Executive Summary of BS in Information Technology Program
TSYS School of Computer Science
2013-2014

Major Findings of the Program's Quality and Productivity

A detailed self-study of BS in Information Technology program was performed by the faculty of TSYS School of Computer Science. The objectives of this self-study were to assess the strengths and weaknesses of the program and to develop a plan for further improvement. In this summary all the areas assessed as above average to very strong are listed as our strengths, and areas assessed as weak or below average are listed as our weaknesses.

Program Quality Strengths	• Quality of Faculty
	  ○ Appropriateness of faculty credentials
	  ○ Diversity of faculty
	  ○ Opportunities for faculty development
	  ○ Indicators of good teaching
	  ○ Indicators of good advising
	  ○ Faculty publications, presentations and grants
	• Opportunities for student research
	• Quality of service
	• Quality of faculty and student achievements
	• Relationship between curriculum and program outcome
	• Incorporation of technology
	• Utilization of multidisciplinary approach
	• Multicultural Perspective

Program Quality Needs Improvement	• Use of part-time faculty • Department Reward System • Quality of facility and equipment
Program Productivity Strengths	• Enrollment in program for past 5 years • Cost effectiveness of instructional delivery
Program Productivity weaknesses	• Degree awarded over last 5 years • Graduation rate of the program

List of Recommendations for Improving Program Quality

Quality of Faculty	• Offer a doctorate-level degree, such as Doctorate of Science (Sc.D.) or Doctorate of IT (D.I.T.) in the area of Information Assurance. • Develop a policy to compensate full-time faculty members involved in research related highly productive activities.
Quality of Teaching	• Hire two full-time tenure-track and two non-tenure-track faculty members and reduce reliance on part-time faculty members to allow adequate course offerings to increase RPG.

Quality of Research and Scholarship	• Encourage interdisciplinary research between School of Computer Science and other disciplines involving undergraduate as well as graduate level research. • Encourage students to pursue rigorous senior projects.
Quality of Service	• Increase commitment to the local and professional communities by increasing the current number of full-time faculty members. • Offer a program to engage with students newly accepted into our program to help the students' transition into college.
Quality of Curriculum Supporting the Program	• Continue to monitor the curriculums to maintain currency. • Update student surveys to include questions about their advising experience to help us improve the advising process. • Continue to redesign introductory computer science courses to improve student learning and RPG rates. • Obtain funding to offer scholarships to academically bright but financially needy students and to support student research. • Train local school teachers to teach Computer Science courses in their corresponding schools. • Consider requiring professional certifications for IT students.
Quality of Facilities and Equipment	• Provide new projectors for all classrooms, a faster network switch, and more wireless access points. • Obtain additional space for Center for Academic Excellence in Information Assurance Education, GEMS Institute, Center for Enterprise Computing and other research needs.

List of Recommendations for Improving Program Productivity

Enrollment and Progression	• Develop a student recruitment plan (underway) • Increasing efforts to make potential students more aware of our programs. • Hire a student support specialist by spring 2014 to help with student advising and recruitment.
Retention and Graduation	• Train students to improve performance on standardized tests. • Seek additional institutional support for instruction and research. • Expand internship opportunities for students and faculty. • Encourage faculty members to create opportunities for campus and community involvement. • Offer additional sections to selected core courses to maintain the current class size of 30 to maintain quality of instruction. • Offer additional semester options (including summer) for selected core courses to help increase student progression and graduation rates.

Conclusion about Program's Viability at CSU

The BS in IT program is viable at CSU and will continue to be viable in future. We will continue to educate our students who will contribute to fulfilling the huge demand of technology workforce nationwide and improving the nation's economy as a consequence. Our students will also continue to be trained to think critically and conduct research in computing and technology, thus improving the quality of human lives in this country and worldwide.

Program Improvement Plan (to be completed by Dean and VPAA with Department Chair)

Summary Recommendation and Supporting Rationale

Enhance and expand the program:

- Hire new faculty members
- Offer Doctoral-level degree in Information Assurance
- Introduce a new policy for compensating faculty members heavily involved in research
- Increase the stipends for graduate assistants

The excellent quality of BS in IT program offered by TSYS School of Computer Science demonstrates the high quality and level of dedication of the existing faculty members. The quality will be further improved by adding new qualified members to this team. Hiring new faculty is also very crucial for improving the program productivity.

Computing and technology being among the core strengths of the economy of this nation and one of the essential contributors to the future of the world, research is an extremely important component of Computer Science education. The educators need more opportunity to continue doing research while the students need more training in research. We believe offering a doctoral-level degree and compensating faculty members appropriately for their involvement in research, as well as increasing graduate stipends will significantly enhance research endeavors at TSYS School of Computer Science.

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TSYS School of Computer Science
Bachelor of Science in Information Technology
Comprehensive Program Review
Detailed Self-Study
2013-2014

I. Brief Program Overview

Description of Program

TSYS School of Computer Science offers the bachelor of information technology. This program provides high quality education in information processing and technology. It focuses on building critical thinking and problem solving skills so that students can be successful in business, industries as well as in research and academia.

It differs from a Computer Science degree. Students in this degree are expected to study management and information science. Information technology degree offers students a program that includes business and communication applications of computing, while a degree in computer science can be expected to concentrate on the scientific aspects of computing.

The **Information Technology** program provides students with a combination of knowledge, hands–on experience, and application of theory to support their employment in the field of Information Technology. The curriculum emphasizes quantitative and communication skills as well as providing a basic foundation in understanding the business process and the role of Information Technology in supporting that process.

The curriculum includes courses in basic mathematics, foundations of computer programming and organization, professional and communication skills in an industrial setting, and a broad introduction to the business environment in which most Information Technology programs operate.

Program Mission and Its Relation to CSU Mission

The Information Technology program is committed to preparing students to:

- Apply fundamental systems analysis, project management, and end user support concepts to address real–world business problems;
- Apply analytical and critical thinking skills to develop creative solutions to these problems;
- Apply professional and interpersonal skills to communicate these solutions to both coworkers and management;
- Understand how the software solution functions as a part of the overall business solution to the problem at hand; and

- Participate in the development and testing of the software designed as a part of this business solution.

The mission helps Columbus State University to meet its commitment to fostering its centers of excellence, especially in the areas of science, mathematics, and technology education and regional economic and community development. The information technology major reflects the mission of the university to empower people to contribute to the advancement of our local and global communities through an emphasis on excellence in teaching and research, life-long learning, cultural enrichment, public-private partnerships, and service to others.

Stakeholder's satisfaction with the program

This program was proposed and set up at 2007. We started recruiting students in this major from 2008. So far we have a few students graduated. Student and alumni/employer surveys are not done in 2012. TSYS School of Computer Science conducts a survey of graduating students every year to obtain information regarding their perspective on the program. (Appendices X, Z)

The following questions relate to the satisfaction of our graduates (N=31) from year 2012-2013. Each is scored on a scale of 1-5 (strongly disagree –strongly agree). As indicated by the student responses, students are satisfied with the CS/IT programs.

I would recommend the CS program at CSU to others as a high quality program.

#	Answer	Response	%
1	Strongly Agree	9	29%
2	Agree	19	61%
3	Neither Agree nor Disagree	3	10%
4	Disagree	0	0%
5	Strongly Disagree	0	0%
	Total	31	100%

I would recommend CSU to others as a high quality university.

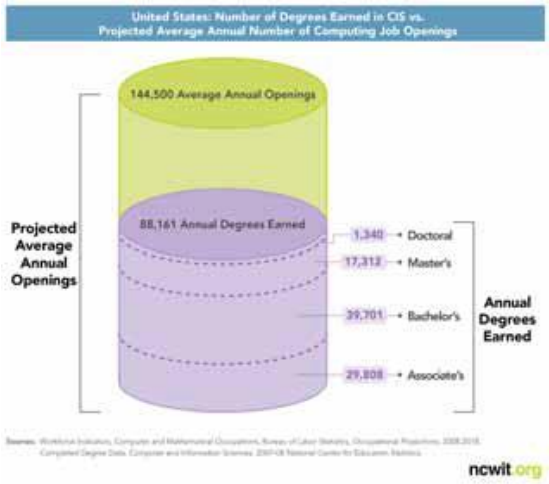
#	Answer	Response	%
1	Strongly Agree	9	29%
2	Agree	17	55%
3	Neither Agree nor Disagree	3	10%
4	Disagree	2	6%
5	Strongly Disagree	0	0%
	Total	31	100%

For the last several years, nearly all of the graduates were able to obtain employment in computer science related jobs. The demand for our graduates continues to grow. The collection of employers hiring our students has expanded to include several large companies in Atlanta and Birmingham, AL. Many of our students now gain valuable work experience by completing one or more internships.

Relationship of Program Needs to Student and Social Demands

There is a nationwide critical shortage of qualified information technologists. Five of the fastest growing occupations (database administrator, network analyst, network administrator, application, and systems software engineers) are in IT-related fields. According to the Bureau of Labor Statistics, "Employment in professional, scientific, and technical services will grow by 28.4 percent and add 1.9 million new jobs by 2014. Employment in computer systems design and related services will grow by 39.5 percent and add almost one-fourth of all new jobs in professional, scientific, and technical services. Employment growth will be driven by the increasing reliance of businesses on information technology and the continuing importance of maintaining system and network security. Management, scientific, and technical consulting services also will grow very rapidly, by 60.5 percent, spurred by the increased use of new technology and computer software and the growing complexity of business" (Bureau of Labor Statistics, 2005, http://www.bls.gov/oco/oco2003.htm).

Demand for trained computing and IT professionals has grown steadily for the last two decades. According to US Bureau of Labor Statistics, the supply of trained professionals in programming and Information Technology does not meet the national demand. Graduates of Computer Science have no problem finding a job immediately after completing the degree.



This shortage is especially critical for Columbus, Georgia where the major employers (e.g. TSYS, AFLAC, Synovus) are companies that are highly dependent on information technology. Columbus State University has a history of responding to these local industry needs as typified by partnership between CSU and local industries through the Intellectual Capital Partnership Program (ICAPP) program.

Some evidences show the demand of students for this program from the region served by the institution. Trend data analysis both locally and nationally indicate that this program will attract a large number of students and potentially graduate 40-75 students annually.

Exit interviews of graduating seniors in our two undergraduate tracks (Systems and Applied) indicate that between 20% and 25% would be more interested in an Information Technology degree than a Computer Science degree. It is expected that the program will

attract students from the Computer Information Systems Management program in the College of Business as well as students from the pool of undecided students.

This program apparently meets to the needs from local industry. This is consistent with one of the identified goals of the institution - "Develop and sustain partnerships for the benefit of CSU and the surrounding community." This is also expressed in the department's strategic plan – "Continue to serve TSYS, AFLAC and other area businesses."

In Columbus, GA, TSYS and Aflac hire the majority of CS graduates from Columbus State University. Several other local companies hire many of our students. Nearly 100% of CS graduates from CSU find job immediately after completing their degree. (Appendix A)

Undergraduates Employment

	2011-2012		2012-2013	
Degrees	**#graduates**	**#reported employed**	**#graduates**	**#reported employed**
IT	6	6	6	5
WebBIT	3	3	1	1
Totals	**9**	**9 (100%)**	**7**	**6 (88%)**

To provide our students with an opportunity of on-job learning, TSYS School of Computer Science has an established internship course for our juniors and seniors. Students can work as an intern in industry for 3 credit hours. This option helps our students enormously with their job search and interviews. Between one and ten students do internships each semester, most for pay and no academic credit. (Appendix B) There are many additional opportunities, but students are not made aware of these. We are hiring a full-time staff member as a Student Support Specialist who will facilitate the expansion of this.

TSYS School of Computer Science also provides students with an undergraduate research course option for up to 6 credit hours. Students work in conjunction with a faculty member to select a research topic, complete a written research proposal and execute a research plan. Students prepare both written and oral presentations of their work and present their work at one or more local, regional or professional meetings, or submit their work for publication. This research course prepares students who want to pursue higher education and/or a career in research. Our students have been accepted in graduate programs in top universities including Georgia Institute of Technology and Carnegie Melon University. (See Appendix C for a list of students and their research.)

II. Quality of Curriculum

The TSYS School of Computer Science provides a high quality information technology program to its students. The quality of teaching, quality of the curriculum, quality of faculty, quality of facilities, quality of research and scholarship, and quality of service are all above average. Efforts need to be made to improve the quality of students through recruitment and scholarship opportunities for exceptional students.

II A. The Quality of Faculty

Appropriateness of Faculty Credentials

Assessment of Indicator: Very strong

All of the 14 current full-time faculty members have terminal degrees in Computer Science or closely related field.

- **Dr. Wayne Summers, Professor and Distinguished Chairperson** - Ph.D. St. Louis University 1986 - Research Interests: Computer and Network Security, Network Management, Wireless Communications, Web Programming, and Computers in Education.
- **Dr. Rodrigo Obando, Associate Professor and Associate Chair** - Ph.D. Old Dominion University 1993 – Research Interests: Complex Systems modeling with Cellular Automata, Mathematical Modeling and Simulation of Systems, Cellular Automata Rule Space Classification and Transformation, 3D Modeling, Computer Graphics, VRML, Visualization and User Interface, Information Visualization, Boolean Algebras in particular Monotone Boolean Functions.
- **Dr. Edward Bosworth, Associate Professor** - Ph.D. University of Alabama in Huntsville 2001 - Research Interests: Computer Organization and Architecture, Computer Graphics, Analysis and Design of Algorithms, Software Engineering, Graph Theory and Applications to Network Reliability, Boolean Satisfiability and NP-Complete Problems.
- **Dr. Radhouane Chouchane, Assistant Professor** - Ph.D. University of Louisiana at Lafayette 2008 - Research Interests: Information Assurance, Malware Detection, and Software Forensics.
- **Dr. Rania Hodhod, Visiting Assistant Professor** - Ph.D. University of York, UK 2010 - Research Interests: Educational Games, Computational Intelligence, and Medical Informatics. (Joined September 2013)
- **Dr. Shamim Khan, Professor** - Ph.D. University of Manchester, UK 1984 - Research Interests: Soft Computing Methodologies and Applications, Intelligent Decision Support Systems, Knowledge Representation, and Digital Image Processing and Computer Vision.
- **Dr. Angkul Kongmunvattana, Associate Professor** - Ph.D. University of Louisiana at Lafayette 1999 - Research Interests: Parallel and Distributed Systems.
- **Dr. Yesem Peker, Assistant Professor** - Ph.D. Indiana University Bloomington 2005 - Research Interests: Cryptology, Public Key Cryptography, Non-

Commutative Methods in Cryptography, Information Security, Network Security, Information Assurance, and Computer Science Education.

- **Dr. Lydia Ray, Associate Professor** - Ph.D. Louisiana State University 2005 - Research Interests: Computer and Network Security, Wireless Communications, and Wireless Sensor Networks.
- **Dr. Neal Rogers, Assistant Professor** - Ph.D. Auburn University 2006 - Research Interests: Embedding Computing, Software Engineering and Metrics, and Mechatronics.
- **Dr. Charles Turnitsa, Assistant Professor** - Ph.D. Old Dominion University 2012 - Research Interests: Communication Models for Intelligent Agents, Interoperability for Heterogeneous Critical Infrastructure Models, Societal Change Models, and Model Driven Interoperability for Heterogeneous Populations.
- ***Dr. Christopher Whitehead, Assistant Professor*** *- Ph.D. Capella University 2008 - Research Interests: Usability, Web Technologies, and Mobile Computing. (Retired August 2013)*
- **Dr. David Woolbright, Professor** - Ph.D. Auburn University 1978 - Research Interests: Combinatorial Mathematics, Programming Languages, and Graph Theory.
- ***Mr. Burley Wright, Assistant Professor*** *- M.B.A. Columbus State University 1980 - Research Interests: Computer Science Education. (Retired December 2012)*
- **Dr. Jianhua Yang, Associate Professor** - Ph.D. University of Houston 2006 - Research Interests: Computer Network Security, Intrusion Detection and Prevention, Digital Topology, Pattern Recognition, and Image Processing.
- **Dr. Vladimir Zanev, Professor** - Ph.D. Sofia University, Bulgaria 1980 - Research Interests: Wireless and Voice Web Development, Pervasive Computing, Programming Languages, Database Systems, Software Engineering, Visual Programming, Data Compression, and Simulation.

Use of Part Time Faculty

Assessment of Indicator: Average

Three of the 12 part-time faculty members have terminal degrees and nine have M.S. degrees. Highlighted faculty are active this year. Each semester, the School of Computer Science relies on five to ten part-time faculty members to primarily teach multiple sections of the Area D core course (CPSC 1105 – Introduction to Information Technology).

- **Ms. Aurelia Smith, IT Support Specialist** - M.S. Columbus State University 2000.
- **Dr. Bhagyavati** - Ph.D. University of Louisiana at Lafayette 2000.
- **Mr. Jason Cornwell** - M.S. Columbus State University 2011.
- **Ms. Cheryl Garvin** - M.S. Columbus State University 2005.
- **Mr. Kinnis Gosha** - M.S. Auburn University 2007.
- **Mr. Von Hughes** - M.S. Columbus State University 2006.

- **Mr. John Hupp** - M.S. Georgia State University, 2005.
- **Dr. Justus Nyagwencha** - Ph.D. Auburn University 2012.
- **Mr. Clyde Roberts** - M.S. Columbus State University 2006.
- **Ms. Debra Sadler** - M.A.T. Troy University 1989 (Ph.D. Student in Computer Technology at Nova Southeastern University from 1991 to 1998).
- **Dr. Cheryl Swanier** - Ed.D. Auburn University 2004.
- **Mr. Edward Williams** - M.S. Columbus State University 2013.

As a result of a rapid increase in student demand and an inability to hire additional full time faculty, we have hired four new part time faculty for Spring 2014 to teach classes:

- **Mr. Touhid Ahmed** - M.S. Columbus State University 2013.
- **Mr. James Bowman** - M.S. Columbus State University 2013.
- **Mr. Shahair Husainy** - M.S. Columbus State University 2013.
- **Mr**. **Clayton Haycock** - M.S. Columbus State University 2004.

In addition to the use of part time adjunct instructors, the School of Computer Science has needed to use faculty to teach several upper-divison Computer Science classes. Dr. Mehdi Tehrani (MIS faculty) taught two sections of CPSC3131 –Database Systems in the Fall and is teaching one section of CPSC3131 – Databse Systems and one section of WBIT 3600 – Ecommerce this Spring. Dr. Lavi Zamstein (Engineering faculty) taught CPSC5555 – Selected Topics (Robotics Programming II) in the Fall and CPSC4121 – Robotics Programming I in the Spring.

Diversity of Faculty

Assessment of Indicator: Very strong

Apart from the gender and ethnic diversity, the faculty members of the School of Computer Science represent various research areas in computer science. The school has selected new faculty members based on the needs of the school and areas of expected enrollment growth. The faculty members have earned their degrees from across the United States as well as European countries, which enhance cultural diversity.

Full-time Faculty						
Academic Year	**2008-2009**	**2009-2010**	**2010-2011**	**2011-2012**	**2012-2013**	**Current**
Gender						
Female	1	1	1	1	2	**3**
Male	12	12	12	12	12	**11**
Ethnicity						
Asian	4	4	4	4	4	**4**
Black	1	1	1	1	1	**1**
Hispanic	1	1	1	1	1	**1**
White	7	7	7	7	8	**8**

Opportunities for Faculty Development

Assessment of Indicator: Very strong

Over the last five years, full-time faculty members have received nearly **$225,000** in support for faculty development. **$40,000** of this support was received from the University budget for Faculty Development. **$20,000** were stipends to faculty to prepare and over **$78,000** to teach online courses. The balance was support from funds within the school **(over $66,000)** and foundation accounts **(nearly $20,000)**. In addition, faculty members have received over **$1,265,000** from a variety of outside agencies as grants and contracts. As a result of these funds, faculty members have mentored 47 student research projects, generated 55 publications, and presented 78 talks around the world. (See Appendices D, E and F for list of publications, presentations and grants respectively.)

Faculty members can also apply for a semester or an academic year sabbatical. In fall 2008, Dr. David Woolbright was awarded a one-semester sabbatical. This allowed him to spend a semester conducting research on Steiner Triple Systems including software development with Dr. Charles Curt Lindner at Auburn University. In the current academic year, Dr. Vladimir Zanev was also awarded a one-semester sabbatical, which enabled him to teach in Bulgaria as a participant in the Fulbright Scholar Program.

Program Improvement Plans

The School of Computer Science needs to increase the number of full-time faculty members to keep pace with higher enrollment, to expand the program in the new/emerging area deemed important by the job markets, and to reduce reliance on part-time faculty members.

(1) The School of Computer Science is exploring the possibility of offering a doctorate-level degree, such as Doctorate of Science (Sc.D.) or Doctorate of IT (D.I.T.) in the area of Information Assurance. Such a program will not only enhance overall productivity and professionalism but also increase the possibility of winning research grants from external funding agencies.

