi Syeda, “Parallel Neural Networks for Credit Card Fraud Detection” (Co-Chair: Yi Pan).
17. Spring 2005: Jun Li, “Genetic Granular Cognitive Fuzzy Neural Networks and Human Brains for Comparative Recognition”.
18. Fall 2005: Ling Gu, “WEB SHOPPING EXPERT SYSTEMS USING NEW INTERVAL TYPE-2 FUZZY REASONING”.

G. 7 Successful M.S. Projects Supervised
2. Summer 2002: Yong Li, “Database Management for Small Businesses”.

VI. INTELLECTUAL CONTRIBUTIONS
A. Publications – Books/Monographs/Proceedings

B. Publications – Journal Articles


35. Y.-Q. Zhang and A. Kandel, “Primary-Fuzzy-Sets-Based Normal Fuzzy Reasoning Methodology and Its Applications,” *the International Journal of Intelligent Systems*, vol. 13, no. 5,


C. Publications – Book Chapters


D. Publications – Conference/Workshop Proceedings


47. H. Fang, J. Li, Y. Sun, B.H. Wang and Y.-Q. Zhang, “A new data mining tool for analyzing
80. Y.-Q. Zhang, G.S. Owen, S.K. Prasad, R. Sunderraman and G. Vachtsevano, “Intelligent Inter-
net2 Agents for Distributed Data Mining,” the Internet2 Network Research Workshop, June 28 - 29, 2000.


E. Professional Presentations

1. Invited Talk: “Computational Intelligence for Web Intelligence and Bioinformatics,” Computational Intelligence Lab at the School of Computer Science and Engineering at University of Electronic Science and Technology of China, Aug. 2, 2005.
8. The seminar on “Granular Neural Networks for Numerical-Linguistic Data Fusion and Data Mining” in the Department of Computing at Hong Kong Polytechnic University, January 9, 2002.
9. The seminar on “Computational Intelligence Agents for Wired and Wireless Applications” in the Department of Computing at Hong Kong Polytechnic University, Dec. 20, 2001.

F. Editorial/Reviewer Projects

Associate Editor of Journal of Computational Intelligence in Bioinformatics.

Editorial Board member of International Journal of Data Mining and Bioinformatics, International Journal for Infonomics, and Information Technology Journal.

Guest Editor (with J. C. Rajapakse and G. B. Fogel): Special Issue on Computational Intelligence Approaches in Computational Biology and Bioinformatics, IEEE/ACM Transactions on Computational Biology and Bioinformatics.

Referee of IEEE Transactions on Computers.
Referee of IEEE Transactions on Neural Networks.
Referee of IEEE Transactions on Knowledge and Data Engineering.
Referee of IEEE Transactions on Systems, Man and Cybernetics: Part A.
Referee of IEEE Transactions on Systems, Man and Cybernetics: Part B.
Referee of IEEE Transactions on Systems, Man and Cybernetics: Part C.
Referee of IEEE/ACM Transactions on Computational Biology and Bioinformatics.
Referee of IEEE Transactions on Biomedical Engineering.
Referee of IEEE Transactions on Parallel and Distributed Systems.
Referee of IEEE Transactions on Circuits and Systems I.
Referee of IEEE Transactions on Nanobioscience.
Referee of IEEE Intelligent Systems.
Referee of IEEE Micro.
Referee of Fuzzy Sets and Systems.
Referee of Bioinformatics.
Referee of Neurocomputing.
Referee of International Journal of Intelligent Systems.
Referee of International Journal of Pattern Recognition and Artificial Intelligence.
Referee of International Journal of Neural Systems.
Referee of International Journal of Modelling and Simulation.
Referee of International Journal of Information Technology and Decision Making.
Referee of International Journal of Hybrid Intelligent Systems.
Referee of International Journal of Approximate Reasoning.
Referee of Journal of Intelligent and Fuzzy Systems.
Referee of Journal of Parallel and Distributed Computing.
Referee of Information Sciences – An International Journal.
Referee of Very Large Data Bases Journal.
Referee of Web Intelligence and Agent Systems: An International Journal.
Referee of Dynamics of Continuous, Discrete and Impulsive Systems Series B: Applications & Algorithm.
Referee of Transactions on Advanced Research.
Referee of Transactions on Internet Research.
Referee of Journal of Software.
Referee of The Internet Encyclopedia.

External Reviewer for National Science Foundation.
External Reviewer for Israel Science Foundation.
External Reviewer for the Research Grants Council (RGC) of Hong Kong.

