THE UNIVERSITY OF MEMPHIS®

Computer Science

CS Newsletter
Fall 2006

Department Highlights

From the Chair's Desk

The CS Department is completing another exciting and successful semester. Two new faculty members (Drs. Kumar and Wu) have hit the ground running! The Applied CS Master's program has taken off with a good set of students, and the internship program has been solidified with strong cooperation from local industry (A typical comment, "We've learned more from your student than he did from us!"). The BS program accreditation process is going well with a successful visit from the ABET team. Our outreach activities have continued through Tri-P-LETS and CFIA, and the Departmental Learning Center has become popular among our students. The student ACM chapter has continued to participate in the programming challenge and other activities.

How can we serve you better?

Dr. Sajjan Shiva

Center for Information Assurance

On June 6, 2006, the National Security Agency and the U.S. Department of Homeland Security have designated the University of Memphis as a National Center of Academic Excellence in Information Assurance Education (CAE-IAE) for the academic years 2006-2009. The formal award was presented during a ceremony at the 10th annual conference of the Colloquium for Information Systems Security Education (pictured below). Dr. Dipankar Dasgupta, Professor of Computer Science is the founder and current Director of the center. He has been working for the last five years to develop a multidisciplinary IA program that brings together Computer Science, Management Information Systems, Law and Criminal Justice. With such a broad consortium of expertise, the Center seeks to addess a wide range of Information security issues, providing innovative solutions. The center regularly hosts guest lectures, seminars, and IA awareness workshops for students and professionals in the Mid-South region. To learn more about Cyber Security challenges, experiences, and opportunities, visit the CFIA website at cfia.memphis.edu.

Recent CFIA Achievements/Activities

- NSA/DHS designated IA Center of Excellence
- CISCO Equipment Donation
- IA Graduate Certificate Program
- Technology Access Fund for Cyber Security ($12K)
- Workshop on IA Educational Opportunities
- DHS Competititve Training Grant ($4M)
- CISCO Network Security Boot Camp

National Center of Academic Excellence in Information Assurance Education (CAE-IAE) Designation Ceremony.
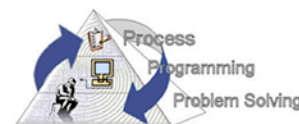
Pictured Left to Right: Richard Schaeffer, Director of Information Assurance, NSA. Ralph Faudree, Provost, University of Memphis. Drs. D. Dasgupta and J. Simon, IA Center Directors. Andy Purdy, Acting Director, National Cyber Security Division, DHS.

Applied Computer Science

The New Applied CS graduate program is in full swing. This flexible program currently has over students in diverse specialty areas such as Multimedia Arts, Information Assurance, and Cognitive science. For more information, visit the CS Department website at www.cs.memphis.edu/degrees

CS Social

The 3rd annual CS Social, held at the University Center on Halloween Friday, was a great success. Over 100 students, alumni, faculty, and emeriti enjoyed comedies, great conversations on the history of computing, prizes for best student papers, and potluck dishes provided by attendees. We kissed the old building goodbye in fashion, and plan to make it even greater next year at a new venue.

Tri-P-LETS

The **Tri-P-LETS** (Three P Learning Environment for Teachers and Students) project has begun its third year of enhancing the computer programming curriculum at local high schools. The Tri-P-LETS project, funded by a $1.6 million grant from the Department of Graduate Education at the National Science Foundation, is a partnership between the school districts in the Memphis metropolitan area and the University of Memphis.

Faculty Kudos

Dr. Robert Kozma has received the National Academies of Sciences & Engineering prestigious NRC Senior Fellowship Award; In addition, he recently received an NSF grant on "Brain Network Dynamics." Dr. Kozma acted as Chair of Finances of IEEE World Congress on Computational Intelligence WCCI'06 in Vancouver, Canada having about 1400 attendees and budget of approximately $0.8 million. He has been elected Program Co-Chair at the next World Congress WCCI'08 held in Hong Kong, which is expected to draw about 3,000 attendees world-wide.

Dr. Kozma has also been elected Chair of SIGCOM – Special Interest Groups Committee of International Neural Network Society. In a joint work with Dr. A. Buczak (Sarnoff, Princeton, NJ), Dr. Kozma received the Best Paper Award at the International Data Mining Conference DMIN'06 in Las Vegas. Dr. Kozma gave plenary/invited talks at Chaos and Complex Systems Conference in Istanbul, Turkey, in May; at a Robotics Workshop at Artificial Life Conference, Bloomington, IN, in June; WCCI'06 in Vancouver, Canada, July; at NSF Large-Scale Random Graphs and Networks Workshop, Budapest, Hungary, August; Models of Goal-Oriented Behavior Conference, Arlington, TX, in November, among others.

Dr Kozma plenary talk at Chaos, Complex System Conference in Istanbul, Turkey

CS Social Festivities

Dr. Max Garzon is organizing the 13th International Conference on DNA Computing which will be held in Memphis during June 4-8, 2007. This is the premiere conference in the field and is expected to attract over 150 attendees from all over the world. Details on speakers and online submissions can be found at dna13.memphis.edu.

In October, Dr. Garzon also gave an annual short-course in Biomolecular Nanotechnology for the European Ph.D. School in Computer Science at The University Rovira i Virgili in Tarragona, Spain.

Dr. Linda Sherrell was designated as a Systems Testing Research Fellow of the FedEx Institute for Technology. Her two grant proposals - "Improving the Benefits of Testing throughout the Software Development Life Cycle" and "A Process for Risk-based Testing" - have been funded from November 2007 through Jun 2007 at $8000 and $6000, respectively.