(2) The School of Computer Science is also currently exploring an equitable, quantifiable, and sustainable way to compensate full-time faculty members involving in funded research projects and successful grant proposal writing as well as mentoring of undergraduate and graduate student researchers that lead to peer-reviewed publications. The new policy emerged from this study will foster growth in research productivity and revenue from external research grants.

II B. The Quality of Teaching

Assessment of Indicator: Above average

Results from exit survey of CS graduates during this review period indicated a high level of satisfaction on the CS education offered by CS faculty members at CSU. Specifically, on the question related to the overall quality of instruction in CS courses in terms of preparing students to enter the job market, 81% responded as agree or strongly agree. Furthermore, 90% of CS graduates would recommend or strongly recommend the CS

program at CSU to others as a high quality program. (See Appendices N, X and Z for student evaluations, undergraduate survey results and student interviews and surveys respectively.)

CSU Social Research Center provided summary data of course evaluations for on-campus classes. All CS courses (2012-2013) combined yielded an average score of 4.22 out of 5 (with a sample size N = 966; 5=strongly agrees, 4=agrees). Furthermore, CS Faculty earned an average score of 4.58 out of 5 on the question "The instructor promotes an academic environment in which all are treated with respect." and an average score of 4.08 out of 5 on the question "I have progressed in my ability to think critically, to solve problems, and/or to make decisions.". These indicators suggest good teaching of CS faculty members.

CSU Social Research Center provided summary data of course evaluations for online classes. All CS courses (Fall 2012 excluding CPSC1105) combined yielded an average score of 4.24 out of 5 (with a sample size N = 87). Furthermore, CS Faculty earned an average score of 4.57 out of 5 on the question "The instructor promotes an academic environment in which all are treated with respect." and an average score of 4.11 out of 5 on the question "I have progressed in my ability to think critically, to solve problems, and/or to make decisions.". These indicators suggest good teaching of CS faculty members.

Online students in CPSC1105 combined yielded an average score of 3.57 out of 5 (with a sample size N = 31). This is extremely low and suggest a problem with the course. A major redesign of the CPSC1105 course was engineered this past summer. It is hoped that this will result in a significantly improvement in this class.

Indicators of Good Advising

Assessment of Indicator: Above average

The faculty members in the School of Computer Science offered two weeks of advising period instead of the CSU norm of one week. Each advisor is assigned 30-50 advisees. In addition, CS faculty members are required to be available in their offices for a minimum of 10 hours per week with the hours distributed over at least three days of the week during the academic year.

The School of Computer Science has hired a Student Support Specialist who will have primary responsibility for advising WebBSIT students, managing internships and industry relations, and improving alumni relations. This will allow the ratio of undergraduate advisees to advisors to decrease from 38.6 to 31.5. With this high number of advisees, the faculty have limited opportunity to advise students on graduate school and job opportunities.

Departmental Reward System

Assessment of Indicator: Satisfactory

Teaching and academic advising are major criteria in the annual faculty evaluation conducted by the School Chairperson. Faculty performance evaluation metrics not only include student evaluation rating from teaching, course rigor, and appropriate grade distributions, but also encompass academic advising and mentoring of student researchers. Recommendations for merit raise, promotion, and tenure served as rewards for exceptional performance whenever the annual budget is permitted.

Program Improvement Plans

(1) The School of Computer Science needs to increase the number of full-time tenure track faculty members to keep pace with higher enrollment, to expand the program in the new/emerging area deemed important by the job markets, and to reduce reliance on part-time faculty members.
(2) The School of Computer Science needs to employee a non-tenure track faculty member to coordinate the 10-15 sections each semester of CPSC1105.

II C. Quality of Research and Scholarship

Opportunities for Student Research Projects

Assessment of Indicator: Very strong

Both undergraduate and graduate student assistants in the School of Computer Science are encouraged to carry out research projects. The project selections are based on the interest of students with the consultation with possible faculty mentors. Research results from these student research projects are usually presented at the local, regional, national, and international conferences, such as CS Colloquia Series, CSU Tower Day, Emory STEM Symposium, Information Security Curriculum Development (InfoSecCD), ACM Mid-Southeast (ACM MSE), and ACM Southeast (ACM SE). Apart from stipends and travel funds awarded by the TSYS School of Computer Science, these student research projects are also partially supported by the CSU Student Research and Creative Endeavors Grants.

Student research projects that were presented at regional, national, and international conferences during this five-year review period (Academic Year 2008 to 2013) are listed in Appendix C. Several of these students have won awards and recognitions at these conferences, which are good indications of high quality student research projects in comparison to the peer institutions in the region. It is noteworthy to point out that all of these students must also present their research projects in the CS Colloquium Series as a part of their preparations for the conference presentations. Furthermore, many of these students also presented their work on the CSU Tower Day. (See Appendix C)

Our faculty members are also collaborating with colleagues from other disciplines on interdisciplinary student research projects. For example, a project with Oxbow Meadows on classifying artifacts, and another project with faculty at College of Education on the application of complex fuzzy systems to the educational environment.

Faculty Publications, Presentations, and Grants

Assessment of Indicator: Above average

Publications and Reports

Over the past five years, CS faculty members have authored or co-authored over 55 professional papers and reports. A list of publications is given in Appendix D.

Presentations

In addition to the presentation of papers at the aforementioned conferences and symposia, CS faculty members also have given the listed conference and local presentations in Appendix E.

Grants

During this review period, CS faculty members have been awarded over $16,000 from CSU University Grants, Faculty Development Grants, and CSU-STEM Grants. In addition, CS faculty members have been awarded funding from external granting agencies totaling over $1.9 million. A partial list of these grants is given in Appendix F.

Program Improvement Plans

(1) The School of Computer Science needs to increase the number of full-time faculty members to maintain both undergraduate and graduate students involving in research projects. The oversubscribed classroom teaching due to the rise in enrollment of CS and IT majors will not only reduce the time allotted for faculty research work but also discourage faculty from taking on the task of mentoring and supervising student researchers.
(2) The School of Computer Science has recently added an undergraduate course entitled CPSC4505: Undergraduate Research. It is perceivable to require all CS majors pursuing a Bachelor of Science degree to take this course to stimulate research interest among undergraduate students, assuming sufficient support and time are given to the faculty in the School of Computer Science. This idea is similar to the independent senior research project requirement for all students in Biology.
(3) The School of Computer Science has also recently voted to increase the stipend for graduate student assistants and to make master theses mandatory for graduate students on these assistantships. These recent changes should galvanize student research productivity once properly implemented. For example, during a contract renewal period, graduate assistants may receive a raise on their stipends upon publication (and/or presentation) of a significant progress on (or a completion of) their research projects conducted in prior semester or year. Graduate assistants with no progress on their research projects should only be given a semester

renewal with a notice for termination if the no progress is made in that semester. This plan not only gives incentives to the graduate assistants to do well, but also maintains the accountability in funding student research projects.

(4) The School of Computer Science is also currently exploring an equitable, quantifiable, and sustainable way to compensate full-time faculty members involving in funded research projects and successful grant proposal writing as well as mentoring of undergraduate and graduate student researchers that lead to peer-reviewed publications. The new policy that emerges from this study will foster growth in research productivity and revenue from external research grants.

(5) Encourage interdisciplinary research between School of Computer Science and other disciplines involving undergraduate as well as graduate level research.

II D. Quality of Service

Assessment of Indicator: Very strong

Activities to Enhance Program, Department, College, Institution, Community and/or Region

The Computer Science faculty members are often called upon by university faculty and staff as well as others in the community to help with computer related problems. The faculty members are active on campus and in the community and region. Faculty members serve on a large number of department, college, university and community level committees (see Appendix G).

A number of faculty members are actively involved with the regional public schools, including serving as speakers for elementary, middle and high schools in the topics of Computer Science, Security and technology. Several faculty members have served as mentors to local high school students in completing senior projects. Faculty members have visited the local high schools and talked about computer science and presented awards to the students. Faculty members have conducted summer and weekend workshops for middle and high school teachers. They have also participated as score keepers in the Regional Science Olympiad organized at Columbus State University as well as in the Columbus Regional Science and Engineering Fair, Academic Decathlon, and hosted and maintained PAGE ONE Awards website. A faculty member has served in the Advisory and Planning Board for several programs in the school district.

A number of faculty members are actively involved in other community activities including serving as officers of the board at the Columbus Technical College, TIC Credit Union and members of the Rotary club.

The TSYS School of Computer Science and its faculty along with the ACM Student Chapter have helped organize the First Lego League Regional competition for five years, this year hosting over 30 teams at both the Regional and Super-Regional competitions.

The STARS Alliance and the ACM Student Chapter students help local groups such as Girls and Boys Clubs and Girl Scouts in areas of technology and robotics. They also help with University visitations presenting the work they do in research in the school and showing the different active projects and their involvement. Both groups are mentored by the TSYS School of Computer Science faculty.

Several faculty teach a variety of Summer camps in areas of Computer Science such as robotics, programming, game programming and design that attract many students creating an active engagement of the faculty and the immediate community. (see Appendix I)

Faculty members have regularly served on program committees and as judges for various international, regional, and institutional conferences, including Int'l Conference on Internet and Web Applications and Services, the International Conference on Computer Applications in Industry and Engineering, Georgia Undergraduate Research Conference, and ACM Southeast Conference. Faculty members have also served as organizers of the Security Awareness Week at Columbus State University for over 10 years.

Faculty members have regularly served as reviewers for various journals and books, including Journal of Telecommunication System, Journal of Universal Computer Science, Journal of Computers & Security, IEEE Transactions on Signal Processing, and Journal of Systemics, and Cybernetics and Informatics.

Program Improvement Plans

(1) The TSYS School of Computer Science is looking to maintain and increase its commitment to the local and professional communities and this is coupled with the increased expectations of engagement by these communities. These demands seem attainable only by increasing the current number of full-time faculty members.

(2) A particular program to engage with students newly accepted into our program is being proposed to help the students' transition into college. This program, carried out by the School's faculty, should expose the new students to principles of computing that will help in establishing better retention, progression and graduation rates.

II E. Quality of Faculty and Student Achievements

Assessment of Indicator: Very strong

Faculty Honors

2009 CSU Outstanding Teacher of Writing Award – Rodrigo Obando
2009-10 CSU College Service Award – Rodrigo Obando
2010-11 CSU College Service Award – Rodrigo Obando
2011-12 CSU College Service Award – Shamim Khan
2012-13 CSU College Service Award - Wayne Summers
2013 College Embry Spirit Award of Excellence – Shamim Khan
2013 CSU University Service Award – Wayne Summers

Vladimir Zanev received a Fulbright Fellowship to teach and conduct research on data analytics in Sofia, Bulgaria. He will take this as part of his sabbatical during Fall 2013.

Lydia Ray received *Faculty Writing Fellowship 2009* for endeavor to enhance the quality of undergraduate teaching in digital forensics.

Best Paper Award
Jianhua YANG, and Edward Bosworth, Best paper award, "An Efficient TCP/IP Packet Matching algorithm to Detect Stepping-Stone Intrusion", Information Security Curriculum Development Conference, Kennesaw State University, GA, 2009

Patent
Patent title: COGNITIVE MAP-BASED DECISION SIMULATION FOR TRAINING (CMDST)
Date Filed: July 1, 2013
US Serial no. 12/932,422
Inventors: Shamim Khan, George Khouri, Wayne Summers, Rodrigo Obando, Vladimir Zanev, Sebastian Khor

Student Honors

Each year, top students from each program in their final year (Systems Track, Applied Track, Games Track, BSIT, and Masters) are recognized. Scholarships are awarded to the top continuing students (see Appendix H).

ACM MidSE Conference Winners
- 2009 – 3rd Place Undergraduate – David Kolb
- 2009 – Honorable Mention Undergraduate – Yasmine Kandissounon
- 2010 – Honorable Mention Undergraduate – Janice Hill
- 2012 – Honorable Mention Undergraduate – Mark Plagge

Graduate Achievements (Licensure, Certification, Admission to Graduate School, Job Offers)

Our students regularly apply for admission to graduate school after graduating from our program. They have been admitted to schools such as Georgia Institute of Technology and Carnegie Mellon among others.

II F. The Quality of Curriculum Supporting the Program

Assessment of Indicator: Above average

Relationship between Program's Curriculum and Its Outcomes

The outcomes of the BS in IT program can be evaluated from three different perspectives:

- *Student exit surveys*: Student exit surveys have consistently displayed good comments and high level of satisfaction about the program curriculum. Criticism and suggestions concerning the curriculum are addressed by the faculty as soon as feasible.

- *Student placement*: Students graduated from CSU have had no difficulty securing a good job even during the time of the recession. In companies such as Aflac and TSYS, there is a huge demand for IT graduates from CSU. Several companies (e.g. Omega Financials, Global Allure, and Web Filings) have opened recently in Columbus and are hiring many of our graduates.
- *Student Senior Project and Portfolio*: Every IT student is expected to 1) complete an IT project for a customer and receive approval from the client, and 2) compile a complete collection of assignments and projects into a portfolio that is reviewed by the faculty. These are both part of the CPSC4205 - Senior Project and Portfolio course.
- The following expected outcomes are supported by the required courses. In addition, students are required to take three additional upper-division courses in Information Technology that extends their knowledge in the different areas.

(a) An ability to use and apply current technical concepts and practices in the core information technologies (Courses: CPSC 1301-computer science 1, CPSC 1302-computer science 2, CPSC 2105- computer organization, CPSC 2108-data structures).

(b) An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems (Courses: CPSC 2125-internet programming, CPSC 2106-information security, MISM 2115-tech application in business decision).

(c) An ability to effectively integrate IT-based solutions into the user environment (Courses: MISM 3109 – principle of information technique management, CPSC 3118-graphical user interface, CPSC3175-object-oriented design, CPSC 3131-database system 1)

(d) An understanding of best practices and standards and their application (MISM 3118-Global e-Business, MISM 3125-information system analysis, CPSC 5157-computer networks)

(e) An ability to assist in the creation of an effective project plan (Courses: CPSC 3165-professionalism in computing, CPSC 4205-senior project and portfolio)

Incorporation of Technology

Assessment of Indicator: Very strong

Technology is the most essential part of Computer Science education. As per the BS curriculum at this school, all students learn

multiple programming languages including Java, Objective-C, and Python. Not only do CS students learn how to use a variety of

existing technology, they are taught and mentored to create new technologies in various fields. The faculty members of the school

regularly update the curriculum to incorporate latest technology education. For example, as the smart phone market started to grow,

the school began offering a course on Android Programming to teach students to develop mobile apps.

Faculty members at this school use a wide variety of innovative classroom technologies to provide high quality teaching. Examples include: iClicker and DyKnow have been used to manage face-to-face classes. Tegrity, Camtasia and Blackboard Connect are used to capture lectures for online classes and to provide virtual office hours.

The Bachelor of Science in Information Technology program prepares students by its emphasis on information processing, management, and information science. It also provides students a basic foundation in understanding the business process and role of Information Technology in supporting the process. It prepares students the ability to apply fundamental systems analysis, project management, and end user support concepts to address real-world business problems, as well as to apply analytical and critical thinking skills to develop creative solutions to these problems. It requires students to understand how the software solution functions as a part of the overall business solution to the problem at hand, and participate in the development and testing of the software designed as a part of this business solution.

Utilization of Multidisciplinary Approaches

Assessment of Indicator: Above average

The BS in CS degree is multidisciplinary in their course requirements. In addition to standard general education core requirements, all CS students take at least three math courses (Pre-Calculus, Calculus course(s) and Discrete Mathematics and/or Statistics). Moreover, faculty members include multidisciplinary approaches in the examples and assignments they provide to the students. Students are encouraged to minor in another discipline, often Business, Math, Criminal Justice or Art.

The TSYS School of Computer Science promotes undergraduate research. Students are encouraged to do research in interdisciplinary fields such as Computing and Education, and Computing and Criminal Justice.

Utilization of Multicultural Perspectives

Assessment of Indicator: Very strong

The TSYS School of Computer Science offers Study Abroad courses to provide students with multinational and multicultural perspectives. Faculty members develop new Study Abroad courses each year, focusing on a new country each year. The following table displays the study abroad courses for past few years.

Year	Country	Course Name
2007	Oxford, England	History of Computing
2009	London, England	Intro to IT History of Computing
2012	Japan	Technology in Japan
2013	Japan	Technology in Japan
2014	China	Technology in China

The TSYS School of Computer Science has a very diverse and international faculty. There are members from Bangladesh, Bulgaria, China, Costa Rica, Egypt, Germany,

India, Thailand, Tunisia, and Turkey. This diverse group of professors adds a wide variety of cultural perspectives to the computing education of CS undergraduates.

Program Improvement Plans

We have identified the following areas in which efforts should be made to make improvements:

1. Retention, progression and graduation rates of undergraduate students
2. Offering additional sections of the oversubscribed CS courses
3. Increasing undergraduate research activities
4. Improving the quality of incoming students

The school has made several significant improvements in the last three years. The main objective of the school for the last the few years is to increase RPG rates. In order improve RPG rates, the school has taken the following steps:

- To improve the retention and graduation rates in the introductory programming course, students are introduced to programming via an easier language Python with a gradual and easier transition to Java after first 6 weeks.
- Graduate and undergraduate juniors and seniors are selected to be hired as lab tutors to provide assistance to students with their programming assignments.

Additional plans to address these areas are described below:

- We continue to monitor the curriculums to maintain currency.
- We plan to update student surveys to include questions about their advising experience to help us improve the advising process.
- We are continuing to assess opportunities to offer online undergraduate courses.
- Redesigning introductory computer science courses to improve student learning and RPG rates.
- Obtaining funding to offer scholarships to academically bright but financially needy students.
- Hiring additional faculty members.
- Obtaining internal and external funding to support more undergraduate students doing research, and to take students to attend conferences and workshops.
- Training local school teachers to teach Computer Science courses in their corresponding schools.
- Finding alternatives to Major Field Tests
    - We are in the process of developing internal exams to supplement the major field test.
    - We are exploring requirement for students to submit portfolios to supplement their capstone experience.
    - We are examining the use of third party examinations, such as certifications as an alternative to major field test.

II G. The Quality of Facilities and Equipment

Assessment of indicator: Above Average

- *Availability of Classroom and Laboratory Space*

  The TSYS School of Computer Science is housed on the fourth floor of the Center for Commerce and Technology building with the GEMS (Games, Education, Modeling and Simulation) Institute located in the basement of University Hall. Two computer lab classrooms and three lecture classrooms on the fourth floor and a large lecture hall on the second floor are used for instruction. The space comprises of five 30-seat classrooms, two of them equipped with computers, one lecture hall that seats 50+ students, a dedicated lab for student use, a conference room with library, fifteen faculty offices, two special-purpose laboratories, two shared graduate assistant offices, a faculty workroom, department office, and storage areas. Classrooms are equipped with multimedia equipment including data projectors, computers, and playback equipment for video presentations. A wireless network is available on the fourth floor. The lobby areas are fully equipped with network connections, providing space for students to work together.

- *Availability of Equipment*

  The computers in the labs are in good condition and adequate for current needs. Computers are on a three-year maintenance cycle and have been upgraded in 2011 and 2012. The department maintains a library of computer related books and publications made up primarily of donations from faculty members. Students are able to use professional software from IBM, Microsoft, and Oracle through the participation in the IBM Academic Alliance, Microsoft Dreamspark subscription, and Oracle Academy. In addition, professional software like game engine software and math software is maintained by the School for student and faculty use.

<u>Program Improvement Plan</u>

- The School will continue to upgrade its labs, hardware, and software. Planned improvements include new wireless projectors for all classrooms, a faster network switch to get faster internet speeds on the fourth floor, and two more wireless access points to increase wireless network accessibility.
- Additional space is needed for Center for Academic Excellence in Information Assurance Education, GEMS Institute, Center for Enterprise Computing and other research needs.

Section Three - Indicators of Program Productivity

III. Summary Findings of the Program's Overall Productivity

Productivity in the Bachelor of Information Technology is strong but can be improved. The productivity indicators enrollment of students in the program, annual degree production, efficiency & clarity of the program's course requirements, position of program's annual degree productivity among comparable USG Programs, program's responsiveness to state needs and employer demand for program graduates, and program's contribution to achieving CSU's Mission are all above average.

The school needs to work on program completion efficiency and graduation rate, frequency and sequencing of course offerings required for program completion, enrollment in the program's required courses, diversity of program's majors and graduates, and cost effectiveness of instructional delivery in the program's school. This can be facilitated by hiring an additional faculty member to improve the course offerings, and by implementing several curriculum changes scheduled for Fall 2013 to improve retention. Recruitment of students from underrepresented groups needs to be increased.