G. Patents

4 Patent Disclosures in 2001

2. Co-PI, “Mobile Fleet Database Synchronization”.
5. PI, “Fuzzy Distributed Database Synchronization”.

3 Patent Applications in 2002

1. APPLICATION FOR UNITED STATES LETTERS PATENT For “AN ENABLING TECHNOLOGY FOR PROGRAMMING APPLICATIONS ON MULTIPLE MOBILE DATA-STORERS” By Vijay Madisetti, Sushil K. Prasad, Michael Weeks, Raghupathy Sivakumar, Raj Sunderraman, Sham Navathe, Yi Pan, Y.-Q. Zhang, Saied Belkasim, and Alex Zelikovsky. (Attorney Docket Number 06078.0007U2)
2. APPLICATION FOR UNITED STATES LETTERS PATENT For “MOBILE FLEET COMMUNICATION SYSTEM FOR MULTIPLE MOBILE DATA-STORERS” By S.K. Prasad, M. Weeks, Y.-Q. Zhang, S. Belkasim, A. Zelikovsky, R. Sunderraman, V. Madisetti, Y. Pan, V. Dasaigi, and Raghupathy Sivakumar. (Attorney Docket Number 06078.0005U2)
3. APPLICATION FOR UNITED STATES LETTERS PATENT For “MULTIPLE MOBILE DATA-STORERS ENABLED WITH COORDINATION-LINK PRIMITIVES AND A CALENDAR APPLICATION” By S.K. Prasad, V. Madisetti, R. Sunderraman, Y. Pan, A. Zelik-

**10 Patent Disclosures in 2002**
4. Y.-Q. Zhang, “Fast Constructive Neural Networks with Universal Approximation”.
5. Y.-Q. Zhang, “A Hierarchical Fuzzy Neural Network with Heuristic Backpropagation Learning”.
7. V. Krishnamoorthy, Y. Pan and Y.-Q. Zhang, “A NEURAL NETWORK APPROACH FOR MULTISTAGE INTERCONNECTION NETWORK ROUTING”.
9. Sushil K. Prasad (Georgia State University, GSU), Vijay Madisetti (Georgia Institute of Technology, GIT), Raj Sunderraman (GSU), Erdogan Dogdu (GSU), Yi Pan (GSU), Anu Bourgeois (GSU), Michael Weeks (GSU), Alex Zelikovsky (GSU), Sham Navathe (GIT), Y.-Q. Zhang (GSU), Saied Belkasim (GSU), and Raghubati Sivakumar (GIT), Students: Janaka Balasoooriya, Pooja Bhatia, Wei Chen, Swetha Desetty, Brian Gamulkiewicz, Arthi Hariharan, Jingwu He, Yuanchen He, Praveena Jayanthi, Bing Liu, Hui Liu, Praveen Madiraju, Srilaxmi Malladi, Wissam Ramlawi, Feng Tan, Yuchun Tang, Hui Wang, Wei Zhong, “SyD Kernel Design and Implementation” Oct. 31, 2002.
10. Sushil K. Prasad (Georgia State University, GSU), Vijay Madisetti (Georgia Institute of Technology, GIT), Raj Sunderraman (GSU), Erdogan Dogdu (GSU), Yi Pan (GSU), Anu Bourgeois (GSU), Michael Weeks (GSU), Alex Zelikovsky (GSU), Sham Navathe (GIT), Y.-Q. Zhang (GSU), Saied Belkasim (GSU), and Raghubati Sivakumar (GIT), Students: Janaka Balasoooriya, Pooja Bhatia, Wei Chen, Swetha Desetty, Brian Gamulkiewicz, Arthi Hariharan, Jingwu He, Yuanchen He, Praveena Jayanthi, Bing Liu, Hui Liu, Praveen Madiraju, Srilaxmi Malladi, Wissam Ramlawi, Feng Tan, Yuchun Tang, Hui Wang, Wei Zhong, “How to Rapidly Develop a SyD Application?” Oct. 31, 2002.

**VII. PROFESSIONAL AND HONOR ORGANIZATION ACTIVITIES**

**A. MEMBERSHIP**
1. Bioinformatics and Bioengineering Technical Committee (BBTC) of the Computational Intelligence Society (CIS) of IEEE.
2. Technical Committee on Pattern Recognition for Bioinformatics of the International Association of Pattern Recognition (IAPR).
3. IEEE Granular Computing Task Force Committee and Advisory Board.
5. ACM, IEEE, ACM-SIGKDD, IEEE-Computational Intelligence Society, IEEE-SMC Society, BISC.
6. Georgia Center of Neural Communication and Computation.