III A. Enrollment in the Program for Past 5 years

Assessment of Indicator: Below Average

- *Analyze and interpret the numbers of enrolled upper division majors in the program and the enrollment trends of these majors for the past five years.*

BS Information Technology					
Number of Declared Majors - Fall Semester	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Full-Time	4	17	41	55	41
Part-Time	3	13	27	23	31
Total	*7*	*30*	*68*	*78*	*72*

Enrollment is declining but the trend is similar for Information Technology nationwide.

- *Compare the strength of the numbers of the upper division majors and enrollment trends for this program with the enrollments and trends of upper division declared majors in other undergraduate programs at CSU.*

The number of upper division majors and enrollment in the B.S. Information Technology program has increased significantly this past year in contrast to most majors on campus. This is consistent with what is happening at most universities across the U.S. The actual numbers are still small compared to most programs at CSU.

- *Describe methods to be pursued for program improvement.*

The school has increased its efforts to make potential students more aware of our programs by having school members visit area high schools and sponsoring events such as open houses and meetings of TechExplorers (an organization of student

computing enthusiasts). There are currently plans to start a computer programming / web design competition for high school students in Spring 2014.

III B. Degrees Awarded Over Past 5 Years

Assessment of Indicator: Below Average

- *Analyze and interpret the numbers of degrees granted annually (fiscal year) by this program and the trends of the program's degree productivity over the past five years.*

Number of Degrees Conferred - Fiscal Year	2009/2010	2010/2011	2011/2012	2012/2013
BS Information Technology	0	0	5	4

The number of degrees conferred has been relatively stable over the last two years.

- *Compare the strength of the degree productivity of this program with the productivity of other undergraduate programs at CSU.*

Even with the increase in graduation, the number of students receiving a B.S. in Information Technology is still below other undergraduate programs on campus.

- *Describe methods to be pursued for program improvement.*

The school has increased the standards for prerequisites which is anticipated to improve the quality of students as they advance through the program. The addition of a three-hour lab for Computer Science 1 is expected to also improve the quality of student performance in subsequent classes. Instead of teaching java language, Python is taught at the beginning of Computer Science 1 to help the students to understand data structure design and OOD programming concepts. More peer-tutors have been hired to help the students in this program to improve their programming skills.

The school is developing a student recruitment plan to increase the quality of students majoring in Information Technology programs which should improve retention rates and degree productivity.

III C. Comparison with CSU & University System of Ga. Programs

Assessment of indicator: Satisfactory

Baccalaureate Degrees Awarded in Computer Science/Information Technology Programs at USG State Universities

USG Institution	2007-08	2008-09	2009-10	2010-11	2011-12	5-Year Avg
Albany State University	14	11	13	15		13

Armstrong Atlantic State University	39	36	28	32		34
Augusta State University	10	6	9	12		9
Clayton College & State University	37	25	26	30		30
Columbus State University	22	30	27	24	33	27
Fort Valley State university	16	13	7	12		12
Georgia College & State University	8	7	7	9		8
Georgia Southwestern State University	8	10	9	13		10
Kennesaw State University	113	112	107	119		113
North Georgia College & State University	7	9	17	10		11
Savannah State University	11	16	27	13		17
Southern Polytechnic State University	72	68	89	116		86
State University of West Georgia	11	5	12	22		13
Total	*368*	*348*	*378*	*427*	*33*	311

III D. Retention Rates (from computer science)

Assessment of indicator: Satisfactory

Retention Rates by Baccalaureate Program (*)															
* The cohorts below are first-time full-time undergraduate students enrolled fall semester who entered CSU in the fall or the preceding summer term.															
	2007-2008 Cohort			2008-2009 Cohort			2009-2010 Cohort			2010-2011 Cohort			2011-2012 Cohort		
Baccalaureate	**# in**	**Returning**		**# in**	**Returning**		**# in**	**Returning**		**# in**	**Returning**		**# in**	**Returning**	
	Cohort	**#**	**Rate**	**Cohort**	**#**	**Rate**	**Cohort**	**#**	**Rate**	**Cohort**	**#**	**Rate**	**Cohort**	**#**	**Rate**
Computer Science	40	30	75%	51	28	55%	39	24	62%	33	26	79%	42	27	64%
Total Baccalaureate	610	442	72%	714	483	68%	790	574	73%	745	527	71%	813	551	68%

III E. Student Learning Indicators (using a variety of data sources)

Assessment of indicator: Satisfactory

Major field test
Project portfolio
Job placement
Student feedback

III F. Graduation Rate of Program (from CS)

Assessment of indicator: Below average

Six-Year Graduation Rates by Baccalaureate Program (*)															
* The cohorts below are first-time full-time undergraduate students enrolled in a baccalaureate program fall semester who entered CSU in the fall or the preceding summer term.															
Baccalaureate	**Fall 2003 Cohort**			**Fall 2004 Cohort**			**Fall 2005 Cohort**			**Fall 2006 Cohort**			**Fall 2007 Cohort**		
	#	**Grad. by 2009**		**#**	**Grad. by 2010**		**#**	**Grad. by 2011**		**#**	**Grad. by 2012**		**#**	**Grad. by 2013**	
		#	**Rate**		**#**	**Rate**		**#**	**Rate**		**#**	**Rate**		**#**	**Rate**
Computer Science	37	11	30%	29	2	7%	29	10	34%	24	7	29%	40	19	48%
Total Baccalaureate	750	281	37%	652	242	37%	768	285	37%	690	278	40%	610	232	38%

III G. Cost Effectiveness of Instructional Delivery

Assessment of indicator: Satisfactory

- *Contrast the instructional cost-effectiveness of this program's home school with others at CSU.*

Cost per Credit Hour	2009/2010	2010/2011	2011/2012	2012/2013
TSYS School of Computer Science (Credit Hours Taught Fall and Spring Semesters)	$214	$210	$202	$223
Columbus State University (Fiscal Year)	$200	$179	$160	$162

- *List the principal factors that cause this program's home school appear to be unusually cost-effective (i.e., have a low ratio of instructional expenses per weighted credit hour of instruction) or appear to be unusually costly (i.e., have a high cost per credit hour).*

Salaries for school faculty members are higher on average than many schools at CSU, but are below salaries for computer science faculty at peer institutions. The school

supports a graduate program which has higher cost expectations. Computer Science has a higher demand for equipment than most schools.

- *Comment on the degree to which this program contributes to or detracts from the cost-effectiveness of the school.*

The program contributes significantly to the school's cost-effectiveness.

- *Describe methods to be pursued for program improvement.*

The school is looking at moving the mainframe courses from the system at the University of Georgia to the one at Marist College which will eliminate an estimated $20,000 in annual charges for mainframe resources.

IV. Conclusion about the Program's Viability at CSU

The faculty of the TSYS School of Computer Science has concluded that the Bachelor Science in Information Technology (BSIT) is viable. Support of the program should be increased to better serve the needs of the community.

V. Program Improvement Plan

Highlight the school's plans, priorities, and timetable for improving the program's quality and productivity if the program is judged to be viable.

The school has concluded that the program is viable. Plans for future improvements include:

- Increasing the number of faculty members. The first additions are planned for Fall 2014, provided that funding is available.
- Continuously monitor the applicability of the BSIT curriculum to the needs of local industries, and add or revise courses as seems appropriate.
- Investigate the possibility of opening a track in Enterprise Computing, focusing on programming for the IBM Enterprise Servers (mainframes).

The following improvements are currently underway:

- Developing a student recruitment plan.
- Improving student performance on standardized tests.
- Increasing student involvement in research projects.
- Seeking additional institutional support for instruction and research.
- Having faculty who receive faculty development funding present their results.
- Expanding internship opportunities for students and faculty.
- Increasing the school level of grant and external funding.
- Encouraging faculty members to seize and create opportunities for campus and community involvement.
- Increasing efforts to make potential students more aware of our programs.

VI. Summary Recommendation

Highlight the school's recommendations, rationale, plans, and timetable for expanding, maintaining, reducing, or consolidating/discontinuing the program.

The school recommends expanding the BSIT program due to its significant contribution to the institution's mission. There has been an increased awareness and emphasis on information technology and computing in the Columbus region. The TSYS School of Computer Science is increasingly being expected to take a leadership role in these activities and provide expertise in these areas. The school should intensify its efforts to improve the program's faculty, curriculum, and students.

APPENDICES FOR COMPUTER SCIENCE SELF STUDIES

APPENDIX A

ALUMNI (2011-2012)

SUMMER 2011

Brown, Joshua D	CS - Games	TSYS
Hadley, David	Applied CS	Planned Systems International
Klotz, Taylor J	CS - Systems	WTVM
Moore, Chase L	Applied CS	consilium1
Reed, William F	Applied CS	TSYS

FALL2011

Bowman, James M	Applied CS	TSYS
Daniels, Nathan S	CS - Systems	Gentiva Health Services
Flynn, Josh K	IT	AFLAC
Holder, Steven W	Applied CS	UITS
Horton, William A	IT	UITS
Sardinas, Rodrigo A	CS - Systems	grad school
Tataryn, Brian C	CS - Games	CACI

SPRING 2012

Asava, Flavian A	Applied CS	UITS
Bailey, Lashauna A	Applied CS	TSYS
Cape, Jesse R	CS - Systems	grad student
Carroll, Robert L	CS - Games	TSYS
Cayer, Lisa A	IT	AFLAC
Dean, Nashodd D	IT	TSYS
Dick, Nicholas A	CS - Games	UITS
Green III, Oritz	Applied CS	AFLAC
Hayes, Paul D	Applied CS	TSYS
Hill, Janice L	CS - Games	UITS
Jennings, Joshua R	CS - Games	Intelligent Automation
Johnson, Jeffery D	IT	Defense Contractor Augusta
Jones, Stanley A	CS - Games	UITS
Kuykendall, Patrick H	CS - Games	OmegaFi
Leblanc, Donnell H	CS - Games	Eyes Wide Games
McCullar, Mei M	Applied CS	Progress
McGrew, Ryan P	IT	Dean Evans (CO)

Employers	#
TSYS	9
UITS	7
AFLAC	4
OmegaFi	2
WTVM	1
WellPoint	1
CACI	1
Gentiva Health Services	1
grad school	2
consilium1	1
Defense Contractor Augusta	1
Eyes Wide Games	1
Progress	1
Intelligent Automation	1
Planned Systems International	1
Dean Evans (CO)	1
	35

Degree	#
CS - Games	10
Applied CS	12
CS - Systems	4
IT	9
	35

Newby, John M	IT	WellPoint
Pardal, Jonathan L	Applied CS	TSYS
Phaneuf, Ryan A	CS - Games	OmegaFi
Tillery, Courtney M	IT	AFLAC
Tirado, Neil J	IT	UITS
Zarley, Matthew K	Applied CS	TSYS

ALUMNI (2012-2013)

FALL 2012

Coleman, Lisa M	Applied CS	TSYS
Cook III, Samuel L	IT	TSYS
Davis Jr., Dexter G	CS - Systems	TSYS
Gabriel, Joshua D	CS - Systems	-
Grant, Tetriana N	IT	U.S. Army
Kennemore, Jessica L	CS - Games	Mad Mobile
Mims, Joshua M	IT	TSYS

SPRING 2013

Battle, James E	Applied CS	TSYS
Benson, Joshua M	CS - Games	TSYS
Duarte, Jeremias R	Applied CS	VROOOM
Dunaway, Brittni L	IT	Accenture-DC
Gibson, Brian	IT	Apollo Group
Hill, Patrick M	Applied CS	NewPointe Church
Howard, Denzell	IT	defense contractor (zell3d)
Hussey, Brandon D	Applied CS	Boeing SC
Jackson, Nathaniel	Applied CS	Graffix Addix
Johnson, Derrick A	Applied CS	TSYS
Jordan, Clinton L	IT	-
Keith, Justin S	CS - Systems	-
Korioth, Celia	Applied CS	TSYS
Lee, Joshua D	CS - Games	TSYS
Lewis, Anthony F	Applied CS	Graffix Addix
Moss, Jennifer M	Applied CS	AFLAC
Odendaal, Darren M	Applied CS	Allure Global
Samsky, Justin E	CS - Systems	job in Milwaukee
Stanfield, Alex K	CS - Games	-
Villaflor, Sean T	CS - Games	TSYS

SUMMER 2013

Ford, Adrian J	Applied CS	-
Kirspel, Kevin T	IT	-
Lesley, LaQuarius C	Applied CS	TSYS
Peters, Robert S	IT	WestPoint Home
Reese, Randy C	Applied CS	TSYS

Employers	#
TSYS	12
AFLAC	1
OmegaFi	1
VROOOM	1
defense contractor (zell3d)	1
Graffix Addix	2
Allure Global	1
WestPoint Home	1
job in Milwaukee	1
Boeing SC	1
Accenture-DC	1
Apollo Group	1
NewPointe Church	1
U.S. Army	1
Mad Mobile	1
-	7
	34

Degree	#
CS - Games	5
Applied CS	15
CS - Systems	4
IT	10
	34

Rush, Whitley L	IT	-
Straus Jr., Richard K	Applied CS	OmegaFi

APPENDIX B

2010 – Current Internship history

Year	Spring		Summer		Fall	
	# students	Company	# students	Company	# students	Company
2010					1	UITS at CSU
			1	Aflac	1	MCOE Battle Lab
					2	Training Systems, CSC (Ft. Benning)
					1	Indus Valley Consultants, Dayton, OH
					1	TracSoft
					1	Columbus Water Works
2011	2	Pratt & Whitney	1	Aflac	1	Aflac
	1	MCOE Battle Lab	1	MCOE Battle Lab	1	MCOE Battle Lab
	1	Nao				
	1	St. Anne's Community Outreach				
	1	Orbis				
	1	Clear Channel				
2012	2	MCOE Battle Lab	1	MCOE Battle Lab	1	Muscogee Moms
	1	MeadWestvaco			1	Omega Fi
	1	Nao				
2013	1	MCOE Battle Lab	1	MCOE Battle Lab	1	MCOE Battle Lab
	1	AFLAC	1	Regions Bank	1	TSYS
	1	Omega Fi	2	Synovus	2	Omega Fi
			1	TSYS		
			1	Mead Westvaco		
			1	Web Filings		
			1	Pacific Northwest Lab		
			1	CSU STEM-Noyce		
			1	Robinson-Grimes		

APPENDIX C

TSYS SCHOOL OF COMPUTER SCIENCE STUDENT RESEARCH

Student(s)	Faculty Mentor	Project Title	Conference
		2008	
David Kolb	Obando	The Virtual Collaborative Student Universe Project	ACM MSE
Edna Milgo Yasmine Kandissounon	Chouchane	A Fast, Approximate Detector for the W32.Simile Malware	ACM MSE
Rathy Mohan	Obando	The Future is Multi-Touch	ACM MSE
		2009	
Chase Moore	Ray	RFID Trail Marker System and Trail Marker Network	ACM MSE
David Kolb	Obando	Adventures in OpenGL ES and iPhone Development	ACM MSE
Yasmine Kandissounon	Chouchane	Forensic Analysis of Toolkit-Generated Malicious Programs	ACM MSE
Samuel E. Blake III	Chouchane	To Hack or Not To Hack, That Is the Operating System?	ACM MSE
Edna Milgo	Chouchane	A Secure Unidirectional Proxy Re-encryption Using Identity and Secret Key Exchange	ACM SE
		2010	
Himanshu Bohra Patrick Hearn Richard Hodges Mark Plagge Brandon Short	Bosworth	Genetic Algorithms for Assessing Graph Optimality	ACM MSE
Rodrigo Sardinas	Chouchane	Challenges in Building and Detecting Portable Source Code Morphers	ACM MSE
Janice Hill	Obando	Parallel Computing of Free Distributive Lattices	ACM MSE
Robert Smith	Obando	Poetry on Demand	ACM MSE
		2011	
John King	Khan	The Mouse, the Maze and the Robot: Application of a Genetic Algorithm in Solving a Maze by a Robotic Mouse	ACM MSE
Mark Plagge Malika L. Harris	Khan Summers	Observations of Beginner Programming Students from the Student Perspective	ACM MSE
Stacey Watson	Summers	A Case Study on Learning Patterns of CS1 Students	ACM MSE
Stacey Watson	Chouchane	The Challenges of Implementing a STARS	ACM MSE

		Leadership Corps Program at Columbus State University	
Patrick Hill Steven Holder Rodrigo Sardinas	Chouchane	Evaluation of Different Feature Selection Strategies in Attributing Morphing Malware to its Engine	ACM MSE
Lucas R. Flores Mark P. Plagge	Obando	Remote Recognition of Objects Using an Off-the-Shelf Drone	ACM MSE
Jessica Kennemore	Obando	Procedurally Creating 3-D Glyphs Using Unity Game Engine	ACM MSE
Janice Hill	Obando	Parallel Computing of Free Distributive Lattices Part 2	ACM MSE
Yasmine Kandissounon	Chouchane	A Method for Detecting Machine-generated Malware	ACM SE
Charles Yates	Ray	An Investigation into iPod Touch Generation 2	InfoSecCD
Rojin Aliehyaei	Khan	A Credit Scoring Model Based on Strongly-typed Genetic Programming	CIB
Jason Cornwell	Kongmunvattana	Efficient System-Level Remote Checkpointing Technique for BLCR	ITNG
Jason Cornwell	Kongmunvattana	Optimized I/O Operations for Checkpoint Creation in BLCR	CAINE
2012			
Rodrigo Sardinas	Chouchane	Using Opaque Predicates to Obfuscate Metamorphic Malware	Tower Day
Janice Hill	Obando	Parallel Computing of Free Distributive Lattices	Tower Day
Jessica Kennemore	Obando	Procedurally Creating 3-D Glyphs Using Unity Game Engine	Tower Day
Mark Plagge Lucas Flores	Obando	Remote Recognition of Objects Using an Off-the-Shelf Drone	Tower Day
Hugh Kwon	Turnista	Agent Based Modeling for Social Behavior	ACM MSE
Shahriar I. Husainy	Khan	Identifying Student Dropouts using Fuzzy Inferencing	ACM MSE
Touhid Ahmed	Khan	Evolutionary Computation for Optimization using Simulation-based Fitness Evaluation	ACM MSE
Krerkchai Kusolchu	Kongmunvattana	Design and Implementation of Parallel Approximate Search Algorithm	ACM MSE
Rodrigo Sardinas	Chouchane	Keeping Up With Modern Day Malware	ACM MSE
Mark Plagge	Khan	Electronic Brains for Student Success: Using Artificial Neural Networks to Predict Retention, Progression, and Graduation Rates	ACM MSE
Jessica Kennemore	Obando	Students Reporting to Students: A Collaboration Between Two Software Engineering Classes	ACM MSE
Geoffrey Platta	Ray	Experiment with SunSpot Technology for Building Smart Environment (ESSE)	ACM MSE
Malika L. Harris	Yang	Visually Trace back Stepping-Stone Intrusion	ACM MSE
Rojin	Khan	Efficient and Effective Classification of	ACM SE

Aliehyaei		Creditworthiness using Ant Colony Optimization	
Mary House	Khan	Fuzzy Logic-based Democracy Index	ACM SE
2013			
LaQuarius Lesley	Ray	Windows Thumbnail Database Forensics Research	Georgia Undergraduate Research Conference
Ian Blake-Knox	Whitehead	Measuring Human Facial Beauty: A Computed Approach	Tower Day
LaQuarius Lesley	Ray	Windows Thumbnail Database Forensics Research	Tower Day
Rodrigo Obando	Chouchane	Internet Security	Tower Day
Geoffrey Platta	Ray	Using SunSPOT Wireless Sensor Network Technology to Study Mesh Network Protocols	Tower Day
Touhid Ahmed	Khan	Modeling student success using student demographics and instructional techniques	ACM MSE
Jose Canedo Janice Hill	Obando	Arduino based Monitoring System	ACM MSE
Mark Plagge Brandon Cooper	Rogers	An Arduino Based Model Train Control & Programming System	ACM MSE
Trang Nguyen	Chouchane	Mobile Botnet Mitigation	ACM MSE
Aaron Jeter	Khan	Using Principle Component Analysis to refine the training of an Artificial Neural Network	ACM MSE
Cedric Searcy	Turnista	Using communication models to share beliefs, desires and intentions	ACM MSE
Sharon Zeng Karen Williams	Summers	Women in Computing: An International Profile	ACM MSE
Mark Plagge	Rogers / Obando	Choosing an Appropriate Microcontroller for Undergraduate Research	ACM MSE
Shahriar I. Husainy	Khan	Identifying Likely Student Dropouts using Fuzzy Inferencing	ACM SE
Mark Plagge	Khan	Using Artificial Neural Networks to Predict First-year Traditional Students Second Year Retention Rates	ACM SE
2014			
Cedric Searcy	Turnista	Using communication models to share beliefs, desires and intentions	Georgia Undergraduate Research Conference
Cedric Searcy Sydali Nabi	Obando	Cost-efficient 3-D Motion Capturing	Georgia Undergraduate Research Conference

APPENDIX D

Publications and Reports (2008-)

Over the past five years, CS faculty members have authored or co-authored over 54 professional papers and reports. A list of publications is given below.