**B. Offices/Committees/Presentations**
B.1 External Conference Program Committees
1. the Ninth International Conf. on Information and Knowledge Management (CIKM'2000).
3. 2001 WSEAS International Conference on Neural Networks and Applications (NNA’01).
5. 2001 WSEAS International Conference on Evolutionary Computations (EC’01).
6. 9th International Conference on Neural Information Processing (ICONIP’02).
7. the International Conference on Data Mining and Knowledge Discovery: Theory, Tools, and Technology of SPIE’s AeroSense 2002.
8. 2002 WSEAS International Conference on Neural Networks and Applications (NNA’02).
10. 2002 WSEAS International Conference on Evolutionary Computations (EC’02).
13. ICDM’2002 Workshop on The Foundation of Data Mining and Discovery.
15. 2003 WSEAS International Conference on Neural Networks and Applications (NNA’03).
17. 2003 WSEAS International Conference on Evolutionary Computations (EC’03).
26. 2004 WSEAS International Conference on Neural Networks and Applications (NNA’04).
32. The International Conference on Informatics in Control, automation and Robotics, 2004 (ICINCO04).
33. the 9th Online World Conference on Soft Computing in Industrial Applications (WSC9).
35. 2004 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB04).
36. 11th International Conference on Neural Information Processing (ICONIP04).
37. CIT04.
38. WSS04.
40. FLAIRS2005.
41. DMBIO2005.
43. RSFDGrC2005.
44. FSKD2005.
45. HiPCoMB-05.
46. AISc2005.
47. FT&T2005.
49. The 2005 Congress on Evolutionary Computation: Special Session on Evolutionary Computation in Bioinformatics and Computational Biology.
53. MADW-MADM2005.
54. FDM2005.
55. ICINCO2005.
56. HIS2005.
57. IEEE-SCC2006
58. IEEE/WIC/ACM-WI2006
59. DMB2006
60. IADM2006
61. WSS2006
62. Prib2006
63. HiPCoMB-2006
64. FSKD-2006
65. ICINCO06
66. ISNN2006
67. RSKT2006
68. ISKE2006
69. FT&T2006
70. NCA2006
71. ICTAI2006
72. HIS-NCEI2006
73. IEEE-C1BCB2007
74. BIRD2007
75. IASTED-CI2007
76. ISNN2007
77. FSKD2007
78. RACR2007

B.2 External Conference Advisory Committees

B.3 Internal Committees
1. Departmental Colloquium Coordinator;
2. A member of Library Committee of the Computer Science Department;
3. A member of Alumni Relations Committee of the Computer Science Department;
4. A member of Assessment Committee of the Computer Science Department;
5. A member of Graduate Committee of the Computer Science Department;
6. A member of Ph.D. Qualifiers Committee.
7. A member of the Ad Hoc Advisory Committee on Computer Organization and Programming;
8. A member of the Ad Hoc Chair Evaluation Committee.

VIII. HONORS, AWARDS AND RECOGNITION

A. HONORS AND AWARDS
1. 2005 IEEE-Granular Computing Outstanding Service Award.
2. An article co-written by Dr. Yan-Qing Zhang was recently ranked among the TOP25 Hottest Articles published in the journal Artificial Intelligence in Medicine. The rankings were determined by ScienceDirect based on the number of downloads by online users during July, August, and September, 2005. The article, titled "Granular support vector machines with association rules mining for protein homology prediction," was co-authored by recent Ph.D. recipient Dr. Yuchun Tang and current Ph.D. candidate Bo Jin. It was originally published in the September 2005 issue of the journal.

B. STUDENTS’ ACHIEVEMENTS
1. Ph.D. Student Wins Best Student Paper Award: Bo Jin, a Ph.D. candidate advised by Dr. Yan-Qing Zhang, won a best student paper award at the 2005 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology. The symposium was held on November 14-15 in San Diego.
2. Ph.D. Student Ranks 9th in UCSD Data Mining Contest: Bo Jin, a Ph.D. candidate advised by Dr. Yan-Qing Zhang, recently participated in the 2006 UCSD Student Data Mining Contest. The competition, which was open to undergraduate students, graduate students, and post-doc researchers, drew 58 teams from 22 U.S. universities. The contest was designed to give participants a chance to test their data mining skills on a real-world data set. Teams competed to build a system that correctly predicts useful information from a corpus of text documents. There were two tasks: Document Classification (predicting the topic of a document) and Word Prediction (given some words in a document, predicting what other words would be found in the document). Mr. Jin finished in 9th place on the Document Classification task with a score of 83.7 (the winning team’s score was 87.6). His score placed him ahead of teams from the University of Central Florida, UCLA, UC San Diego, the University of Michigan, and the University of Texas at Austin. The contest, which ran from May 15 to July 15, was organized by UC San Diego and sponsored by Fair Isaac.
3. Ph.D. Student Participates in Data Mining Cup Contest: Bo Jin, a Ph.D. candidate advised by Dr. Yan-Qing Zhang, participated in the Data Mining Cup Contest 2006. More than 570 students from 177 universities and 42 countries took part in the contest, which ended on May 31. Of 189 submissions, Mr. Jin’s solution ranked 42nd (second in the U.S.) with 4496 points and an accuracy of 78.1%. The top-ranked solution received 5020 points with an accuracy of 81.375%. This year’s DMC Contest task consisted of developing a data mining model that predicts for each new auction whether the actual sales revenue is higher than the average sales revenue of the product category. The DMC Contest is organized annually by German company prudsys AG and the Technische Universität Chemnitz.
4. Ph.D. Student Leads Ongoing KDD Cup 2004 Contest Ph.D. candidate Yuchun Tang is participating in the ongoing ACM KDD Cup 2004 Protein
Homology Prediction Contest. As of Sept. 22, 2006, his solution ranked second out of 107 overall.