1. M. R. Chouchane, A. Walenstein, and A. Lakhotia. “Using Markov Chains to Filter Machine-morphed Variants of Malicious Programs”. MALWARE’08, Alexandria, VA, October 7-8, 2008.
2. Walenstein, R. Mathur, M. R. Chouchane, and A. Lakhotia. “Constructing Malware Normalizers Using Term Rewriting”. Journal in Computer Virology 4(4): 307-322 (2008).

3. Hafeez-Baig, A., Gururajan, R., Khan, M.S., "Online Learning with Peer-Review: An Initial Study", Proc. World Conference on E-Learning in Corporate, Government, Healthcare, & Higher Education E-Learn 2008 , Las Vegas, November 17-21, 2008, CD-ROM.

4. Atanas Radenski, Jeff Furlong, and Vladimir Zanev. 2008. The Java 5 generics compromise orthogonality to keep compatibility. J. Syst. Softw. 81, 11 (November 2008), 2069-2078. DOI=10.1016/j.jss.2008.04.008 http://dx.doi.org/10.1016/j.jss.2008.04.008

5. Summers, W. C. (2008) review of "The Road to Broadband Development in Developing Countries Is through Competition Driven by Wireless and Internet Telephony", Computing Reviews.

6. Yongzhong Zhang, Chunming Ye, Jianhua Yang, “Applying Signal Processing Technology to Stepping-stone Intrusion Detection”, the Proceedings of IEEE International Symposium on Intelligent Information Technology Application, Shanghai, China, December, 2008.

7. M. R. Chouchane. “Injecting Information Security in Core CS Courses: Methods, Challenges, and Impact”. CISSE’09, Seattle, WA, June 1-3, 2009.

8. L. Ray, S. Khan, W. Summers, Wright, B., “Introducing Computer Science using Media Computation”, ENMA Education 2009 International Conference, June 17-19, Bilbao, Spain.

9. J. Yang, G. Zhao, L. Ray, S. Huang, “Analyzing and Correlating Interactive Session with One-Dimensional Random Walk to Detect Stepping Stone Intrusion”, ISAST Transactions on Computers and Intelligent Systems,. No. 2, Vol. 1, 2009.

10. Yongzhong Zhang, Jianhua Yang, Chunming Ye, “Modeling and Detecting Stepping-Stone Intrusion”, International Journal of Computer Science and Network Security, Vol. 9, No. 7, pp 200-205, July 2009.

11. Jianhua Yang, Yongzhong Zhang, “A New Model to Detect Stepping-stone Intrusion”, 2nd International Workshop of Computer Science and Engineering, published in IEEE digital library, Qingdao, China, October, 2009. (Accepting rate = 37%).

12. Jianhua Yang, Edward Bosworth, “An Efficient TCP/IP Packet Matching Algorithm to Detect Stepping-Stone Intrusion”, 2009 Information Security Curriculum Development Conference, published in ACM digital library, Kennesaw, GA, September, 2009.

13. Guoqing Zhao, Jianhua Yang, Long Ni, Gurdeep S. Hura, and Shou-Hsuan Stephen Huang, "Correlating TCP/IP Interactive Sessions with Correlation Coefficient to Detect Stepping-Stone Intrusion," the Proceedings of 23nd IEEE International Conference on Advanced Information Networking and Applications (AINA 2009), Bradford, UK, May 2009

14. Y. Bai, A. Kongmunvattana, and S. Kantubukta, “Quality of Security Service in a Virtual Private Network,” In Proceedings of the 22nd International Conference on Computer Applications in Industry and Engineering, November, 2009.

15. Summers, W.C. (2010). Chapter on “Local Area Networks” for The Handbook of Technology Management, vol. 3, published in 2010 by John Wiley & Sons, Inc., ISBN: 978-0-470-24950-5.

16. Ying-Wei Kuo, Shou-Hsuan Stephen Huang, Wei Ding, Rebecca Kern, Jianhua Yang, “ Using Dynamic Programming Techniques to Detect Multi-Hop Stepping-Stone Pairs in a Connection Chain”, the Proceedings of 24th IEEE International Conference on Advanced Information Networking and Applications (AINA 2010), Perth, Australia, April 2010

17. Yongzhong Zhang, Jianhua Yang, Santhoshkumar Bediga, Stephen S.-H. Huang, “Resist Intruders‘ Manipulation via Context-based TCP/IP Packet Matching”, the Proceedings of 24th IEEE International Conference on Advanced Information Networking and Applications (AINA 2010), Perth, Australia, April 2010

18. S. Khan, L. Ray, A. Smith, and A. Kongmunvattana, “A Pair Programming Trial in the CS1 Lab,” In Proceedings of the 2010 International Conference on Computer Science Education: Innovation and Technology, December 2010.

19. L. Ray, S. Khan, W. Summers, B. Wright, “Using Media Computation to Enhance Student Learning in Computer Science 1”, International Journal for Knowledge, Science and Technology (IJKST), Number 2, Vol 1, April 2010.

20. C. Whitehead, L. Ray, “Using Classroom Response System to Enhance Student Involvement and Learning”, International Conference on Education, Training and Informatics (ICETI’2010), April 6-9, 2010, Orlando, Florida.

21. Khan, S., and Gurkas, P., “Identification Using Biometric Technology: Issues and Attitudes”, Proc. IADIS International Conference on ICT, Society and Human Beings 2010, Freiburg, July 28-31, 2010, pp.27-34.

22. S. Watson and R. Chouchane, “The Challenges of Implementing a STARS Leadership Corps Program at Columbus State University”, ACM MidSE 2011. Gatlinburg, TN, November 10-11 2011. p.68

23. P. Hill, S. Holder, R. Sardinas, R. Chouchane. “Evaluation of Different Feature Selection Strategies in Attributing Morphing Malware to its Engine,” ACM MidSE 2011. Gatlinburg, TN, November 10-11 2011. p.44

24. R. Chouchane. “A Method for Detecting Machine-generated Malware.” ACM SE 2011, Kennesaw, GA, March 24-26 2011.

25. Khan, S., and Gurkas, P., “Identification Using Biometric Technology: Issues and Attitudes”, International Journal of Information Assurance and Security, Vol. 6(5), 2011, pp. 424-431.

26. Jianhua Yang, David Woodbright, “Correlating TCP/IP Packet Contexts to Detect Stepping-Stone Intrusion”, Journal of Computers and Security, Elsevier Ltd., Vol. 30, No. 6-7, pp 538-546, August 2011.

27. Lydia Ray, Jianhua Yang, “Beyond the Security Track: Embed Security Education across Undergraduate Computing Curricula Using M-Thread Approach”, International Journal of Computer Science and Network Security, Vol. 11, No. 8, pp 131-137, August 2011.

28. C. Whitehead, L.Ray, “Using the iClicker Classroom Response System to Enhance Student Involvement and Learning”, Journal on Education, Informatics and Cybernetics (JEIC), Vol.2, No. 1, 2011.

29. C. Yates, L. Ray and J. Yang, “A Case Study on Forensic Analysis of New Generation iPod Touch”, Accepted for publication at Information Security Curriculum Development Conference (INFOSECCD), 2011, October 7-9, Kennesaw, GA.

30. L. Ray, S. Khan, C. Whitehead, W. Summers, R. Obando, “School Level Computer Science Education and Computer Science Teacher Training in the US: An Overview and an Example Solution”, Society for Information Technology & Teacher Education, 2011, March 7-11, Nashville, TN.

31. C.Whitehead, L. Ray, S. Khan, W. Summers, R. Obando, , “Implementing Online Computer Science Endorsement Program for 6-12 Teachers”, ACM SIGCSE, 2011, March 9 – 12, Dallas, Texas.

32. Fuller, J., Khan, S., Khor, S., Khouri, G., Obando, R., Summers, W., Zanev, V. (2011). “Cognitive Map-based Modeling and Simulation for Tactical Decision Training,” Proc. Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC), Orlando,

33. Gowan, A., Lau, K., Leverett, A., Jeff, B., Summers, W., Wang, A. & Baev, S. (2011). “The Georgia WebBSIT: Profile of an Online Student reexamined.” SIGITE 2011: Proceedings of the 111th ACM SIGITE conference on information technology education, October 2011.

34. J. Yang, G. Zhao, L. Ray, S. Huang, “Detecting Stepping-Stone Insider Attacks by Mining Network Traffic and Dynamic Programming”, International Conference on Advanced Information Networking and Applications, 2011, March 20 – 25, Singapore.

35. R. Obando, “Finding ‘Parallel Universes’ in 1-D Cellular Automata Rule Spaces” paper presented at the ACM MidSoutheast Conference 2011, Gatlinburg, TN, 2011.

36. J. Cornwell and A. Kongmunvattana, “Efficient System-Level Remote Checkpointing Technique for BLCR,” In Proceedings of the 8th International Conference on Information Technology: New Generations, April 2011.

37. J. Cornwell and A. Kongmunvattana, “Optimized I/O Operations for Checkpoint Creation in BLCR,” In Proceedings of the 24th International Conference on Computer Applications in Industry and Engineering, November 2011.

38. J. Cornwell and A. Kongmunvattana, “Advanced I/O Techniques for Efficient and Highly Available Process Crash Recovery Protocols,” The GSTF Journal on Computing, December 2011.

39. Aliehyaei, R., & Khan, S., A Credit Scoring Model Based on Strongly-typed Genetic programming, Proc. 6th IASTED International Conference on Computational Intelligence and Bioinformatics CIB 2011, November 7 – 9, 2011, Pittsburgh, CD-ROM.

40. R. Chouchane, N. Stakhanova, A. Walenstein, and A. Lakhotia, “Detecting Machinemorphed Malware Variants via Engine Attribution”, Journal in Computer Virology and Hacking Techniques (Received Sept. 7, 2012, Accepted Feb 16, 2013) DOI: 10.1007/s11416-013-0183-6

41. R. Sardiñas and R. Chouchane, “Keeping up with Modern-day Malware”, ACM MidSE 2012. Gatlinburg, TN, November 15-16 2012. p.59

42. Yongzhong Zhang, Yuanxi Qi, Jianhua Yang, “Online Course Design in the Context of Cloud Computing”, Advances in Intelligent and Soft Computing (book), 2012, Volume 108/2012, Springer, pp. 193-200.

43. Yongzhong Zhang, Jianhua Yang, “A Comprehensive Model in Online Course Design Under Ubiquitous Learning Environment”, the Proceedings of 3rd International Conference on Computer Science Education: Innovation and Technology, Singapore, Sep. 2012. DOI: 10.5176/2251-2195_CSEIT12.44

44. Yingjie Sheng, Yongzhon Zhang, Jianhua Yang “Mining Network Traffic Efficiently to Detect Stepping-Stone Intrusion”, the Proceedings of 26th IEEE International Conference on Advanced Information Networking and Applications, Fukuoka, Japan, IEEE proceedings and Digital Library, pp. 862-867, March, 2012. (Accepting rate = 29%)

45. E. Ionascu and R. Obando, “Cubes in $\{0, 1, \ldots, n\}^3$”, Integers Journal - John Selfridge Memorial Issue, pp. #A9 1-15, 2012.

46. Kongmunvattana and W. Summers, “Assessment of Foundation Courses for Recruiting non-CS Students into Master Program in Computer Science,” In Proceedings of the 50th ACM Southeast Conference, March 2012.

47. Andreas Tolk, Saikou Diallo, Jose Padilla, Charles Turnitsa: “How is M&S Interoperability Different from Other Interoperability Domains?” Modeling and Simulation Journal, Winter 2012, pp. 5-14.

48. Andreas Tolk and Charles Turnitsa. “Conceptual Modeling with Processes,” In Proceedings, Winter Simulation Conference WSC’12, Berlin, Germany, December 2012.

49. Xiaozhu Lin, Jianhua Yang, Wayne Summers, David Woolbright, “Hold Holes Countable in Binary Images”, Journal of Computer Vision and Image Processing, Vol. 3, No. 1, pp 44-55, 2013.

50. Charles D. Turnitsa, Andrew J. Collins, David Meyr, and Solomon Sherfey: “Financial Implications of Modeling and Simulation Standards: Practical Aspects and Theoretical Analysis,” Modeling and Simulation Journal, Spring 2013, pp. 9-18.

51. Charles D. Turnitsa: “Communication model elements for societal behavior representation using agent based models,” Fall Simulation Interoperability Workshop, Orlando FL, September 2013

52. Charles D. Turnitsa: “Primitives of Behavior for Human Scale Physical Models,” Fall Simulation Interoperability Workshop, Orlando FL, September 2013

53. Charles D. Turnitsa: “Data modes and roles for Simulation assisted LVC Training,” Fall Simulation Interoperability Workshop, Orlando FL, September 2013

54. Y.Kurt Peker, A New Key Agreement Scheme Based on the Triple Decomposition Problem, To appear in International Journal of Network Security, 16(4): 340-350 (2014)

APPENDIX E

Presentations

In addition to the presentation of papers at the aforementioned conferences and symposia, CS faculty members also have given the following presentations.

1. Wayne Summers, Presentation – with Obando, R. A., ACM MidSoutheast, "Have Model Will Simulate," ACM, Gatlinburg, TN. (November 21, 2008).

2. Wayne Summers, Guest Speaker, CRTA/AITP. (September 25, 2008).

3. Wayne Summers, Modeling, Simulation, and Games Symposium, "Gaming, Modeling and Simulation," STEADI, Columbus State U. (August 27, 2008).

4. Wayne Summers, Invited Speaker, "Head of the Class:Professors' Perspectives on Mainframe Education," IBM SHARE Conference, San Jose, CA. (August 12, 2008).

5. Wayne Summers, STEADI Workshop, "New M&S Curriculum: The Emerging Strategy," STEADI, Columbus State U.. (July 16, 2008).

6. R. Obando, “A Stroll Down CSU’s CSU” research project talk at the CSU’s Library Research Colloquium, January, 2009.

7. Lydia Ray, “iClicker Classroom Response Technology: An Experience”, West Central Georgia STEM Conference, December 4-5, 2009, Columbus, GA.

8. Shamim Khan, “Helping Students Become Better Programmers: Pair-Programming in the CS1 Lab”, ACM Mid-SouthEast Conference, Gatlinburg, November 12-13, 2009.

9. Shamim Khan, “Biometric Technology: How prepared are we to embrace it?”, International Conference on Knowledge, Technology and Society, Huntsville, Jan 30-Feb 1, 2009.

10. Lydia Ray, “Command-line Windows Forensics Tools: Advantages, Disadvantages and Compatibility Issues “, ACM Mid-Southeast Conference, November, 2010, Gatlinburg, TN.

11. Shamim Khan, “Visual Knowledge Representation for Decision Support – from Cognitive Maps to Fuzzy Knowledge Maps”, CSU 9th Faculty Research Forum Series, February 4, 2010.

12. Wayne Summers, Presentation, ACM MidSoutheast, "10,000 New Computer Science Teachers by 2015 - How can we help?," ACM, Gatlinburg, TN. (November 12, 2010).

13. Wayne Summers, Invited Speaker, "Meet the Teachers" panel, IBM SHARE Conference, Boston, MA. (August 1, 2010).

14. Wayne Summers, Guest Speaker, IBM Premiere Event, Naples. FL. (March 15, 2010).

15. Shamim Khan, “Encouraging and Supporting Undergraduate Research (with Cindy Ticknor and Samuel Abegaz), USG Office of Faculty Development Presentation, Athens, March 18, 2011.

16. Lydia Ray, “School Level Computer Science Education and Computer Science Teacher Training in the US: An Overview and an Example Solution”, Society for Information Technology & Teacher Education, 2011, March 7-11, Nashville, TN.

17. Wayne Summers, Presentation, ACM MidSoutheast, “Improving the Odds of Success in Computer Science 1," ACM, Gatlinburg, TN. (November 16, 2012).

18. Wayne Summers, Poster Presentation with Kongmunvattana, A. – “Assessment of Foundation Courses for Recruiting Non-CS Students into Master Program in Computer Science”, ACM Southeast Conference, Tuscaloosa, AL, March 2012.

19. Shamim Khan, “Managing Online Discussion in Large Classes for Better Student Engagement and Learning” (with Chris Whitehead), 2nd CSU Distance Learning Conference, September 27-28, 2012

20. Shamim Khan, “Leading Undergraduate Research Programs” (with Cindy Ticknor and Samuel Abegaz), USG Office of Faculty Development Presentation, Athens, April 20, 2012.

21. Wayne Summers, Guest Speaker, IBM z Business Leaders Council, Atlanta, GA. (October, 2013).

22. Wayne Summers, Guest Speaker, IBM Transaction Processing Framework User’s Group, Atlanta, GA. (April, 2013).

23. Shamim Khan, Workshop “Mentoring Undergraduates – for Current and Would-be Mentors” (with Samuel Abegaz) presented at Georgia Undergraduate Research Conference, Columbus, February 1-2, 2013

24. Wayne Summers, Invited Speaker, Constitution Day Lecture “You Have No Right to Privacy Anyway. Get Over It!!!”, September 15, 2013.

25. Wayne Summers, Presentation, ACM MidSoutheast “You Have No Right to Privacy Anyway. Get Over It!!!” ACM, Gatlinburg, TN. (November 15, 2013).

APPENDIX F

Grants

During this review period, CS faculty members have been awarded $xx,xxx from CSU University Grants, Faculty Development Grants, and CSU-STEM Grants. In addition, several faculty members have been awarded funding from external granting agencies totaling $1.7M. A partial list of these grants is given below.

1. Summers, Wayne C. (Co-Principal), Khan, Shamim S (Principal), "Assisting Computer Science Education in High Schools for Improving Enrollment and Performance in Computer Science," Sponsored by CSU-STEM, Columbus State University, $6,230.00. (August 2008 - December 2009).

2. Summers, Wayne C. (Co-Principal), Obando, Rodrigo A. (Researcher), Fuller, John (Administrator), "STEADIE," Sponsored by ICAPP, Columbus State University, $50,000.00. (October 2008 - June 2009).

3. Summers, Wayne C. (Principal), Obando, Rodrigo A. (Co-Principal), Fuller, John (Administrator), "Modeling and Simulation," Sponsored by U.S. Department of Labor, Federal, $38,000.00. (October 2008 - June 2009); increased by another $60,000 to continue through October 2010.

4. Summers, Wayne C. (Principal), Broadening Participation in Computing, National Science Foundation, $117,328. (September 2009 – August 2011).

5. Khan, S., Ray, L., and Madhusudan, B., A Learning Community for Writing an NSF S-STEM Grant Proposal to Promote the Recruitment and Success of Underrepresented Groups in Computer Science and Mathematics, CSU-STEM Grant, $3,248. (2009)

6. Summers, Wayne C. (Principal), AFLAC Training Grant, $37,450. (October 2009 – July 2010).

7. Summers, Wayne C. (Principal), Khan, Shamim S (Co-Principal),"Cognitive Map-Based Modeling and Simulation for Tactical Decision Support", $1,600,000, Department of Defense, Oct. 2009-Sept. 2011.

8. Khan, Shamim (Principal), "Why students find computer programming hard: An investigation from the students' perspective," $4,000, NSF BPC Research Experience for Undergraduates Grant (2011).

9. Chouchane, Radhouane (Principal), "STARS Leadership Corps," National Science Foundation through the STARS Alliance. $20,000/year Grant.

10. Distance Learning Grants Awards (Spring 2013):
    - Bhagyavati $950
    - Chouchane, Radhouane $400
    - Kongmunvattana, Angkul $400
    - Obando, Rodrigo $400
    - Smith, Aurelia $800
    - Summers, Wayne $400
    - Turnitsa, Charles $400
    - Whitehead, Chris $1,200
    - Yang, Jianhua $550

11. University Development Grants (Fall 2011)
    - Kongmunvattana, Angkul $1,201.20

APPENDIX G

Faculty Committee Responsibilities (2012-2013)

(not including School committees; all faculty serve on at least one School committee)

Chouchane

- College AOL Comm.
- School Graduate Coordinator
- University Student Research and Creative Endeavors Committee
- Director of Center of Academic Excellence in IA

Khan

- University Faculty Senate
- College Strategic Planning
- University Student Research and Creative Endeavors Committee (CHAIR)
- University Institutional Review Board
- University Interdisciplinary Program Council (IPC)

Kongmunvattana

- College FRDC
- University Re-admissions Appeal Committee

Obando

- College FRDC
- University Intellectual Property Policy Comm
- University Campus Nerds Advisor
- ACM Student Chapter Advisor
- University QEP Advisory Committee

Ray

- University Sustainability Committee
- College Strategic Planning
- College AOL Comm.

Rogers

- University General Education Committee
- University Radio Club Advisor

Summers

- Grad Council (Past Chair)
- University Technology Fee Comm.
- University Chairs Assembly
- College Curriculum Comm.
- College Strategic Planning
- College AOL Comm.
- WebBSIT Operating Board
- MCSD Bus. Ed. Advisory Board
- MCSD Education & Career Partnership Board
- BoR Advisory Committee on Computing Disciplines

Turnitsa

- College Strategic Planning

Whitehead

- College FRDC
- College Curriculum Comm
- IT Discipline Coordinator
- Online Learning Coordinator

Woolbright

- College FRDC
- University Graduation & Special Events Comm
- University Library Committee

Yang

- College Curriculum Comm.
- College AOL Comm.

Zanev

- University Comprehensive Program Review
- College FRDC

APPENDIX H

Student Honors

The following are the awards we provide to the best students in each track yearly.

Systems Track Award

2007 Robert A. Warren
2008 George Khouri
2009 Benjamin Whatley
2010 Benjamin Whatley
2011 Charles M. Yates
2012 Jesse R. Cape
2013 Richard G. Pike

Applied Track Award

2007 Aymen S. Elawad
2008 Temidayo Yembra
2009 Karen Pynenburg
2010 Michael Davidson
2011 Aaron M. Myers
2012 Jeremias R. Duarte
2013 Cedric E. Searcy

Games Track Award

2010 David Byrd
2011 Robert J. Smith
2012 Janice L. Hill
2013 Joshua M. Benson

BSIT Award

2012 Courtney M. Tillery
2013 Brian Gibson

Masters Award

2007 Chad M. Andrae
2008 Allan Joseph France
2009 Rathy Mohan
2010 Daniel Knowles
2011 David L. Piper
2012 Mary House
2013 Touhid Amed

The following are scholarships awarded to our undergraduate students:

Computer Science Undergraduate Scholarship

2005 Geoffrey Shoultz
2006 James Smith
2006 George Khouri
2007 SaRhonda K. Bailey
2007 Minkyu Lee
2008 SaRhonda K. Bailey
2008 David C. Kolb
2008 Benjamin L. Whatley
2009 Joshua D. Brown
2009 David C. Kolb
2009 Yasmine Kandissounon
2010 William P. McGuigan, Jr.
2010 Robert J. Smith
2010 Mathew K. Zarley
2011 Janice L. Hill
2011 Joshua M. Mims
2011 Mathew K. Zarley
2012 Ian Blake-Knox
2012 Mark Plagge
2012 Patrick Hill
2013 Cedric Searcy
2013 Jordon Huffman
2013 Mark Plagge
2013 Roshan Nedumpurath
2013 Sharon Zeng
2013 Amy Collins

Freshman Scholarship

2009 David Parks
2011 Jordon Huffman

Aspirations in Computing

2012 Rachel Cotterell

Top Student Assistant at CSU

2013 Mark Plagge

Student Research and Creative Endeavors Grants

	Student	Faculty Mentor
Fall 2009	Kandissounon, Yasmine	Mohamed Chouchane
	Moore, Chase	Lydia Ray
	Obando, Rodrigo R	Shamim Khan
Fall 2010	Yates, Charles	Dr. Lydia Ray
Fall 2011		
Fall 2012	Platta, Geoffrey	Ray, Lydia
Fall 2013	Sharon Zeng	Wayne Summers
	Cedric Searcy	Rodrigo Obando
	Sydali Nabi	Rodrigo Obando

APPENDIX I

SUMMER CAMPS - 2012

Class Name	Class Start Date	Female	Male	TOTAL		white	black	multi	asian	hisp	nat/am
3D Game Art and Design (Ages 14-18)	7/9/2012	1	7	8	8	5	3				
Animate with Alice (Ages 11-14)	6/4/2012	4	6	10	10	8	1	1			
Game Maker (Ages 11-14)	6/18/2012	3	15	18	17	10	2	4	1		
Game Maker (Ages 11-14)	6/25/2012	1	17	18	18	10	5	1		2	
Introduction to Games Design (Ages 14-18)	5/29/2012		17	17	17	8	5		2	2	
Lego Robots (Ages 11-14)	6/11/2012	3	17	20	19	12		3	2	1	1
Lego Robots (Ages 11-14)	7/16/2012	4	16	20	17	11	1	5			
Learn from Scratch (Ages 8-11)	6/11/2012	4	14	18	18	15		1	2		
Learn from Scratch (Ages 8-11)	7/9/2012	3	15	18	16	7	2	3	3		1
Lego Robots (Ages 8-11)	6/18/2012	4	16	20	20	18	1		1		
Lego Robots (Ages 8-11)	6/25/2012	1	19	20	22	20			1		1
Lego Robots (Ages 8-11)	7/23/2012	1	20	21	20	7	1	7	3	1	1
Web Design (Ages 8-11)	7/16/2012	3	7	10	8	3	4		1		
		32	186	218	210	134	25	25	16	6	4
		15%	85%			64%	12%	12%	8%	3%	2%
LEGO ROBOTS (only)		13	88	101							
		13%	87%								
Games		5	56	61							
		8%	92%								
Programming		11	35	46							
		24%	76%								

2006-2012 Summary

Camp	M	F	Total			white	black	multi	asian	hisp	nat/am	
2006	8	12	20									
2007	52	23	75			41	21	3	4	4		73
2008	119	42	161			62	22	7	0	4	2	97
2009	126	34	160			76	30	14	6	4	2	132
2010	114	33	147			71	19	12	17	4	3	126
2011	86	35	121			72	19	8	10	1	0	110
2012	186	32	218			134	25	25	16	6	4	210
	691	211	902			322	111	44	37	17	7	538
	77%	23%				60%	21%	8%	7%	3%	1%	

APPENDIX J

Computer Science Majors	Graduating Seniors - 2012-2013			Graduating Seniors - Spring 2012			Graduating Seniors - Spring 2011			Graduating Seniors - 2009-2010			
Major Field Test Results	**Nbr. = 23**			**Nbr. = 16**			**Nbr. = 17**			**Nbr. = 7**			
	3	6	13	2	7	7	7	3	7	5	0	2	
% at or below	**Systems**	**Games**	**Applied**	**Systems**	**Games**	**Applied**	**Systems**	**Games**	**Applied**	**Systems**	**Games**	**Applied**	
2002-2005 data	**Track**	**Track**	**Track**	**Track**	**Track**	**Track**	**Track**	**Track**	**Track**	**Track**	**Track**	**Track**	
90%							173			178			
75%	163							162					
70%							159						
60%		154		155	154	155	154			152			
			152										
50%			149					149		149			
Mean 149; Median 148													
30%		146	147		147		141	141					
					144								
25%	139	139	139				138		138	138			
20%	136	136				136			135			137	
						136			135				
			133		134	134							
					134								
15%		131	131			131			132			132	
		131	130			130							
			130										
5%			128	128	128	128	129		129	127			
			128		128								
			126										
1%			122				125		122				
1%			120						121				
Mean	**146.0**	**139.5**	**133.5**	**141.5**	**138.4**	**135.7**	**145.6**	**150.7**	**130.3**	**148.8**		**134.5**	
			136.8			**137.6**			**140.2**			**144.7**	**138.8**

Institution Mean (2002-2005)	148.5
Institution Median (2002-2005)	150
CSU Mean	138.8
STDEV	**12.6**

12.6

2009-2013 means					
Systems	**146**	**Games**	**141**	**Applied**	**133**

Assessment Indicators						
% at or below	Programming	Discrete S	Systems	Programmin	Discrete Structures	Systems
2002-2005 data		Algorithms	arch, OS, DB, net		Algorithms	arch, OS, DB, net
30%	48			53		
20%			36		32	35
15%		24				

Observations

1) Highlighted student blew off exam to go to work without him, the mean is 149 (the national mean)

2) Systems track may have not taken CPSC 5125, CPSC 5157, and CPSC 5185

3) Games Track students do not take MATH 5125, CPSC 5115, CPSC 5155, CPSC 5135, and CPSC 5128

APPENDIX K

Faculty Development Support

	FY2009	FY2010	FY2011	FY2012	FY2013	5 YEAR TOTAL		SOURCE	
State Funds (118&120)		$ 8,788	$ 17,726.29			$ 26,515			
Provost Funding				$ 5,300		$ 5,300			
College Funding						$ -			
Funds to develop online classes								STATE	
WBIT for online			$ 20,000.00		$27,500	$ 47,500		$	79,315
TSYS Foundation (494)	$ 1,297	$ 452	-	$ 315	$ 2,309	$ 4,373			
IA Chair Foundation (669)	$ 5,106	$ 2,524	$ 1,894	$ 4,425	$ 134	$ 14,084		FOUNDATIONS	
Department Funds (310)		$ 866	$ 397		-	$ 1,262		$	19,719
GEMS					-	$ -			
Indirect			$ 1,738.74			$ 1,739			
AFLAC contract			$ 34,250.56			$ 34,251			
NSF BPC grant			$ 55,075.95	$ 19,410		$ 74,486			
DoD contract/grant			$ 794,793.10	$ 305,465		$ 1,100,258			
Department of Labor grant			$ 34,772.35	-		$ 34,772		GRANTS &	
Java Development Course				$ 12,855		$ 12,855		CONTRACTS	
STARS Alliance						$ -		$	1,258,361
	$ 6,403	$12,631	$ 960,647	$ 347,770	$29,943	$ 1,357,394			

Student Support	FY2009	FY2010	FY2011	FY2012	FY2013	5 YEAR TOTAL		SOURCE

University Funding	$754	$3,732	$2,053	$ 6,539	**STATE**	
College Funding				$ -	$	6,539
TSYS Foundation				$ -		
IA Chair Foundation				$ -	**FOUNDATIONS**	
Department Funds				$ -	**$**	**-**
Grants Support				$ -	**GRANTS &**	
GEMS				$ -	**CONTRACTS**	
indirect			$1,268	$ 1,268	**$**	**1,268**

APPENDIX L

TSYS School of Computer Science Faculty Members AY2012-2013

Last Name	Fulltime / Parttime	Start Date	Current Rank	Promotion Date	Tenure Status	Tenure Credit (years)	Tenure Date	Post-Tenure Review	Ph.D.	School	Degree Yr	Academically Qualified	Professionally Qualified	GradFac Status	Residence Status	Gender	Ethnicity	Admin
Bosworth	FT	2001	Assoc Prof	2006	T		2006	2011	Yes	Univ. of Ala Huntsville		yes		yes	citizen	M	U.S.	
Chouchane	FT	2009	Assist Prof		TT	1	2014+		Yes	Univ. of Louis. - Laf	2008	yes		yes	H1B	M	African	grad. Dir.
Khan	FT	2006	Prof	2011	T		2011	2016	Yes	University of Manchester	1984	Yes		Yes	PR	M	South Asian	
Kongmunvattana	FT	2005	Assoc Prof		T		2010	2015	Yes	U of La	1999	yes		yes	citizen	M	Asian	
Obando	FT	2005	Assoc Prof	2010	T		2010	2015	Yes	Old Dominion University	1993	yes	yes	yes	citizen	M	Hispanic	assoc. chair
Ray	FT	2006	Assoc Prof	2012	T		2012	2017	Yes	LSU	2005	Yes	Yes	Yes	PR	F	Asian	
Rogers	FT	2007	Assist Prof	2007	TT		2012+		Yes	Auburn	2006	yes	yes	no	citizen	M	U.S.	
Summers	FT	2002	Prof	-	T		2005	NA	Yes	St. Louis University	1985	yes		yes	citizen	M	U.S.	chair
Turnitsa	FT	2012	Assist Prof	-	T		2017	NA	Yes	Old Dominion University	2012	yes	yes	yes	citizen	M	U.S.	GEMS Dir.
Whitehead	FT	2002	Assoc Prof	2010	NTT		NTT	NA	Yes	Capella University	2008	yes	yes	yes	citizen	M	U.S.	DL Dir.
Woolbright	FT	1974	Prof		T		1979	'00,'05,' 10, 2015	Yes	Auburn		yes		yes	citizen	M	U.S.	
Wright	FT	1993	Assist Prof	-	NTT		NTT	NA	MBA	CSU		no	yes	no	citizen	M	U.S.	
Yang	FT	2009	Assoc Prof		TT	2	2013	2018	Yes	Univ. of Houston	2006	yes	yes	yes	H1B	M	Asian	
Zanev	FT	1996	Prof	2002	T		1996	'09, 2014	Yes	Sofia University	1980	yes		yes	citizen	M	European	
Smith	FT	2003	IT Support / Inst.						M.S.							F		
Bhagyavati	PT	2001	Assoc Prof						Yes							F		
Garvin	PT	2008	Instructor						M.S.							F		
Hupp	PT	2011	Instructor						M.S.							M		
Roberts	PT	2007	Instructor						M.S.							M		
Sadler	PT	2008	Instructor						M.S.							F		
Peker	FT	2013	Temp. Asst. Prof.						Yes	Indiana University						F	Turkish	

* AQ =yes PhD & research up to current department standards, PQ =qualifications based on professional experience

TSYS School of Computer Science Faculty Members Service [AY2012-2013]

		University		College		School		Professional Activities							
Last Name	First Name	Chair Committee	Committee Member	Chair Committee	Committee Member	Chair Committee	Committee Member	International	National	Regional	Curr. Dev.	Student Org. advisor	Admin Support		
Bosworth	Edward		2				1			1	1			5	ACM judge
Chouchane	Radhouane		3	**1**	1	**2**	1		1	1		1	1	12	Dir. Grad. Prog., STARS, CAEIAE, ACM session chair
Khan	Shamim	**1**	3		2		2			1				9	Chair UG Research
Kongmunvattana	Angkul		1		3	**1**	3							8	
Obando	Rodrigo		2		2		3			1		2	2	12	mentored HS students; advisory board CTC; coach of ACM prog. Team
Ray	Lydia				2	**1**	1							4	
Rogers	Neal						1			3				4	Acad. Dec.
Summers	Wayne	**1**	1		4			2	1	2			1	12	
Turnitsa	Charles				1		1	2	1					5	
Whitehead	Christopher		1		3	**1**	1			1	1		1	9	Dir. DL; mentored HS students; PageOne judge
Woolbright	David	**1**	1		1		1		1					5	
Yang	Jianhua				1	**2**	2				1			6	paper review; technical comm. Member
Zanev	Vladimir		1	**1**	1	**1**								4	
		3	15	2	21	8	17	4	4	10	3	3	5	95	

TSYS School of Computer Science Faculty Members Teaching

		FALL / SPRING									
Last Name	First Name	SCH*	# of CRNs taught	# of Online Courses*	# of Preps*	# of Grad Courses taught	# of BSIT courses taught	# of Summer 2013 Courses taught	# of advisees	# of new courses	# of revised courses
Bosworth	Edward	383	8	3	5	5	0	2	36	0	1
Chouchane	Radhouane	313	6	3	6	3	0	1	30	0	0
Khan	Shamim	428	14	4	6	6	0	1	35	0	0
Kongmunvattana	Angkul	318	7	6	7	5	1	1	45	0	0
Obando	Rodrigo	279	10	1	8	2	0	1	35	0	0
Peker	Yeshem	252	3	0	3	0	0	0	42	3	0
Ray	Lydia	295	8	3	6	2	0	0	31	0	0
Rogers	Neal	392	6	0	6	0	0	0	33	0	0
Summers	Wayne	270	6	0	5	0	0	2	0	2	1
Turnitsa	Charles	60	5	4	4	4	0	1	31	4	0
Whitehead	Christopher	351	9	5	9	4	1	2	25	0	0
Woolbright	David	444	13	4	9	6	0	2	27	0	2
Wright	Burley	105	3	0	2	0	0	0	0	0	0
Yang	Jianhua	411	7	2	4	3	0	2	30	0	0
Zanev	Vladimir	366	7	5	4	4	0	2	29	1	1
	total	**4667**	**112**	**40**	**84**	**44**	**2**	**17**	**429**	**10**	**5**
	adj. average	**359.0**	**8.6**	**3.1**	**6.5**	**3.4**	**0.2**	**1.3**	**33.0**	**0.8**	**0.4**
==========	==========										
Bhagyavati		192	4	4	3	0	2	1			
Garvin	Cheryl	183	3	3	2	0	1	1			
Hupp	John	621	5		1	0	0	0			
Roberts	Clyde	330	3	2	1	0	0	0			
Sadler	Debra	300	2	0	1	0	0	0			
Smith	Aurelia	180	4	3	3	0	1	1			
	WBIT	231	26					26			
		2037	47								
% taught by		63%	62%								

*excluding Summer

TSYS School of Computer Science Faculty Members Scholarship [AY2012-2013]

		Portfolio of Intellectual Contributions														Grants					Student-mentored ICs			
		PRJs		Quality of Publications					Other				of Types			Int.		Ext,						
Last Name	First Name	Blind-Reviewed Journal Articles	Editorial-Reviewed Articles	Internet Journal, Trade Journal, Newspaper/Magazine Articles	Edited or Authored Books	Peer-Reviewed or Editorially-Reviewed Book Chapters	Other Reviewed Publication	Refereed Paper Presentations / Workshops	Non-Refereed Presentations	Interview or Expert Testimony	Other Publications or Service (including reviewing for conference)	Learning and Pedagogical	Contributions to Practice	Discipline Based Reseach	Internal Grants Awarded (Principal Author)	Worked on grant	External Grants Awarded (Principal Author)	Worked on grant	Mentored a student who successfully defended thesis	Mentored a student who presented results at a **discipline-related**professional conference	Mentored a student who presented results at a professional conference	Other noteworthy professional activity	TOTAL
Bosworth	Edward								1		1	1								1			3
Chouchane	Radhouane	1							1		1			2			1	3		1			8
Khan	Shamim							3			5	3						1	1	3	4		16
Kongmunvattana	Angkul							1			2	1								1			4
Obando	Rodrigo	1									1			1							1		3
Ray	Lydia																	3			3		6
Rogers	Neal																						0
Summers	Wayne	1						1	1		3	2		1				2					8
Turnitsa	Charles	1				2		3					2	4				2		1			9
Whitehead	Christopher							2										1	1		2		5
Woolbright	David	1											1									1	1
Yang	Jianhua	2						2				2		2				1		1	1		7
Zanev	Vladimir										1												1
	Total	7	0	0	0	2	0	12	3	0	14	9	3	10	0	0	1	13	2	8	11	1	71

Peer-reviewed Journals / Books (6)

Yang	Advances in Intelligent and Soft Computing	**Online Course Design in the Content of Cloud Computing**
Obando	Integers Journal	**Cubes in $\{0,1,\ldots,n\}^{3n}$**
Chouchane	Journal in Computer Virology	**"Detecting Machine-morphed Malware Variants via Engine Attribution**
Yang	Journal of Computer	
Summers	Vision and Image	**"Hold Holes Countable in Binary Images"**
Woolbright	Processing	
Turnitsa	Engineering Principles of Combat Modeling	**"History of Combat Modeling and Distributed simulation**
Turnitsa	M&S Journal	**"How is M&S Introperability different from other interoperability domains?"**

Workshops (4)

Khan	Workshop "Mentoring Undergraduates – for Current and Would-be Mentors" (with Samuel Abegaz) presented at Georgia Undergraduate Research Conference, Columbus, February 1-2, 2013
Khan, Whitehead	"Managing Online Discussion in Large Classes for Better Student Engagement and Learning", 2nd CSU Distance Learning Conference, September 27-28, 2012
Khan	"Leading Undergraduate Research Programs" (with Cindy Ticknor and Samuel Abegaz), USG Office of Faculty Development Presentation, Athens, April 20, 2012.
Whitehead	Please! No Team Project!, Columbus State University Distance Learning Conference, September 27-28, 2012

Peer-reviewed Proceedings (6)

Summers Kongmunvattana	ACM-SE	Assessment of foundation courses for recruiting non-CS students into master program in computer science
Yang	IEEE Int. Conf Adv. Info Net and	"Mining Network Traffic Efficiently to Detect Stepping-Stone Intrusion"
Yang	Int. Conf. on CS Ed	"Comprehensive Model in Online Course Design under Ubiquitous Learning Environment"
Turnitsa	Spring Simulation Interoperability Workshop	"Finacial Implications of Modeling and Simulation Standards"
Turnitsa	Spring Simulation Interoperability Workshop	"Proposal for a Data Exchange Model Representation Standard"
Turnitsa	Winter Simulation Conference	"Conceptual Modeling with Processes"

Presentations (3)

R. Chouchane,	ACM MidSE	Detecting Machine-Morphed Malware
Summers	ACM MidSE	Improving the odds of success in CS1
Bosworth	ACM MidSE	Students Reporting to Students

STUDENT PRESENTATIONS (19)

Faculty	Student	Conference	Paper	
Kongmunvattana	Krekchai Kusolchu	ACMMidSe	Design & Implementatiion of Parallel Approx. Search Alg.	
Ray	Geoffrey Platta	ACMMidSe	Experiment with SunSpot Technology for Building Smart Environment (ESSE)	
R. Chouchane,	R. Sardiñas	ACMMidSe	"Keeping up with Modern-day Malware"	1rst
Turnitsa	Hugh Kwon	ACMMidSe	Agent-Based Modeling….	
Khan	Shahriar Husainy	ACMMidSe	Identifying Student Dropouts using Fuzzy Inference	
Khan	Touhid Ahmed	ACMMidSe	Evolutionary Computation for Optimization using Simulation-based Fitness Evaluation	
Khan	Mark Plagge	ACMMidSe	"Electronic Brains for Student Success	Hon.Men.
Yang	Malika Harris	ACMMidSe	Visually Traceback Stepping Stone Intrusion	2nd
Yang	Malika Harris	Grad. Res. Conf.	Visually Traceback Stepping Stone Intrusion	
Ray	Nigel Miller	Grad. Res. Conf.	Resiliency Assessment of Information Systems	
Khan	Shahriar Husainy	Grad. Res. Conf.	Identifying Student Dropouts using Fuzzy Inference	
Khan	Touhid Ahmed	Grad. Res. Conf.	Evolutionary Computation for Optimization using Simulation-based Fitness Evaluation	
Khan	Mark Plagge	Grad. Res. Conf.	Artificial Neural Network Techniques to Predict Student RPG	
Obando	Joshua Benson & Matthew LaForge	Tower Day	Computer Gaming Presentation	
Whitehead	Rodrigo Obando	Tower Day	Internet Security	
Ray	Geoffrey Platta	Tower Day	Using SunSPOT Wireless Sensor Network Technology to Study Mesh Network	
Whitehead	Ian Blake-Knox	Tower Day	Measuring Human Facial Beauty: A Computed Approach	
Khan	Mark Plagge	Tower Day	Using Artificial Neural Networks to Predict First-Year Traditional Students Second	
Ray	LaQuarius Lesley	Tower Day	Windows Thumbnail Database Forensics Research	

OTHER PROFESSIONAL ACTIVITIES

Zanev	Reviewer for Serdica
Rodrigo Obando	ACM Programming Competition
Summers	Reviewer for SIGCSE
Chouchane	Reviewer for SIGCSE
Bosworth	Joint Project in Teaching Software engineering ACM MidSE
Khan	Session Chair, 50th ACM SouthEast Conference, Tuscaloosa, March 29-31, 2012.
Khan	Member Advisory Committee: International Conference on Software Engineering and Mobile Application Modelling and
Khan	Member Program Committee, 2013 World Conference on Information Systems and Technologies, Algarve, March
Khan	Member Organizing Committee, Georgia Undergraduate Research Conference, CSU, February 1-2, 2013.
Khan	Member Steering Committee, Georgia Undergraduate Research Conference, CSU, January, 2014.