5. **Ph.D. Students Participate in Data Mining Cup Contest**
   Yuchun Tang and Bo Jin, two Ph.D. candidates advised by Dr. Yan-Qing Zhang, participated in the Data Mining Cup Contest 2005. 531 students from 176 universities in 41 countries took part in the competition, which lasted from April 1, 2005, to April 30, 2005. More than 160 solution models were submitted. Mr. Tang's solution ranked 19th (1st in the U.S.) with 10722 points, and Mr. Jin's solution ranked 27th (3rd in the U.S.) with 10175 points; the top-ranked solution received 12297 points. This year's Data Mining Cup Contest dealt with the problem of using data mining to determine whether a person who places an order online will eventually pay for the goods they ordered.

6. **Ph.D. Student Participates in Data Mining Competitions**
   Yuchun Tang, a Ph.D. candidate in computer science, participated in the Data Mining Cup 2004. 425 students from 166 universities and 32 countries took part in the competition, which lasted from April 15, 2004 to May 13, 2004. 111 participants submitted solution models. The objective of data mining is to discover hidden relations, patterns, and trends in databases. This year's data mining task dealt with the issue of predicting the behavior of customers returning mail-order merchandise. Mr. Tang's solution ranked 50th with 9559 points (the top-ranked solution received 10511 points).

   Mr. Tang also participated in KDD Cup 2004, a knowledge discovery and data mining competition held from April 28, 2004 to July 14, 2004, in conjunction with the Tenth Annual ACM SIGKDD Conference. Contestants were allowed to choose between a quantum physics task and a protein homology prediction task. Mr. Tang chose the protein homology prediction task. His solution ranked 24th out of 59 overall, based on four metrics:
   - For the TOP1 metric (the larger, the better), his solution ranked 22nd with performance 0.87333. The best performance was 0.92000.
   - For the RMSE metric (the smaller, the better), his solution ranked 24th with performance 0.04314. The best performance was 0.03501.
   - For the RKL metric (the smaller, the better), his solution ranked 37th with performance 93.02667. The best performance was 45.62000.
   - For the APR metric (the larger, the better), his solution ranked 11th with performance 0.81902. The best performance was 0.84118.

C. **GRANTS**


Ying Zhu

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Department of Computer Science,
Georgia State University,
34 Peachtree Street, Suite 1441
Atlanta, GA 30033

yzhu@cs.gsu.edu
http://www.cs.gsu.edu/~cscyiz
(phone) 404-463-9463
(fax) 404-463-9912

Education

• Ph.D. in Computer Science, George Mason University, Fairfax, Virginia, USA, 2000
• M.Eng. in Computer Science, University of Electronic Science & Technology, China, 1994
• B.Eng. in Computer Science, Southwest Jiaotong University, China, 1991

Academic and Industrial Experience

2006 – present: Director of Hypermedia and Visualization Lab, Department of Computer Science,
Georgia State University, Georgia
2003 - present: Assistant Professor, Department of Computer Science, Georgia State
University, Atlanta, Georgia
Dallas, Texas

Research Interests

Computer graphics, bioinformatics visualization, information visualization

Selected Publications

Conference and journal papers


**Peer-reviewed posters and abstracts**


**Research Support**

**Extramural grant support**
National Institute of Health
2006 - 2008
Title: “NeuronBank: A Database for Identified Neurons and Synaptic Connections”
Role: Co-PI

**Internal grant support**

1. NIH Exploratory Centers (P20) for Interdisciplinary Research Grant  
   2003 – 2006  
   Title: “3D Animated Crayfish Model for Neurobiological Study of Adaptive Behaviors”  
   Role: PI

2. NIH Exploratory Centers (P20) for Interdisciplinary Research Grant  
   2004 – 2006  
   Title: “Design of Molecular Complexes Using a 3-Dimensional Direct Manipulation Interface”  
   Role: PI

3. Georgia State University Brains & Behavior Area of Focus Seed Grant  
   2004 – 2006  
   Title: “A Web based database for identified neurons”  
   Role: Co-PI

4. Georgia State University Faculty Mentoring Grant  
   2005 – 2006  
   Title: “Graphical Simulation of Vehicle-Terrain Interaction for Real-time Training Applications”  
   Role: PI

5. Georgia State University Research Initiation Grant  
   2004 – 2005  
   Title: “Fast and Realistic Visualization of Large Terrain Database”  
   Role: PI

**Presentations at Professional Meetings**

12. “Graphics Simulation and Visualization for Neuroscience Research”, Georgia State University Neuroscience Symposium, 2004

Teaching

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>Fall 2006</td>
<td>CSc4820/6820</td>
<td>Computer Graphics Algorithms</td>
</tr>
<tr>
<td>Spring 2006</td>
<td>CSc8820</td>
<td>Advanced Graphics Algorithms</td>
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<tr>
<td>Spring 2006</td>
<td>CSc4730/6730</td>
<td>Scientific Visualization</td>
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<td>Fall 2005</td>
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<td>Computer Graphics Algorithms</td>
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<td>Scientific Visualization</td>
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<tr>
<td>Spring 2005</td>
<td>CSc4840/6840</td>
<td>COMM 6840, FILM 4840, GrD 4840 Computer Graphics Imaging</td>
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<td>Fall 2004</td>
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<td>Computer Graphics Algorithms</td>
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<td>Summer 2004</td>
<td>CSc4520/6520</td>
<td>Design and Analysis of Algorithms</td>
</tr>
<tr>
<td>Spring 2004</td>
<td>CSc8820</td>
<td>Advanced Graphics Algorithms</td>
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<tr>
<td>Fall 2003</td>
<td>CSc4820/6820</td>
<td>Computer Graphics Algorithms</td>
</tr>
</tbody>
</table>

Ph.D. Student Supervision

Dissertation Committee Chair

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthony S. Aquilio</td>
<td>(PhD Candidate, ABD)</td>
</tr>
<tr>
<td>Jeffrey W. Chastine</td>
<td>(PhD Candidate, ABD)</td>
</tr>
<tr>
<td>Jason A. Pamplin</td>
<td>(PhD Candidate, ABD)</td>
</tr>
<tr>
<td>James Reid</td>
<td>(PhD Student)</td>
</tr>
<tr>
<td>Xiaoyuan Suo</td>
<td>(PhD Student)</td>
</tr>
</tbody>
</table>

Dissertation Committee Member

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Hao Tian</td>
<td>(PhD Candidate)</td>
</tr>
<tr>
<td>Feng Liu</td>
<td>(completed in 2005)</td>
</tr>
</tbody>
</table>

M.S. Student Supervision

MS Thesis Committee Chair

<table>
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<tr>
<th>Name</th>
<th>Status</th>
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<tbody>
<tr>
<td>Jeremy C. Brooks</td>
<td>in progress</td>
</tr>
<tr>
<td>Hsiu-Chung Wang</td>
<td>in progress</td>
</tr>
<tr>
<td>Wenjun Ma</td>
<td>in progress</td>
</tr>
<tr>
<td>Tu Tran</td>
<td>in progress</td>
</tr>
<tr>
<td>Xiaoyuan Suo</td>
<td>(Completed in 2006)</td>
</tr>
<tr>
<td>R. Robert Kasemsri</td>
<td>(Completed in 2005)</td>
</tr>
<tr>
<td>Geoffrey Bays</td>
<td>(Completed in 2005)</td>
</tr>
</tbody>
</table>

MS Thesis Committee Member

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaibhav Gupta</td>
<td>in progress</td>
</tr>
<tr>
<td>Yu Qiu</td>
<td>(Completed in 2006)</td>
</tr>
<tr>
<td>Ning Gu</td>
<td>(Completed in 2005)</td>
</tr>
<tr>
<td>Mateena H. Syeda</td>
<td>(Completed in 2004)</td>
</tr>
</tbody>
</table>
Jigesh Parikh (Completed in 2004)

**MS Project Committee Member**
- Sangwook Lee (Completed in 2005)
- Peipei Fang (Completed in 2004)
- Hongli Ge (Completed in 2004)