APPENDIX M

			FALL 2013						
Last Name	First Name		SCH*	# of CRNs taught	# of Online Courses*	# of Preps*	# of Grad Courses taught	# of BSIT courses taught	# advisees
Bosworth	Edward	1301L, 2105, 5155U/G(3)	203	5	1	3	1	0	37
Chouchane	Radhouane	1301L, 1302, 6125(2)	170	4	1	3	2	0	32
Khan	Shamim	1301, 2108, 6178(2)	195	4	1	3	2	0	40
Kongmunvattar	Angkul	1105, 6105(2), 6177(2), WB	339	5	3	4	3	1	50
Obando	Rodrigo	3555, 4000, 4111, 5125(3)	124	6	1	4	1	0	42
Peker	Yeshem	1301, 1302, 2106	249	3	0	3	0	0	38
Ray	Lydia	1301L, 6126(2), 6136(2)	129	5	2	3	4	0	44
Rogers	Neal	3111, 3116, 4175	246	3	0	3	0	0	40
Summers	Wayne	1301(2), 4205, 4698	159	4	0	3	0	0	36
Turnitsa	Charles	6107(2), 6118(2), 6148(2)	120	6	3	3	6	0	33
Hodhod	Raina	1105, 1301L, 2125	185	3	0	3	0	0	30
Woolbright	David	2108, 5115(3)	192	4	1	2	2	0	42
Yang	Jianhua	3125, 5157(3)	201	4	1	2	2	0	33
Zanev	Vladimir	sabbatical							
	total		**2512**	**56**	**14**	**39**	**23**	**1**	**497**
	adj. average		**193.2**	**4.3**	**1.1**	**3.0**	**1.8**	**0.1**	**38.2**
Courses typically taught by Tenure-Track Faculty									
Bhagyavati		**6106**	**54.0**	**1.0**	**1.0**	**1.0**	**1.0**		
Smith	**Aurelia**	**1301L, 3111, 4125**	**151.0**	**3.0**	**0.0**	**3.0**	**0.0**		
Tehrani	**Medith**	**3131(2)**	**159.0**	**2.0**	**0.0**	**1.0**	**0.0**		
Zamstein	**Lev**	**3555**	**45.0**	**1.0**	**0.0**	**1.0**	**0.0**		
			409.0	**7.0**	**1.0**	**6.0**	**1.0**		
			2921.0	**63.0**	**15.0**	**45.0**	**24.0**		
==========	==========			**15.5**	**students per CRN**				
Bhagyavati		1105(2), WBIT	204	4	3	3	2	1	
Garvin	Cheryl	WBIT2000(2)	180	2	2	1	0	2	
Hupp	John	1105(3)	366	3	0	1	0	0	
Roberts	Clyde	1105	90	1	1	1	0	0	
Williams	Edward	1105(2)	180	2	2	1	0	0	
	WBIT		153	13				13	
			1173	25					
% taught by PhD faculty			63%	64%					

* Zanev's classes covered by Bhagyavati & Tehrani

**Smith/Zamstein is an extra FTE teaching extra sections added

*** Obando has 1 course / semester release time

**** Summers has 2 course / semester release time

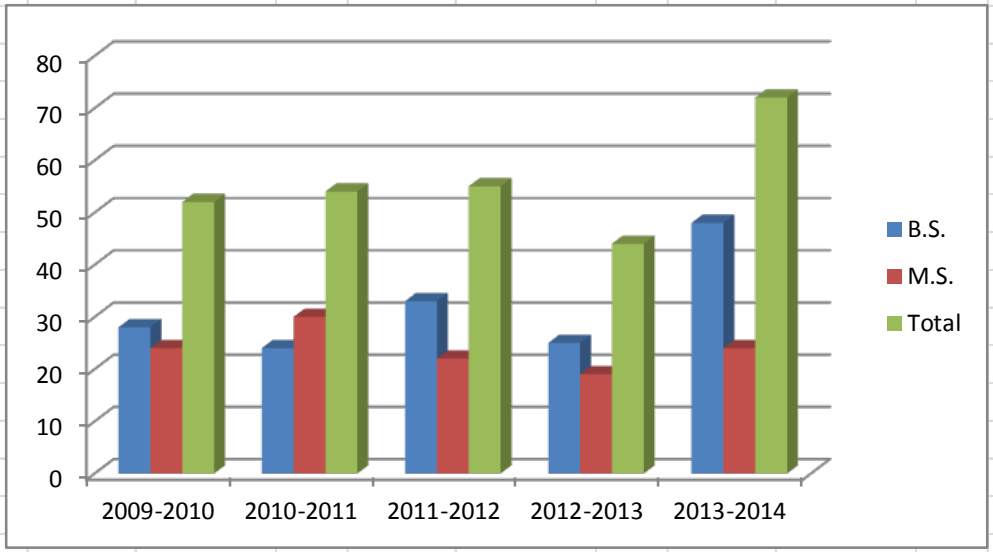
APPENDIX N

Fall Semester 2012 Course Evaluations																													
including 1105 but not online classes																													
	34	2	21	13	19	13	6	6	7	**21**	**19**	12	22	14	11	14	23	24	13	5	22	**3**	16	**17**	35	22	15	28	25	482
Course Evaluation Questions	**Mean**																												
1. The instructor is well prepared.	**3.91**	5.00	4.52	4.62	4.16	4.69	4.67	4.67	4.43	**3.9**	**4.05**	4.33	4.77	4.79	4	4.14	4.74	4.71	4.5	4.6	4.82	**4**	4.69	**3.88**	4.46	4.38	4.73	4.32	3.88	4.43
2. The instructor effectively conveys the content area.	**2.76**	5.00	4.52	4.46	3.95	4.54	4.83	4.5	3.86	**3.76**	**3.53**	4.42	4.27	4.21	3.73	3.43	4.83	4.46	4.23	4.8	4.45	**3.33**	4.19	**3.06**	4.14	3.9	4.4	4	3.72	4.11
3. The instructor clearly communicates all assignments including tests and papers.	**3.88**	5.00	4.57	4.62	4.11	4.62	4.17	4.5	4.14	**3.86**	**3.89**	4.58	4.55	4.21	4.27	4.07	4.78	4.5	4.62	4.8	4.5	**3.33**	3.75	**3.65**	4.26	3.64	4.53	4.04	4.04	4.26
4. The instructor promotes a class environment conducive to learning.	**3.45**	5.00	4.48	4.69	3.84	4.77	4.83	4.5	4.29	**4.19**	**4.16**	4.42	4.59	4.5	4.27	4.14	4.83	4.58	4.77	4.8	4.41	**3.5**	4.19	**3.47**	4.29	4.14	4.67	4.25	4.48	4.36
5. The instructor encourages questions.	**3.71**	5.00	4.62	4.69	4.42	4.85	4.83	4.5	4.71	**4.57**	**3.95**	4.83	4.86	4.64	4.55	4.71	4.83	4.63	4.92	4.8	4.91	**3.5**	4.38	**3.29**	4.34	4.62	4.47	4.39	4.36	4.51
6. The instructor promotes an academic environment in which all are treated with respect.	**4.21**	5.00	4.62	4.69	4.58	4.85	5	4.67	4.86	**4.76**	**4.53**	4.83	4.77	4.86	4.18	4.57	4.87	4.63	4.85	4.8	4.68	**3**	4.69	**3.82**	4.34	4.41	4.67	4.29	4.42	4.57
7. Overall the instructor is effective.	**2.82**	5.00	4.52	4.62	4	4.62	4.67	4.67	4.14	**3.57**	**3.63**	4.33	4.68	4.43	3.73	3.79	4.65	4.54	4.23	4.8	4.41	**3.5**	3.88	**2.82**	4.26	3.77	4.6	3.93	3.84	4.15
8. I have progressed in my ability to think critically, to solve problems, and/or to make decisions.	**3.09**	5.00	4.2	4.46	4.16	4.42	4.67	4.33	4.14	3.38	**3.84**	4.42	4.52	4.21	3.91	3.79	4.48	4.13	4.08	4.8	4.27	**2**	3.75	**3.29**	4.09	3.95	4.47	3.68	3.6	4.04
9. This course was academically challenging.	**3.88**	5.00	4.29	4.15	4.11	4.85	4.33	4.33	4.86	**3.95**	**4.39**	4.25	4.45	4.5	4.36	4.15	4.13	4.38	4.31	4.8	4.5	**4**	4.56	**3.82**	3.94	3.73	4.47	4.41	4	4.31
10. I can articulate core concepts or content of this course.	**2.88**	5.00	4.6	4.54	4.11	4.39	4.83	4.67	4.14	**3.57**	3.44	4.25	4.5	4.54	4	3.62	4.7	4.39	4.08	4.6	4.57	**2.5**	3.88	**3.47**	4	3.82	4.47	3.76	3.75	4.11
Average	**3.46**	5.00	4.49	4.55	4.14	4.66	4.68	4.53	4.36	**3.95**	**3.94**	4.47	4.60	4.49	4.10	4.04	4.68	4.50	4.46	4.76	4.55	**3.27**	4.20	**3.46**	4.21	4.04	4.55	4.11	4.01	4.28
		3.55		4.52		4.35			4.52		3.95			4.53		4.07		4.59		4.54			4.32	3.46			4.23	4.11	4.01	4.19
Spring Semester 2013 Course Evaluations																													
	31	15	19	16	18	5	17	5	22	9	**30**	8	24	8	17	**9**	**16**	20	4	2	17	12	26	23	**22**	35	**30**	**24**	484	
Course Evaluation Questions	**Mean**																												
1. The instructor is well prepared.	4.19	4.57	4.63	4.81	4.17	4.6	4.41	4.4	4.68	5	**3.8**	4.75	4.52	4.75	4.29	**3.89**	**4**	4.45	5	5	4.88	4.83	4.46	4.57	**3.82**	4.4	**4.33**	**2.79**	4.428	
2. The instructor effectively conveys the content area.	3.81	4.4	4.63	4.38	3.83	4	4.24	4.4	4.55	4.89	**3.67**	4.38	4.08	4.13	3.88	**3.67**	**3.75**	4.4	5	5	4.82	4.75	4.35	3.87	**3.36**	4.06	**3.7**	2.58	4.164	
3. The instructor clearly communicates all assignments including tests and papers.	3.97	4.27	4.63	4.44	4.67	4.8	3.94	4.4	4.45	5	**3.7**	4.63	4.21	4.38	4.18	**3.56**	**3.81**	4.6	5	5	4.94	4.83	4.35	4.09	**3.64**	4.31	**3.8**	**2.75**	4.298	
4. The instructor promotes a class environment conducive to learning.	4.13	4.6	4.74	4.56	4.28	4.4	4.18	4.6	4.55	4.78	**3.53**	4.88	4.33	4.38	4.24	**4.22**	**4**	4.75	5	5	4.94	4.75	4.65	4.17	**3.77**	4.34	**3.67**	**2.79**	4.365	
5. The instructor encourages questions.	4.32	4.67	4.68	4.69	4.78	4.8	4.18	4.8	4.55	5	**4.2**	4.75	4.75	4.5	4.65	**4.11**	**4.25**	4.85	5	5	5	4.92	4.73	4.61	**4.09**	4.43	**4**	**4.09**	4.586	
6. The instructor promotes an academic environment in which all are treated with respect.	4.65	4.8	4.63	4.81	4.78	4.8	4.24	4.4	4.64	5	**4.13**	4.75	4.71	4.63	4.71	**4.44**	**4.44**	4.85	5	4.5	4.94	4.92	4.77	4.52	**4.09**	4.31	**3.9**	**4.08**	4.587	
7. Overall the instructor is effective.	3.55	4.6	4.68	4.31	3.94	4.2	4	4.4	4.55	4.89	**3.27**	4.75	4.17	4.13	4	**3.44**	3.56	4.4	5	4.5	4.88	4.75	4.38	3.87	**3.36**	4	**3.6**	**2.63**	4.136	
8. I have progressed in my ability to think critically, to solve problems, and/or to make decisions.	3.55	4.73	4.63	4.19	4.28	4.2	3.88	4.4	4.36	5	3.1	4.75	4	4.38	3.82	**4.11**	**3.88**	4.4	4.5	4.5	4.65	4.5	4.27	3.74	**3.18**	4.06	3.5	**2.67**	4.115	
9. This course was academically challenging.	4.45	4.6	4.58	4.69	4.06	3.4	3.41	4.6	4.68	3.75	**3.17**	4.5	4.71	4.43	4.47	**3.89**	**4.13**	4.15	3.75	4.5	4.53	4.42	4.62	4.48	**2.95**	4.15	**4.1**	**3.58**	4.171	
10. I can articulate core concepts or content of this course.	3.35	4.6	4.47	4.31	4.41	5	4.13	4	4.41	4.75	3.1	5	4.3	4.29	3.93	3.25	**3.73**	4.7	4.67	5	4.87	4.64	4	3.83	**3.29**	4.03	**3.63**	**3.04**	4.169	
Average	4.00	4.58	4.63	4.52	4.32	4.42	4.06	4.44	4.54	4.81	**3.57**	4.71	4.38	4.40	4.22	**3.86**	**3.96**	4.56	4.79	4.80	4.85	4.73	4.46	4.18	**3.56**	4.21	**3.82**	**3.10**	4.302	
		4.19	4.63			4.41	4.06			4.59			4.03	4.40			4.04		4.59	4.8		4.80	4.46	4.18		3.96	**3.823**	**3.1**	4.254	
																												AVG	4.22
																												N	966

APPENDIX O

Graduates from TSYS School of Computer Science

	2009-2010			2010-2011			2011-2012			2012-2013			2013-2014		
	SUMMER	FALL	SPRING	SUMMER	FALL	SPRING	SUMMER	FALL	SPRING	SUMMER	FALL	SPRING	SUMMER	FALL	SPRING
AASCS	1							1							
Systems	2	5	4		5	5	1	2	2		2	1	1	1	6
Applied	3	4	7	3	3	5	3	1	5	1	1	10	2	1	17
Games			2		1	2	1	1	7		1	4		1	8
IT								2	5		3	1	3	1	6
WBIT									2			1	1		0
B.S.	6	9	13	3	9	12	5	7	21	1	7	17	7	4	37
			28			24			33			25			48
M.S.	8	5	11	6	12	12	4	9	9	1	7	11	2	10	12
Total	14	14	24	9	21	24	9	16	30	2	14	28	9	14	49
		24	52		30	54		22	55		19	44		24	72



APPENDIX X

UG(2012-2013) Date Range: May 14 2012 - June 14 2013

1. 1. What is your major?

#	Answer		Response	%
1	CS Systems		9	20%
2	CS Applied		16	36%
3	CS Games		7	16%
4	BS IT		11	25%
5	BS IT Online		1	2%
	Total		44	100%

2. 2. Are you currently full-time employed?

#	Answer		Response	%
1	Yes		14	32%
2	No		30	68%
	Total		44	100%

3. If so, do you intend to remain with your current employer after graduation?

#	Answer		Response	%
1	Yes		9	75%
2	No		3	25%
	Total		12	100%

4. and do you expect that completing your degree will bring you an increase in salary?

#	Answer		Response	%
1	Yes		10	83%
2	No		2	17%
	Total		12	100%

5. and/or a promotion or job reassignment

#	Answer		Response	%
1	Yes		7	58%
2	No		5	42%
	Total		12	100%

6. 3. Have you recently applied for any CS related jobs?

#	Answer		Response	%
1	Yes		22	55%
2	No		18	45%
	Total		40	100%

7. If so, how many?

Text Response
1-50

8. How many interviews have you had?

Text Response
0-5

9. How many job offers have you received?

Text Response
0-5

10. Have you recently accepted an offer for full-time employment?

#	Answer		Response	%
1	Yes		8	22%
2	No		29	78%
	Total		37	100%

11. If so, is this employment directly related to your degree

#	Answer		Response	%
1	Yes		5	63%
2	No		3	38%
	Total		8	100%

12. and what is the job title

Text Response
Web Developer
CSR 1
MSN RN
Software Developer
Webmaster
Media Director
IT Development Manager
Programmer analyst

13. and salary or hourly pay?

Text Response
38500
8.50/hr
30.00/hr
$40,000
30,000
32,000
15.00/hr
17.31/h

14. 4. What is your personal preference for the location of your full-time employment after graduation?

#	Answer		Response	%
1	Columbus		23	62%
2	Other		14	38%
	Total		37	100%

Washington State
Tampa, Orlando FL || Atlanta, GA
Anywhere out of the south
Atlanta
Ft. Collins, Colorado
New Zealand
Colorado
Atlanta
Does not matter
CO or WA
Atlanta
wherever they will take me
Does not matter

15. 5. Have you applied to any graduate schools?

#	Answer		Response	%
1	Yes		4	11%
2	No		33	89%
	Total		37	100%

16. If so, which one(s)

Text Response
Columbus State University
University of Washington - Recently
CSU - MBA
MCG, Mercer SOM

17. and have been accepted?

#	Answer		Response	%
1	Yes		1	25%
2	No		3	75%
	Total		4	100%

18. 6. How many years did it take for you to complete your degree?

Text Response
3-24

19. During that time how many hours per week, on average, were you employed?

Text Response
Between 0 and 70

20. Were you mostly a full-time or part-time student?

#	Answer		Response	%
1	Full-Time		26	79%
2	Part-Time		7	21%
	Total		33	100%

21. 7. Are you a member of ACM?

#	Answer		Response	%
1	Yes		9	27%
2	No		24	73%
	Total		33	100%

22. 8. Do you subscribe to or read any computer related publications or periodicals, or regularly visit any computer related web sites?

#	Answer		Response	%
1	Yes		17	52%
2	No		16	48%
	Total		33	100%

23. If so, which?

Text Response
Hacker News, The Next Web, The Verge, etc...
Cnet
The Main Tap, Smashing Magazine, Awwwards, Design Licks, Reddit.com/r/programming
wired
Wired.com, altdevblogaday.com, gamasutra.com
ACM
reddit.com/r/programming, twitter.github.io/bootstrap/index.html
engadget.com, arstechnica.com
mostly android-related
Website Magazine
twit.tv they have the best tech shows on the internet

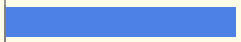
24. Part 2: Please indicate the response that best describes your agreement with the following statements. Use the following numerical assignments for your responses: (strongly agree) (agree) (neither agree or disagree) (disagree) (strongly disagree)

25. 1. I am able to use an integrated development environment consisting of an editor, compiler, and linker to code and implement an executable program.