**Undergraduate Student Supervision**

**Directed Reading**
- William Rowland (Completed in Fall 2005)
- Nicole Henderson (Completed in Fall 2005)
- Ifieyemi Ogoun (Completed in Fall 2005)
- Christopher Mureithi (Completed in Fall 2004)

**Service**

**Professional services**

**2006**
1. Associate Guest Editor: Special Issue of the International Journal of Pervasive Computing and Communications
2. Member of Program Committee:
   - 7th IEEE Information Assurance Workshop (IAW)
   - 6th IEEE International Conference on Computer and Information Technology (CIT)
   - 9th IASTED International Conference on Computer Graphics and Imaging (CGIM)
3. Reviewer for journals:
   - IEEE Network
   - IEEE Computing in Science and Engineering (CiSE)
4. Reviewer for conferences:
   - IEEE Visualization Conference (VIS)
   - IEEE Symposium on Visual Analytics Science and Technology (VAST)
   - IEEE Virtual Reality Conference (VR)
   - IEEE Annual Computer Security Applications Conference (ACSAC)
   - ACM SIGGRAPH Conference (Research Posters Program)

**2005**
1. Technical Track Chair: Web Program, ACM SIGGRAPH conference
2. Member of Program Committee:
   - ACM SIGGRAPH Conference (Posters Program)
   - 5th IEEE International Conference on Computer and Information Technology (CIT)
3. Reviewer for conferences:
   - IEEE Visualization Conference
   - IEEE Virtual Reality Conference
   - ACM SIGGRAPH Conference (Course Program)
   - 13th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG)
   - IEEE International Conference on Information Technology and Applications (ICITA)
2002 - 2004

1. Member of Program Committee:
   - IEEE Virtual Reality Conference 2003
   - IEEE Virtual Reality Conference 2002
   - 8th IASTED International Conference on Computer Graphics and Imaging (CGIM)
   - 4th IEEE International Conference on Computer and Information Technology (CIT)

2. Reviewer:
   - IEEE Computing in Science and Engineering magazine, 2003
   - 13th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) 2004

Member of ACM and SIGGRAPH (2002 – present)

University Service

1. Member of Faculty Search Committee, Georgia State University Brains & Behavior Program (2006 – present)
2. Member of Scientific Committee, Georgia State University Brains & Behavior Program (2004 – present)
3. Member of Computer Science Graduate Committee (2004 – present)
4. Member of Computer Science Graduate Admission Committee (2004 – present)

Honors and Awards

1. Doctoral Scholarship, Provost's Office, George Mason University, 2000
2. Doctoral Fellowship, School of Information Technology and Engineering, George Mason University, 1999
3. Outstanding Graduate Student Award, Computer Science Department, University of Electronic Science and Technology (China), 1994
4. Outstanding Student Award, Southwest Jiaotong University (China), 1991
5. Undergraduate Scholarship, Southwest Jiaotong University (China), 1987 -1991
Appendix F4: Faculty Involvement in Self Study

The self study process began in October 2005 with the appointment of a committee consisting of Saeid Belkasim, Anu Bourgeois, K. N. King (chair), Raj Sunderraman, and Michael Weeks.

The Self Study Committee met several times in February and March 2006 to write supplementary questions for surveys, discuss goals for the self study, and prepare a list of potential external reviewers. The committee held biweekly meetings in September and October 2006 and weekly meetings in November 2006 during the writing of the self study. Department chair Yi Pan attended many meetings of the committee, so six of the department’s 15 full-time tenured/tenure-track faculty were directly involved in the creation of the self study. Other faculty members provided data to the committee and provided feedback on drafts of the self study.

The entire faculty of the department was invited to a meeting on November 17 at which a draft of the self study was presented and discussed. Later that day, drafts of the self study and its appendices were posted on a web site for viewing by the entire faculty. At a second meeting on November 30, the self study was approved unanimously by the faculty.
Appendix G1: Summary Data on Student/Faculty Ratios and Credit Hour Generation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td># TT Faculty</td>
<td>15</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td># Undergraduate Majors</td>
<td>838</td>
<td>650</td>
<td>505</td>
</tr>
<tr>
<td># Graduate Majors (All)</td>
<td>149</td>
<td>147</td>
<td>168</td>
</tr>
<tr>
<td>UG/TT Ratio</td>
<td>55.9</td>
<td>46.4</td>
<td>31.6</td>
</tr>
<tr>
<td>Grad/TT Ratio</td>
<td>9.9</td>
<td>10.5</td>
<td>10.5</td>
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</table>