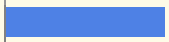
#	Answer		Response	%
1	Strongly Agree		18	58%

2	Agree		10	32%
3	Neither Agree nor Disagree		2	6%
4	Disagree		0	0%
5	Strongly Disagree		1	3%
	Total		31	100%

26. 2. I am able to produce a software solution using object-oriented programming architecture.

#	Answer		Response	%
1	Strongly Agree		15	48%
2	Agree		12	39%
3	Neither Agree nor Disagree		3	10%
4	Disagree		0	0%
5	Strongly Disagree		1	3%
	Total		31	100%

27. 3. I am familiar with standard CPU architectures.

#	Answer		Response	%
1	Strongly Agree		10	33%
2	Agree		14	47%
3	Neither Agree nor Disagree		3	10%
4	Disagree		3	10%
5	Strongly Disagree		0	0%
	Total		30	100%

28. 4. I am familiar with methods used to design and access databases.

#	Answer		Response	%
1	Strongly Agree		13	42%
2	Agree		16	52%
3	Neither Agree nor Disagree		1	3%
4	Disagree		0	0%
5	Strongly Disagree		1	3%
	Total		31	100%

29. 5. I understand the social and ethical impact of computers.

#	Answer		Response	%
1	Strongly Agree		18	58%
2	Agree		12	39%
3	Neither Agree nor Disagree		1	3%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		31	100%

30. 6. I am able to use a program debugger in diagnosing errors in my programs.

#	Answer		Response	%
1	Strongly Agree		13	42%
2	Agree		13	42%
3	Neither Agree nor Disagree		3	10%
4	Disagree		1	3%
5	Strongly Disagree		1	3%
	Total		31	100%

31. 7. Advising opportunities were sufficient for me to make informed decisions about scheduling and degree completion.

#	Answer		Response	%
1	Strongly Agree		11	35%
2	Agree		15	48%
3	Neither Agree nor Disagree		3	10%
4	Disagree		2	6%
5	Strongly Disagree		0	0%
	Total		31	100%

32. 8. Lab facilities were sufficient for all courses I enrolled in.

#	Answer		Response	%
1	Strongly Agree		10	32%
2	Agree		15	48%
3	Neither Agree nor Disagree		4	13%
4	Disagree		2	6%
5	Strongly Disagree		0	0%
	Total		31	100%

33. 9. The overall quality of the CS curriculum is sufficient for most students who will enter the job market.

#	Answer		Response	%
1	Strongly Agree		7	23%
2	Agree		18	58%
3	Neither Agree nor		6	19%

	Disagree			
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		31	100%

34. 10. The overall quality of instruction in CS courses is sufficient for most students who will enter the job market.

#	Answer		Response	%
1	Strongly Agree		7	23%
2	Agree		18	58%
3	Neither Agree nor Disagree		5	16%
4	Disagree		1	3%
5	Strongly Disagree		0	0%
	Total		31	100%

35. 11. I am comfortable with my ability to make presentations to groups.

#	Answer		Response	%
1	Strongly Agree		13	42%
2	Agree		13	42%
3	Neither Agree nor Disagree		3	10%
4	Disagree		2	6%
5	Strongly Disagree		0	0%
	Total		31	100%

36. 12. I am comfortable with my ability to write documentation or produce written analyses in a business setting.

#	Answer		Response	%
1	Strongly Agree		11	35%
2	Agree		14	45%
3	Neither Agree nor Disagree		6	19%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		31	100%

37. 13. I would recommend the CS program at CSU to others as a high quality program.

#	Answer		Response	%
1	Strongly Agree		9	29%
2	Agree		19	61%
3	Neither Agree nor Disagree		3	10%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		31	100%

38. 14. I would recommend CSU to others as a high quality university.

#	Answer		Response	%
1	Strongly Agree		9	29%
2	Agree		17	55%
3	Neither Agree nor Disagree		3	10%
4	Disagree		2	6%
5	Strongly Disagree		0	0%
	Total		31	100%

39. Part 3: (FOR SYSTEMS TRACK ONLY

40. 15. I understand the major differences among modern programming languages.

#	Answer		Response	%
1	Strongly Agree		5	56%
2	Agree		2	22%
3	Neither Agree nor Disagree		2	22%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		9	100%

41. 16. I have a basic understanding of theoretical aspects of computer science.

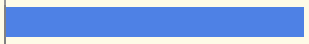
#	Answer		Response	%
1	Strongly Agree		4	50%
2	Agree		3	38%
3	Neither Agree nor Disagree		1	13%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		8	100%

42. 17. I am able to analyze, design and implement the solution to real-world scientific or engineering problems.

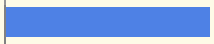
#	Answer		Response	%
1	Strongly Agree		5	63%
2	Agree		2	25%

3	Neither Agree nor Disagree		1	13%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		8	100%

43. 18. I feel adequately prepared to enter the job market in a CS related position.

#	Answer		Response	%
1	Strongly Agree		5	63%
2	Agree		2	25%
3	Neither Agree nor Disagree		1	13%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		8	100%

44. 19. I feel adequately prepared to apply to graduate school in CS.

#	Answer		Response	%
1	Strongly Agree		3	43%
2	Agree		3	43%
3	Neither Agree nor Disagree		0	0%
4	Disagree		1	14%
5	Strongly Disagree		0	0%
	Total		7	100%

45. Part 4: (FOR APPLIED TRACK ONLY

46. 20. I am able to produce a web-based software solution using high-level development tools.

#	Answer		Response	%
1	Strongly Agree		8	50%
2	Agree		6	38%
3	Neither Agree nor Disagree		2	13%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%

47. 21. I am able to analyze, design and implement the solution to real-world information processing problems.

#	Answer		Response	%
1	Strongly Agree		6	40%
2	Agree		6	40%
3	Neither Agree nor Disagree		3	20%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		15	100%

48. 22. I am familiar with the theory and application of transaction processing.

#	Answer		Response	%
1	Strongly Agree		6	40%
2	Agree		7	47%
3	Neither Agree nor Disagree		1	7%
4	Disagree		1	7%
5	Strongly Disagree		0	0%

	Total		15	100%

49. 23. I feel adequately prepared to enter the job market in an IT related position.

#	Answer		Response	%
1	Strongly Agree		7	47%
2	Agree		6	40%
3	Neither Agree nor Disagree		2	13%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		15	100%

50. Part 5: (FOR GAMES TRACK ONLY

51. 24. I am able to produce an interactive game using high-level development tools.

#	Answer		Response	%
1	Strongly Agree		2	29%
2	Agree		2	29%
3	Neither Agree nor Disagree		2	29%
4	Disagree		0	0%
5	Strongly Disagree		1	14%
	Total		7	100%

52. 25. I am able to apply computer science principles in the creation of games.

#	Answer		Response	%
1	Strongly Agree		2	33%
2	Agree		3	50%

3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		1	17%
	Total		6	100%

53. 26. I feel adequately prepared to enter the job market in a game development related position.

#	Answer		Response	%
1	Strongly Agree		1	14%
2	Agree		2	29%
3	Neither Agree nor Disagree		2	29%
4	Disagree		1	14%
5	Strongly Disagree		1	14%
	Total		7	100%

54. Part 6: (FOR BSIT and Online BSIT ONLY)

55. 27. I am able to able to make decisions regarding technology applications including global e-business.

#	Answer		Response	%
1	Strongly Agree		6	60%
2	Agree		4	40%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%

	Total		10	100%

56. 28. I am able to analyze, design and implement the solution to real-world information technology problems.

#	Answer		Response	%
1	Strongly Agree		7	70%
2	Agree		3	30%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		10	100%

57. 29. I am familiar with the theory and application of information security.

#	Answer		Response	%
1	Strongly Agree		3	38%
2	Agree		5	63%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		8	100%

58. 30. I feel adequately prepared to enter the job market in an IT related position.

#	Answer		Response	%
1	Strongly Agree		3	33%
2	Agree		5	56%
3	Neither Agree nor		1	11%

	Disagree			
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		9	100%

59. Part 7: The following is a list of topics, many of which you may have been introduced to. Please indicated (circle one) how comfortable you feel with each of the following. Use the

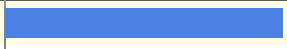
67. HTML

#	Answer		Response	%
1	Understand		23	77%
2	Somewhat Comfortable		4	13%
3	Unsure on how to use		1	3%
4	Never Used		2	7%
	Total		30	100%

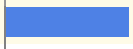
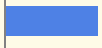
68. C/C++

#	Answer		Response	%
1	Understand		10	32%
2	Somewhat Comfortable		17	55%
3	Unsure on how to use		2	6%
4	Never Used		2	6%
	Total		31	100%

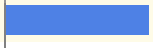
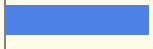
69. Visual Basic

#	Answer		Response	%
1	Understand		18	58%
2	Somewhat Comfortable		10	32%
3	Unsure on how to use		2	6%
4	Never Used		1	3%
	Total		31	100%

70. Assembly Language

#	Answer		Response	%
1	Understand		8	26%
2	Somewhat Comfortable		12	39%
3	Unsure on how to use		6	19%
4	Never Used		5	16%
	Total		31	100%

71. UNIX/Linux

#	Answer		Response	%
1	Understand		9	30%
2	Somewhat Comfortable		10	33%
3	Unsure on how to use		9	30%
4	Never Used		2	7%
	Total		30	100%

77. OOPS

#	Answer		Response	%
1	Understand		6	20%
2	Somewhat Comfortable		5	17%
3	Unsure on how to use		2	7%
4	Never Used		17	57%
	Total		30	100%

78. LAN

#	Answer		Response	%
1	Understand		19	61%
2	Somewhat Comfortable		6	19%
3	Unsure on how to use		3	10%
4	Never Used		3	10%
	Total		31	100%

82. AI

#	Answer		Response	%
1	Understand		5	16%
2	Somewhat Comfortable		10	32%
3	Unsure on how to use		1	3%
4	Never Used		15	48%
	Total		31	100%

83. Expert Systems

#	Answer		Response	%
1	Understand		5	17%
2	Somewhat Comfortable		10	33%
3	Unsure on how to use		3	10%
4	Never Used		12	40%
	Total		30	100%

85. Virtual Machines

#	Answer		Response	%
1	Understand		16	53%
2	Somewhat Comfortable		9	30%
3	Unsure on how to use		2	7%
4	Never Used		3	10%
	Total		30	100%

87. Pointers & Linked Lists

#	Answer		Response	%
1	Understand		21	68%
2	Somewhat Comfortable		6	19%
3	Unsure on how to use		4	13%
4	Never Used		0	0%
	Total		31	100%

89. Machine Architecture

#	Answer		Response	%
1	Understand		8	26%
2	Somewhat Comfortable		13	42%
3	Unsure on how to use		7	23%
4	Never Used		3	10%
	Total		31	100%

90. Computer Viruses

#	Answer		Response	%
1	Understand		14	45%
2	Somewhat Comfortable		10	32%
3	Unsure on how to use		2	6%
4	Never Used		5	16%
	Total		31	100%

91. Computer Security

#	Answer		Response	%
1	Understand		12	39%
2	Somewhat Comfortable		13	42%
3	Unsure on how to use		4	13%
4	Never Used		2	6%
	Total		31	100%

92. 3-Tier Architecture

#	Answer		Response	%
1	Understand		6	19%
2	Somewhat Comfortable		11	35%
3	Unsure on how to use		2	6%
4	Never Used		12	39%
	Total		31	100%

93. E-commerce

#	Answer		Response	%
1	Understand		13	42%
2	Somewhat Comfortable		8	26%
3	Unsure on how to use		4	13%
4	Never Used		6	19%
	Total		31	100%

95. HCI

#	Answer		Response	%
1	Understand		5	16%
2	Somewhat Comfortable		6	19%
3	Unsure on how to use		4	13%
4	Never Used		16	52%
	Total		31	100%

96. XML

#	Answer		Response	%
1	Understand		20	67%
2	Somewhat Comfortable		7	23%
3	Unsure on how to use		2	7%
4	Never Used		1	3%
	Total		30	100%

97. Ajax

#	Answer		Response	%
1	Understand		12	39%
2	Somewhat Comfortable		6	19%
3	Unsure on how to use		3	10%
4	Never Used		10	32%
	Total		31	100%

98. Part 6: Please briefly answer the following questions.

99. 1. What has been the most useful CS course for you? Why?

Text Response
Network courses, I engineer networks
Data Structures has been the most useful CS course because it was a challenge and I really had to learn the programing language to succeed in this course.
The web design courses were the most useful. Now I have the ability to design/implement dynamic web pages
Databases and Computer Science I/II, because they adequately provided me with the knowledge I needed to further develop my skills.
OOD becuase it really opened the door to a new way of thinking for me. Learning the design patterns taught me how to THINK about things differently and really design and implement in a simple, elegant manner.

web development projects
Object Oriented Programming
Games Programming I/II, the end product of these courses left me with a project I can show to others.
9 Languages because of the intro to new material
The beginning Java classes also played a big role in confirming this was the major I wanted to be in.
All the web development classes. Using Visual Studio, Expression Web, I enjoyed these thouroughly. These classes will help me in my field of work.
I feel like it's too early to tell. While I have played around with concepts learned in (computer security, operating systems, databases, interface design, and software engineering practices) in my hobby time, my professional experience is in programming languages that I hadn't been taught in a class. I will be able to answer this question more fully in a few years.
9 Languages of Programming
COBOL and Web Development. COBOL is a widely used, in-demand programming language. Web Development is a very marketable skill.
Object Oriented Design... Many concepts discussed early on were finally realized.
MainFrame Cobol, JCL, Assembly Language and Object Oriented programming There is a market for mainframe programming and OOD makes programming easier to write programs.
Web development projects
Programming Languages was an important class which helped me understand and implement various languages.
Object-Oriented Design because it helped me understand the importance of organizing different classes to avoid coupling which allows for more efficient programs.
Cobol because I might be able to get a job using this course
Database Systems - because it applies to all areas of IT regardless of whether or not your primary role is DBA
CPSC 5157U. I feel comfortable with my understanding of networks and the WWW, & Dr. Yang is great.
Software Engineering, because I was able to use what I have learn over the years to create programs.
java great bas
Probably Object oriented design or data structures because they teach you the concept of coding a program in the form of reusable elements.

100. 2. What has been the least useful CS course for you? Why?

Text Response
programming, I program network devices not computers
Physics, because the teacher was useless.

Software & Sr Software Engineering...I see the use but it just hasn't quite acheived what I felt it should. I did not really learn much in the way of design process and documentation which is what these are for. The spreadsheets were outdated and buggy and things were not explained very well. It was just more of an opportunity to have another project to add to my portfolio.
Operating Systems
Computer Science I was mostly an introduction to programming, which I was already familiar with coming in.
CPSC 3165 Professionalism in Computing, only because no skills are actually taught in this class, aside from ethics which I guess I feel everyone has already (to some degree at least).
CICS. I didnt particualrly enjoy the class and mainframe doesnt appeal to me.
As above, I feel like it's too early to tell. Several courses have taught me material that I haven't used in a real-life setting, but I aspire to work in several different fields. In the end, the "least useful" one will be the course whose material for which I never find an application.
Computer Networking
Operating systems - curriculum seemed disorganized.
Internet Programming... only because I was already familiar with the concepts discussed in the course
I can not think of one
object oriented
Artificial Intelligence was the least useful, although not useless, due to me not dealing with AI very much.
Computer Organizations because the material was not taught well. The professor read through a word document for the entirety of the class with little to no interactions.
Operating Systems - unnecessary
CPSC 3175. Never understood what was going on. No idea what assignments were due, when they were due or what grade I got on them. Didn't exactly know what I needed to make on my final grade because I didn't know what kind of grade I had going into the final project. Spent over 53 hours on final project, didn't understand what I was doing at all, but somehow ended up with a C.
Computer Forensics, because I don't feel as if I learn anything in that class.
cobol
Probably assymbler because it's hard to understand and hard to remember after its over with.

102. 4. How can we best improve the CS program?

Text Response
provide broad-base to computer science tracks instead of the curriculum specifically gearing the courses towards computer programming. CS majors are not just seeking knowledge in basic program language, they also follow other tracks such as those related to programming networking devices i.e. routers,

firewalls, switches, etc.
Provide more real-world technologies/software/theories/etc. that will better prepare students for what they will most likely encounter in the real world.
I would like to use C++ in more classes especially for the games track. I am finding that most employers in the games field require strong knowledge of C++ and I do not feel I have this. Also I have learned that a lot of schools start out with C++ instead of Java. I feel I need this in order to be competitive and if I can master that then any other language is cake. It is really demotivating and frustrating to see people that cheat and/or clearly do not know what they are doing continue to float (be passed) through classes. I do realize that it is necessary to have a certain enrollment in order to keep the department but it makes me feel like my degree means less when I see people like that passing as I and many others legitimately try our hardest. I also feel it is a disservice to them to let them believe they will be successful in the workplace the way they are.
offer classes more than once a semester
More projects for portfolio building purposes. I feel at least CS two should have some small project to complete to demonstrate programming principles.
More Hands on application and group assignments.
Access to appropriate software (for COBOL, Visual Basic courses) in labs that are open longer (late friday, as well as weekends)
Possibly offer a few more mobile development classes. The way the world is going now, mobile will be the way to go.
If I could recommend exactly one change to the CS program, it would be a revision of the Senior Project. I've spoken with my friends who graduated Georgia Tech, and their experience differs wildly from mine. At GT, my friends' groups were partnered with real-world business clients to build a tool, database, website, or other software product that will help them in their day-to-day operations. Not only would this offer an impressive resume booster to students, it would improve CSU's connectivity with local business and grow the University's reputation.
Check with students to see if they can understand certain Professor. Nothing personal but there were certain names that a lot of CS students complained about all the time and grades were low because of it.
Set up an order of prerequisites for the classes that use the mainframe environment, so that everyone is at the same general level of expertise for each class. As it is now, in every mainframe class,(JCL, COBOL, Transaction Processing, Assembly) the professor has to spend class time teaching a portion of the class the basics of the environment because their is no base class. I would have been able to learn much more in Assembly except for the delays in teaching a few of the students the mainframe environment. The mainframe isn't like signing onto the web so you don't have prior knowledge of it before taking these classes. You have to be set up to access a mainframe.
Grade more harshly... Collaboration between courses in an effort to replicate team dynamics... More emphasis on handling large data and debugging
Modeling classes for games programming Computer Graphics 2 also would be nice
offer higher level classes more than once a year
Inlude desired certifications for the IT program
Schedule times of the classes and have some course be offered all year.
allow more online for undergrad
Offer more courses on hardware and how it works. CPSC 2105 is great and I learned a lot of information, but if there could be a course that would explore the

different (and current) hardware and how they work together. I know this would be close to an engineering subject, but it could be designed so that the course would be directed toward the CS part of the subject.
You can improve the CS program by assistance incoming freshman and direct them in what course they need to take.
keep instructors engaged with students
I would say teach more classes in the style that Obando teaches Object oriented because it pushes you to attempt new and difficult things that get you to learn alot but doesn't penalize you for failing at what you attempted.

103. 5. What other questions should have been asked on this survey? What would your answer have been?

Text Response
Were the tutors in lab helpful? - While the facilities are good, the tutors themselves sometimes weren't helpful. Especially in the mainframe department. COBOL, JCL, CICS, none of the tutors were very knowledgable in these fields.
Q: "What area(s) of computer science would you like to continue to study? Would you take more courses in this topic if additional classes were offered?" A: I will continue to pursue my interest in theoretical computer science. I would definitely take an AI 2, Information Theory, Cryptography, or Theory of Computation 2 if it were offered.
About the tutoring lab. There developed an attitude in the tutoring lab a couple of years ago that the tutors resented having to help the students because they didn't have the same help available to them when they were taking those classes. There were a lot of tutors playing games, surfing the web, working on their homework, etc. Many of us stopped going to the lab because we knew they wouldn't help us. The tutors of course would help their fellow tutors because they wanted help from them when they needed help in their classes. I don't know if it is the same atmosphere today. I think it has gotten better.
Does instructors answer their emails in a timely manner? Overall, no. There are a few that are very prompt with a response, but most are very slow and a few that NEVER answer their email. Unfortunately, the last half of the previous sentence is the norm and the first half the exception.
Online learning can only be successful with an advisors like Dr. Whitehead.
Did you do any internships and were they valuable. Yes my internship with NASA / Boeing was the best experience I could have had and introduced me to real world opportunities and probably helped with getting a job offer from Boeing later. I think large companies look for internship positions in candidates I know its true for the engineering world.

APPENDIX Y

Grad(2012-2013)

Last Modified: 06/14/2013

Date Range: May 14 2012 - June 14 2013

1. What is your area of concentration?

#	Answer		Response	%
1	Information Assurance		5	38%
2	Modeling/Simulation		1	8%
3	Software Development		5	38%
4	No Concentration		2	15%
	Total		13	100%

2. Did you take the thesis option?

#	Answer		Response	%
1	YES		3	23%
2	NO		10	77%
	Total		13	100%

3. If you took the thesis option, why?

Text Response
easier than the comprehensive option
To be able to apply all of the knowledge gained in one body of work.

4. If you did not take the thesis option, why not?

Text Response
I thought I wouldn't have enough time while working a full time job to put forth the required effort to complete a thesis.
I am currently a full-time employee attending the program remotely. I was worried that without direct professor interaction and adequate time to allocate to the thesis I would have been disappointed with myself and the outcome.
Not interested at this time since working full time.
Wanted to spcialize in Software development
I wanted a balanced curriculum which would prepare me for a variety of potential career paths.
There were so many courses to take for the IA specialization that I just never had the space in my schedule.
I wanted to take more courses. I'll do the thesis with a future phd.

5. Are you currently employed?

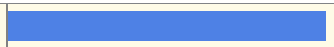
#	Answer		Response	%
1	YES		11	92%
2	NO		1	8%
	Total		12	100%

6. If so, are you employed full-time or part-time?

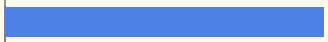
#	Answer		Response	%
1	Full-Time		9	100%
2	Part-Time		0	0%
	Total		9	100%

7. Do you expect that completing your degree will bring you an increase in salary

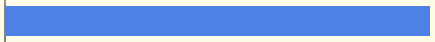
#	Answer		Response	%

1	YES		6	67%
2	NO		3	33%
	Total		9	100%

8. and/or a promotion or job reassignment?

#	Answer		Response	%
1	YES		6	67%
2	NO		3	33%
	Total		9	100%

9. Is your current position directly related to CS/IT?

#	Answer		Response	%
1	YES		8	89%
2	NO		1	11%
	Total		9	100%

10. What is your job title and salary or hourly pay?

Text Response
Modeling and Simulation Analyst $47,448.00
Software Developer/Engineer - Expert Level : $78,000 / year (gross)
MIS Technician II, $47, 618.02
Business Tech Analyst
Mobile Developer / $114,000 anual salary
US Signal Corp (US Army)
Information Security Analyst II/65,000 Annually
jr. programmer/analyst 42k a year

11. Have you recently applied for any CS/IT related jobs?

#	Answer		Response	%
1	YES		4	44%
2	NO		5	56%
	Total		9	100%

12. If so, how many?

Text Response
3
10
5
20-30

13. How many interviews have you had?

Text Response
0
5
0
0 - I just started applying

14. How many job offers have you received?

Text Response
0
1
0
0

15. Have you recently accepted an offer for full-time employment?

#	Answer		Response	%

1	YES		1	25%
2	NO		3	75%
	Total		4	100%

16. If so, is this employment directly related to your degree

#	Answer		Response	%
1	YES		2	50%
2	NO		2	50%
	Total		4	100%

17. and what is the job title

Text Response
Mobile Developer

18. and salary or hourly pay?

Text Response
$114,000 anual salary

19. What is your personal preference for the location of your full-time employment after graduation?

#	Answer		Response	%
1	Columbus		1	13%
2	Other		3	38%
3	Any, Does not matter		4	50%
	Total		8	100%

20. How many years did it take for you to complete your degree?

Text Response
2
3.5
3
2
2
2
3
3.5 yrs, because I took 1 year off.

21. During that time how many hours per week, on average, were you employed?

Text Response
40
40+
12
40
40
40
40+
35 hours fper week

22. Were you mostly a full-time or part-time student ?

#	Answer		Response	%
1	Full Time		4	57%
2	Part Time		3	43%
	Total		7	100%

23. I am comfortable with my abilities to apply techniques and technologies from Algorithm Analysis and Design.

#	Answer		Response	%
1	Strongly Agree		5	63%
2	Agree		1	13%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		2	25%
	Total		8	100%

24. I am comfortable with my abilities to apply techniques and technologies from Programming Languages.

#	Answer		Response	%
1	Strongly Agree		6	86%
2	Agree		1	14%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		7	100%

25. I am comfortable with my abilities to apply techniques and technologies from Database Management Systems.

#	Answer		Response	%
1	Strongly Agree		5	63%
2	Agree		2	25%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		1	13%
	Total		8	100%

26. I am comfortable with my abilities to apply techniques and technologies from Computer Architecture.

#	Answer		Response	%
1	Strongly Agree		5	83%
2	Agree		1	17%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		6	100%

27. I am comfortable with my abilities to apply techniques and technologies from Computer Networks.

#	Answer		Response	%
1	Strongly Agree		5	71%
2	Agree		1	14%
3	Neither Agree nor Disagree		0	0%

4	Disagree		1	14%
5	Strongly Disagree		0	0%
	Total		7	100%

28. I am comfortable with my abilities to apply techniques and technologies from Operating Systems.

#	Answer		Response	%
1	Strongly Agree		3	43%
2	Agree		2	29%
3	Neither Agree nor Disagree		1	14%
4	Disagree		1	14%
5	Strongly Disagree		0	0%
	Total		7	100%

29. Advising opportunities were sufficient for me to make informed decisions about scheduling and degree completion.

#	Answer		Response	%
1	Strongly Agree		6	75%
2	Agree		2	25%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		8	100%

30. The overall quality of the curriculum is sufficient for most students who will enter the job market.

#	Answer		Response	%
1	Strongly Agree		4	50%
2	Agree		4	50%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		8	100%

31. The overall quality of instruction in courses is sufficient for most students who will enter the job market.

#	Answer		Response	%
1	Strongly Agree		4	50%
2	Agree		3	38%
3	Neither Agree nor Disagree		1	13%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		8	100%

32. The availability of courses each semester met my needs.

#	Answer		Response	%
1	Strongly Agree		4	50%

2	Agree		3	38%
3	Neither Agree nor Disagree		1	13%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		8	100%

33. I feel adequately prepared to enter the job market in a CS/IT related position.

#	Answer		Response	%
1	Strongly Agree		4	50%
2	Agree		4	50%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		8	100%

34. I feel that my online courses provided at least the same educational experience as corresponding face-to-face courses.

#	Answer		Response	%
1	Strongly Agree		4	50%
2	Agree		1	13%
3	Neither Agree nor Disagree		2	25%
4	Disagree		1	13%
5	Strongly Disagree		0	0%

6	N/A		0	0%
	Total		8	100%

35. I am comfortable with my ability to make presentations to groups.

#	Answer		Response	%
1	Strongly Agree		5	63%
2	Agree		2	25%
3	Neither Agree nor Disagree		0	0%
4	Disagree		1	13%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		8	100%

36. I am comfortable with my ability to write documentation or produce written analyses in a business setting.

#	Answer		Response	%
1	Strongly Agree		6	75%
2	Agree		2	25%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		8	100%

37. I would recommend the Applied CS masters program at CSU to others as a high quality program.

#	Answer		Response	%
1	Strongly Agree		4	57%
2	Agree		3	43%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		7	100%

38. I would recommend TSYS School of Computer Science to others as a high quality school.

#	Answer		Response	%
1	Strongly Agree		5	63%
2	Agree		3	38%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
6	N/A		0	0%
	Total		8	100%

39. Given the choice, I would have preferred to have completed the degree face-to-face rather than online.

#	Answer		Response	%
1	Strongly Agree		2	25%
2	Agree		1	13%
3	Neither Agree nor Disagree		3	38%

4	Disagree		1	13%
5	Strongly Disagree		1	13%
6	N/A		0	0%
	Total		8	100%

40. I understand the major issues of information assurance.

#	Answer		Response	%
1	Strongly Agree		2	67%
2	Agree		0	0%
3	Neither Agree nor Disagree		1	33%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		3	100%

41. I am able to identify threats and vulnerabilities to information systems.

#	Answer		Response	%
1	Strongly Agree		2	67%
2	Agree		0	0%
3	Neither Agree nor Disagree		1	33%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		3	100%

42. I am able to identify data, computers and networks exploits.

#	Answer		Response	%
1	Strongly Agree		1	33%

2	Agree		0	0%
3	Neither Agree nor Disagree		1	33%
4	Disagree		1	33%
5	Strongly Disagree		0	0%
	Total		3	100%

43. I am able to identify ways to secure information, computers and networks.

#	Answer		Response	%
1	Strongly Agree		0	0%
2	Agree		1	33%
3	Neither Agree nor Disagree		1	33%
4	Disagree		1	33%
5	Strongly Disagree		0	0%
	Total		3	100%

44. I am able to produce a software solution using an object-oriented programming architecture.

#	Answer		Response	%
1	Strongly Agree		4	80%
2	Agree		1	20%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		5	100%

45. I am able to produce a web-based software solution using high-level development tools.

#	Answer		Response	%
1	Strongly Agree		5	100%
2	Agree		0	0%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		5	100%

46. I am able to produce solutions in a distributed and/or enterprise environment.

#	Answer		Response	%
1	Strongly Agree		4	80%
2	Agree		1	20%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		5	100%

47. I am able to produce simulations using high-level development tools.

#	Answer		Response	%
1	Strongly Agree		0	0%
2	Agree		1	50%
3	Neither Agree nor Disagree		1	50%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		2	100%

48. I understand the role modeling and simulation play in studying systems in business, industry, and government.

#	Answer		Response	%
1	Strongly Agree		0	0%
2	Agree		1	50%
3	Neither Agree nor Disagree		1	50%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		2	100%

49. What has been the most useful CS course for you? Why?

Text Response
CPSC 6118. It brushed me up on my C# coding and was an interesting and difficult course.
Programming Languages, because in the course we learned 6 different languages that all satisfied a different programming language goal. This gave me a broad perspective on programming language design and choice, and improved my problem solving abilities.
Enterprise Web Development and Database Management Systems. This class has helped me at work significantly. I have been able to create database asp.net web applications for the city/county users so that are able maintain special government data in the workplace.
Android programming
Mobile Development for Android. This course help to get me started in mobile development.
Programming Languages - By the end of the semester I was able to easily identify differences and similarities between languages and now can pick up new languages quite easily.
database management because it's my concentration at work

50. What has been the least useful CS course for you? Why?

Text Response

CPSC 5138. I don't think that I will be working on Databases in my future, but you never know.
Software Project Planning and Management, because it has proven to be the least applicable to my job. I feel that the course only skimmed the surface of Project Management and I feel no more prepared for Project Management than I already was prior to the course. I have had previous exposure to Project Management by working closing with project managers at work.
Conputer Architecture. I did enjoy the class. The professor was great and all assignments were clear. However, I had taken a class similar to this one when working on my Bachelor's and it's not something I use very often in my line of work.
None. All were helpful in some way
N/A
Risk Assessment - it was too high level and general.

51. What course topics would you have liked to see offered in the program that were not?

Text Response
An iOS class as an elective.
A course on SOA. This is becoming very big in the IT industry especially in large enterprise organizations.
More web development courses.
More Java development and open source development courses
An iOS development course.
Penetration Testing

52. Overall, has your online experience given you confidence in your knowledge of material covered in the courses in this program? Explain.

Text Response
Definitely. The course options were diverse in that I could get a well rounded education outside of my concentration as well as in it.
Yes. I work in a very large distributed environment working with people all over the world. Therefore, I feel I had the right perspective to be successful in the online environment.
Yes, all hands on assignments conducted online were very helpful In understanding and gave me the ability to

experience things in my own time.
Yes. There was no face to face interaction or course lectures, but the text book chosen for most of the course provided enough learning experience. Also, study guides and courses included some additional references especially the database programming courses had several useful references to Microsoft online books and that was very helpful
Yes, the knowledge I gained has helped to take me to a higher level professionally. The quality of my work has greatly improved due to the coursework I took.
Actually, the confidence came more as a result of actually applying what I learned at CSU in the field but the foundational theory taught at CSU helped a great deal.

53. Why did you apply to this masters program?

Text Response
To further my career as a computer scientist.
To achieve a life long goal of having a Master's Degree and to enable me to be able to teach at the college level.
To further my knowledge in computer science. It is a huge interest of mine and I love learning more and more so they I can apply it in my personal and business life.
I am interested in software development. This program provides enough material for a student to succeed in software development. field
To gain a higher skill set and to possibly work towards a Phd
Interested in changing careers.

54. Has your experience as a graduate student in the CS masters program lived up to your expectations? Explain.

Text Response
Yes it has. I expected it to be difficult and engaging while I learned many new things.
Yes. I was able to learn new things on my own time while still being successful at my full-time job.
Yes . I have truly enjoyed it. There have been so many opportunities! For example, the opportunity to visit Japan and learn about their technology was a huge honor/experience. An experience that I will carry with me forever. The teachers (professors) are all do helpful and truly care. Each professor has been very encouraging.
Yes. I believe the course were very focused to hand on exercise. The teaching faculty is very knowledgeable.

Yes, it was a great learning experience.
Yes - it allowed me to gain an internship in the field, which has opened up many avenues and possibilities.

55. What other questions should have been asked on this survey? What would your answer have been?

Text Response
N/A
Would you have chosen a "Project Option" rather than a "Thesis Option" or "Course Work Option" if one was provided? Yes. I would have enjoyed spending a semester or two working on a capstone type project that solved some novel problem do demonstrate my knowledge from the program.
N/A
Should certifications be included as part of the courses. For example Microsoft cerficaiton for data mining course. Yes

APPENDIX Z

Results of Student Interviews April 29, 2013

Attendance: 18 undergraduates, 2 graduate students

MISC.:

- Teach more mainframe classes
- More morning classes
- Online exams need to be on weekends
- Grades need to be posted earlier
- Don't make assignments at last minute
- Teach NOSQL (MungoDB)
- Teach network security tools; more hands on
- Some faculty need to provide better and prompter feedback
- Don't assume students know math (CPSC2105)
- GIVE MIDTERM GRADES (TAKE SERIOUSLY)
- Arrange job-shadowing
- Record on-campus lectures
- Invite TSYS/AFLAC to talk to classes
- Advising
    - Cover Advising Record / DER
    - IT vs. CS
    - Have class shadowing in orientation

UNDERGRADUATE CURRICULUM:

- Assign big projects; senior projects should be real world tied to local industry
- Require portfolio for all students – starting with CS1 students
- Teach Python in CS1; Java in CS2 (are we teaching a language or concepts?)

GRADUATE CURRICULUM:

- Prepare for SANS certificates
- Use intro videos & weekly videos in online classes
- Less correspondence-type courses

UNDERGRADUATE SURVEYS (2012-2013)
4. How can we best improve the CS program?
provide broad-base to computer science tracks instead of the curriculum specifically gearing the courses towards computer programming. CS majors are not just seeking knowledge in basic program language, they also follow other tracks such as those related to programming networking devices i.e. routers, firewalls, switches, etc.
Provide more real-world technologies/software/theories/etc. that will better prepare students for what they will most likely encounter in the real world.
I would like to use C++ in more classes especially for the games track. I am finding that most employers in the games field require strong knowledge of C++ and I do not feel I have this. Also I have learned that a lot of schools start out with C++ instead of Java. I feel I need this in order to be competitive and if I can master that than any other language is cake. It is really demotivating and frustrating to see people that cheat and/or clearly do not know what they are doing continue to float (be passed) through classes. I do realize that it is necessary to have a certain enrollment in order to keep the department but it makes me feel like my degree means less when I see people like that passing as I and many others legitimately try our hardest. I also feel it is a disservice to them to let them believe they will be successful in the workplace the way they are.
offer classes more than once a semester
More projects for portfolio building purposes. I feel at least CS two should have some small project to complete to demonstrate programming principles.
More Hands on application and group assignments.
Access to appropriate software (for COBOL, Visual Basic courses) in labs that are open longer (late

Friday, as well as weekends)
Possibly offer a few more mobile development classes. The way the world is going now, mobile will be the way to go.
If I could recommend exactly one change to the CS program, it would be a revision of the Senior Project. I've spoken with my friends who graduated Georgia Tech, and their experience differs wildly from mine. At GT, my friends' groups were partnered with real-world business clients to build a tool, database, website, or other software product that will help them in their day-to-day operations. Not only would this offer an impressive resume booster to students, it would improve CSU's connectivity with local business and grow the University's reputation.
Check with students to see if they can understand certain Professor. Nothing personal but there were certain names that a lot of CS students complained about all the time and grades were low because of it.
Set up an order of prerequisites for the classes that use the mainframe environment, so that everyone is at the same general level of expertise for each class. As it is now, in every mainframe class,(JCL, COBOL, Transaction Processing, Assembly) the professor has to spend class time teaching a portion of the class the basics of the environment because their is no base class. I would have been able to learn much more in Assembly except for the delays in teaching a few of the students the mainframe environment. The mainframe isn't like signing onto the web so you don't have prior knowledge of it before taking these classes. You have to be set up to access a mainframe.
Grade more harshly... Collaboration between courses in an effort to replicate team dynamics... More emphasis on handling large data and debugging
Modeling classes for games programming Computer Graphics 2 also would be nice

offer higher level classes more than once a year
Inlude desired certifications for the IT program
Schedule times of the classes and have some course be offered all year.
allow more online for undergrad
Offer more courses on hardware and how it works. CPSC 2105 is great and I learned a lot of information, but if there could be a course that would explore the different (and current) hardware and how they work together. I know this would be close to an engineering subject, but it could be designed so that the course would be directed toward the CS part of the subject.
You can improve the CS program by assistance incoming freshman and direct them in what course they need to take.
keep instructors engaged with students
I would say teach more classes in the style that Obando teaches Object oriented because it pushes you to attempt new and difficult things that get you to learn a lot but doesn't penalize you for failing at what you attempted.

5. What other questions should have been asked on this survey? What would your answer have been?

Text Response
Were the tutors in lab helpful? - While the facilities are good, the tutors themselves sometimes weren't helpful. Especially in the mainframe department. COBOL, JCL, CICS, none of the tutors were very knowledgable in these fields.
Q: "What area(s) of computer science would you like to continue to study? Would you take more

courses in this topic if additional classes were offered?" A: I will continue to pursue my interest in theoretical computer science. I would definitely take an AI 2, Information Theory, Cryptography, or Theory of Computation 2 if it were offered.

About the tutoring lab. There developed an attitude in the tutoring lab a couple of years ago that the tutors resented having to help the students because they didn't have the same help available to them when they were taking those classes. There were a lot of tutors playing games, surfing the web, working on their homework, etc. Many of us stopped going to the lab because we knew they wouldn't help us. The tutors of course would help their fellow tutors because they wanted help from them when they needed help in their classes. I don't know if it is the same atmosphere today. I think it has gotten better.

Does instructors answer their emails in a timely manner? Overall, no. There are a few that are very prompt with a response, but most are very slow and a few that NEVER answer their email. Unfortunately, the last half of the previous sentence is the norm and the first half the exception.

Online learning can only be successful with an advisors like Dr. Whitehead.

Did you do any internships and were they valuable. Yes my internship with NASA / Boeing was the best experience I could have had and introduced me to real world opportunities and probably helped with getting a job offer from Boeing later. I think large companies look for internship positions in candidates I know its true for the engineering world.

GRADUATE SURVEYS (2012-2013)

3. What course topics would you have liked to see offered in the program that were not?

An iOS class as an elective.
A course on SOA. This is becoming very big in the IT industry especially in large enterprise organizations.
More web development courses.
More Java development and open source development courses
An iOS development course.
Penetration Testing

4. Overall, has your online experience given you confidence in your knowledge of material covered in the courses in this program? Explain.

Definitely. The course options were diverse in that I could get a well rounded education outside of my concentration as well as in it.
Yes. I work in a very large distributed environment working with people all over the world. Therefore, I feel I had the right perspective to be successful in the online environment.
Yes, all hands on assignments conducted online were very helpful In understanding and gave me the ability to experience things in my own time.
Yes. There was no face to face interaction or course lectures, but the text book chosen for most of the course provided enough learning experience. Also, study guides and courses included some additional references especially the database programming courses had several useful references to Microsoft online books and that was very helpful
Yes, the knowledge I gained has helped to take me to a higher level professionally. The quality of my work has greatly improved due to the coursework I took.
Actually, the confidence came more as a result of actually applying what I learned at CSU in the field but the foundational theory taught at CSU helped a great deal.

6. Has your experience as a graduate student in the CS masters program lived up to your expectations? Explain.

Yes it has. I expected it to be difficult and engaging while I learned many new things.
Yes. I was able to learn new things on my own time while still being successful at my full-time job.
Yes . I have truly enjoyed it. There have been so many opportunities! For example, the opportunity to visit Japan and learn about their technology was a huge honor/experience. An experience that I will carry with me forever. The teachers (professors) are all do helpful and truly care. Each professor has been very encouraging.
Yes. I believe the course were very focused to hand on exercise. The teaching faculty is very knowledgeable.
Yes, it was a great learning experience.
Yes - it allowed me to gain an internship in the field, which has opened up many avenues and possibilities.