<table>
<thead>
<tr>
<th>AVERAGE ANNUAL # OF FACULTY MEMBERS BY RANK AND STATUS</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>3 YR AVG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ten Prof</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>T Asc P</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>5.3</td>
</tr>
<tr>
<td>T Ast P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT Prof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TT Asc P</td>
<td>1</td>
<td>1</td>
<td></td>
<td>0.7</td>
</tr>
<tr>
<td>TT Ast P</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>6.7</td>
</tr>
<tr>
<td>Total TT</td>
<td>15</td>
<td>14</td>
<td>16</td>
<td>15.0</td>
</tr>
<tr>
<td>NTT</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.0</td>
</tr>
<tr>
<td>Total FT</td>
<td>19</td>
<td>18</td>
<td>20</td>
<td>19.0</td>
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<tr>
<td>PTI</td>
<td>2</td>
<td>1</td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>GTA</td>
<td>26</td>
<td>25</td>
<td>27</td>
<td>26.0</td>
</tr>
<tr>
<td>Total PT</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>27.0</td>
</tr>
<tr>
<td></td>
<td>2099</td>
<td>2243</td>
<td>2182</td>
<td>2174.7</td>
</tr>
</tbody>
</table>

Average Annual Credit Hours by Level

<table>
<thead>
<tr>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>3 YR AVG</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG Core</td>
<td>879</td>
<td>879</td>
<td>1,152</td>
</tr>
<tr>
<td>UG Lower</td>
<td>1,647</td>
<td>1,533</td>
<td>1,554</td>
</tr>
<tr>
<td>UG Upper</td>
<td>4,634</td>
<td>3,799</td>
<td>2,778</td>
</tr>
<tr>
<td>Grad</td>
<td>3,847</td>
<td>4,049</td>
<td>5,164</td>
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</tbody>
</table>

Average Annual Credit Hours by Faculty Type

<table>
<thead>
<tr>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>3 YR AVG</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT</td>
<td>6,719</td>
<td>6,000</td>
<td>6,370</td>
</tr>
<tr>
<td>NTT</td>
<td>2,099</td>
<td>2,243</td>
<td>2,182</td>
</tr>
</tbody>
</table>
Appendix G2: University Library Report

COMPUTER SCIENCE DEPARTMENT REVIEW
LIBRARY RESOURCES

Summary: Strengths and Weaknesses of the University Library Collection and Services
The University Library’s computer science holdings adequately support the research areas of the faculty as well as undergraduate and graduate degree students. Strengths in the Computer Science monograph collection include artificial intelligence and neural nets, computer architecture, database, graphics and visualization, networks, parallel and distributed computing, programming languages, simulation, and software engineering. Emphasis in the PhD programs fall into computer architecture, automata and formal languages, parallel and distributed computing, algorithm analysis and design, and the collection’s monographs and journals complement these areas. Overlap between the areas of Computer Science and Mathematics offers further collection strengths in fuzzy logic, algorithms, discrete mathematics, computational biology and mathematical modeling.

The University Library maintains a well-rounded collection of journals in this field, including online access to IEEE Xplore and ACM Digital Library – Association for Computing Machinery Library, which provides archival coverage in the area of Computer Science. The periodicals collection contains journals in print and online formats, with increasing emphasis on electronic (with guaranteed archival) access. Other databases useful to this discipline include Computer and Information Systems Abstracts and Electronics and Communications Abstracts. Information about programming languages and technical e-books is available from the online database, Books 24x7. Additionally, multidisciplinary databases such as MathSciNet and ISI Web of Science further support the teaching and research needs of the Computer Science faculty, post-docs, and students. Access to Journal Citation Reports provides faculty a way to evaluate the world's leading journals and their impact and influence in research areas.

Weaknesses of the collection are few, but it should be noted that the cost of the strong collection of electronic databases and periodicals increases each year therefore there is no guarantee that the library will be able to continue and maintain this collection in the future. With regard to library service to the department in the form of instruction and individual consultations, there has been limited usage of services provided by the librarian for Computer Science. As the liaison continues outreach to the department, it is anticipated that there will be increased usage of these library services.

Collection Overview
The University Library contains over 1.4 million volumes, including approximately 4,800 active serials (newspapers, journals, magazines, etc.), 20,000 media materials, and over 293 electronic databases with full-text access. The University Library is also a Federal Document Depository containing over 800,000 government documents.

Other Library Services
Information unavailable from the University Library can be requested from the library’s ILLiad service, and the Interlibrary Services Office can obtain most materials (e.g., books, microfilmed newspapers, dissertations, theses, and periodical articles as well as audio-visual materials). This
service is free of charge to Georgia State University faculty, staff, and students. Books available at other University System libraries may be obtained through GIL Express.

**Relevant Library Statistics**

<table>
<thead>
<tr>
<th>MEASUREMENT</th>
<th>STATISTIC</th>
<th>COMMENTS/NOTES</th>
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<tbody>
<tr>
<td><strong>Resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of journal titles supporting program</td>
<td>358</td>
<td>Library-funded subscriptions.</td>
</tr>
<tr>
<td>Number of related journal titles added in last three fiscal years</td>
<td>2</td>
<td>Library-funded subscriptions: Bioinformatics Information Technology &amp; People</td>
</tr>
<tr>
<td>Number of related journal titles cancelled in last three fiscal years</td>
<td>12</td>
<td>Canceled in the serials review process 2003.</td>
</tr>
<tr>
<td>Number of related databases added in last three years</td>
<td>1</td>
<td>Journal Citation Reports.</td>
</tr>
<tr>
<td>Number of related databases cancelled in last three years</td>
<td>1</td>
<td>Computer Literature Index Online.</td>
</tr>
<tr>
<td>Number or monograph titles supporting program</td>
<td>14,592</td>
<td>Q300-Q390 Cybernetics, Artificial Intelligence, Information Theory. [627 titles]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>QA75-QA76 Computer Science, Computer Programming, Programming Languages, Software and Systems, Computer Science-other topics. [10,835 titles]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TK7885-TK7895 Computer Engineering, Computer Hardware. [519 titles]</td>
</tr>
<tr>
<td>Number of monograph titles in key call number ranges added in last two years (01/2004-01/2006)</td>
<td>1613</td>
<td>Titles from QA call number ranges.</td>
</tr>
<tr>
<td>Percentage of available universe of related monograph titles purchased through approval plan during previous fiscal year.</td>
<td>47%</td>
<td>Titles were added in the call number ranges Q300-390; QA75-76; QA 267-268; TK5105; TK7885-7895.</td>
</tr>
</tbody>
</table>

**Services**

| Number of library instruction | 0        |
### GSU Library Subscription Databases

<table>
<thead>
<tr>
<th>courses taught for department during previous fiscal year</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of library consultations held with students from department during previous fiscal year</td>
<td>0</td>
</tr>
</tbody>
</table>

**Electronic Resources**

Students and faculty in the Department of Computer Science rely heavily on journals, major reference works and databases to conduct research and complete assignments. The following section provides an overview of some of the major electronic resources available for Computer Science research.

<table>
<thead>
<tr>
<th>Database</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IEEE Explore</strong></td>
<td>IEEE Xplore is a powerful resource for accessing publications from the Institute of Electrical and Electronics Engineers (IEEE) and the Institution of Electrical Engineers (IEE). The IEEE Xplore database contains more than a million articles in over 12,000 individual publications. IEEE adds about 25,000 new pages to the database per month, which builds upon a back file of content published since 1988 plus select content back to 1952.</td>
</tr>
<tr>
<td><strong>ACM Digital Library</strong></td>
<td>ACM (Association for Computing Machinery) Digital Library has full-text access to journals, transactions, magazines, conference proceedings, and newsletters covering most topics in computer science from 1985 to present.</td>
</tr>
<tr>
<td><strong>Web of Science</strong></td>
<td>Bibliographic data, searchable author abstracts, and cited references to journals in the sciences. Provides access to the ISI citation databases, including Science Citation Index Expanded. Coverage is from 1945 to current. Links to full-text of journals is also available. Documentation for citation searching in this database is available.</td>
</tr>
<tr>
<td><strong>Current Contents Connect</strong></td>
<td>Citations and abstracts in numerous disciplines, including the medical and natural sciences. Lists tables of contents for over 6500 journals. Includes bibliographic data for each article, and abstracts for about 85% of the articles.</td>
</tr>
<tr>
<td><strong>MathSciNet</strong></td>
<td>MathSciNet is a searchable Web database providing access to over 60 years of Mathematical Reviews and Current Mathematical Publications (from 1940 to the present). Mathematical Reviews provides timely reviews or summaries of articles and books that contain new contributions to mathematical research.</td>
</tr>
<tr>
<td><strong>Science Direct</strong></td>
<td>Web database for scientific research that contains the full text of more than 1,000 Elsevier</td>
</tr>
</tbody>
</table>
### GALILEO Databases

<table>
<thead>
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<th>Database</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer and Information Systems Abstracts</strong></td>
<td>Computer and Information Systems Abstracts provides citations to articles on software, artificial intelligence, automation, equipment manufacturing and design, system security, imaging systems, robotics, pattern recognition, logic and switching theory, CAD/CAM, computer mathematics, and computer electronics.</td>
</tr>
</tbody>
</table>

### University Library Contact

Robert Tomaszewski  
rtomasze@gsu.edu  
404 463-9933