Dr. Lan Wang started a 3-year NSF project entitled "CRI: Building the Next-Generation Global Routing Monitoring System" in August 2006. In addition, she received funding from the System Testing Excellence Program at the FedEx Institute of Technology for a proposal written with the assistance of our PhD student Jake Qualls. The STEP project is entitled "NITS: Network Infrastructure Testing Suite."

Dr. Wang also received a Faculty Research Grant from the University of Memphis. For more information, visit www.cs.memphis.edu/~lanwang

Dr. Vasile Rus, in conjunction with researchers from the Department of Psychology and the Institute for Intelligent Systems, is currently working to develop deeper Natural Language Processing approaches for evaluating student dialog turns during student-computer interactions. The project, funded by NSF, focuses on examining the effectiveness of using animated pedagogical agents to foster middle school and college students' understanding of complex and challenging scientific topics, such as the human circulatory system.

CCRG Dr. Stan Franklin and the Cognitive Computing Research Group have produced an online tutorial entitled "How Minds Work: A Cognitive Theory of Everything." The tutorial can be found at at ccrg.cs.memphis.edu/tutorial, and comments are invited.

In addition Dr. Franklin presented the opening keynote address entitled "A Cognitive Theory of Everything: The LIDA Technology as an Artificial General Intelligence" to the AGIRI Workshop 2006: Transitioning from Narrow AI to Artificial General Intelligence, Bethesda, MD, May 20-21.

Dr. Franklin also delivered a featured foundational address entitled Cognitive Computing for Medical Informatics: An Ontology and Applications to AMIA 2006, the American Medical Informatics Association, in Washington DC, November 13th.

Dr. Dipankar Dasgupta organized a special track on artificial immune systems at Genetic and Evolutionary Computation Conference (GECCO) in July 2006. In October of 2006, he delivered a plenary talk on "Computation Intelligence in Cyber security" at the IEEE conferences on Computational Intelligence for Homeland Security and Personal Safety (CIHSPS) at Arlington, VA. In November of 2006, he gave an invited talk on "Cyber Security Education, Training & Research at the University of Memphis" at the Tennessee Homeland Security Consortium held at Vanderbilt University in Nashville.

CS Students Shine!

Tri-P-LETS Fellows Enhance High-School Computer Science

In June, new fellows Joe Burleson, Top Malasri, Ahmed Owian, Jake Qualls, Clifton Russ, Ebony Smith, Joseph Vannucci, and Kevin Kemp joined returning fellows Sarah Bowen, LaTroy Francisco, and Quynh Tran for summer workshops which gave fellows instructions in using AgentSheets to teach introductory programming concepts and the use of Lego Robots to supplement object-oriented programming classes in Java.

Tri-P-LETS is funded by the National Science Foundation NSF GK-12 grant "Computer Science Resources for Memphis Area High Schools" - DGE-0338324.

Comments from Bob Vawter, Programming teacher at Collierville High School

More girls: I've noticed this year that my normally all-boys classes began to have more girls involved, and the girls are doing a good job with programming skills and knowledge.

More interest in programming and programming challenge: I've already been told by the Collierville High administration that the Basic Programming class for next year has grown by 1, so I'll have 3 basic classes next year, and my advanced class has more people signed up as well.

Much more help for the teacher: I really enjoyed having the Fellow help students on a one to one basis, and for their knowledge about computer science. I have learned so much from the Fellows during the past two years that I feel like I've had a refresher class in programming.
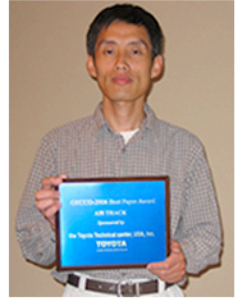
Very good resource for students: Students can usually ask a question about programming or computer science in general and get a fast response from our Fellow.

Helped Collierville Computer Science students the most. My students are the real winners with the NSF grant! The students not only get my teaching experience, but they also get the resources and experience in computer science from the Fellows.

UM among GECCO Best Papers

A recent paper by Zhou Ji and Dipankar Dasgupta, "Applicability Issues of the Real-Valued Negative Selection Algorithms", was among the best paper winners at GECCO 2006.

GECCO, the International Genetic and Evolutionary Computation Conference, is one of the premier forums for high-quality work in the field of genetic and evolutionary computation. The 2006 list of Best Paper winners can be found at www.sigevo.org/gecco-2006/best-papers.html

Graduate Certificate Program in Information Assurance (GCIA)

This certificate program highlights important aspects of information security and assurance technologies. The program is administered by the Computer Science Department, though some courses are taught by other departments and colleges, and any graduate student meeting admission requirements will be eligible to join the certificate program.

In particular, students currently admitted to a graduate program at the U of M may join this certificate program or it may also be pursued as a non-degree student. More information can be found at http://www.cs.memphis.edu/degrees/

Cyber Security Lab

The Cyber Security Lab (Located in FIT 324, and pictured left) with Racks of CISCO equipment: ASA, MARS, IDS, Servers, Routers, Switches, etc. Students perform various experiments using this equipment in their course work.

NetLab

Two new members joined the Networking Research Lab (NetLab). Dr. Dung Dinh Luong, a postdoctoral fellow from Hungary, joined the NSF CRI project, and Charles Ellis, an undergraduate student, joined the STEP NITS project.

Kriangsiri Malasri and Dr. Lan Wang (pictured left) have been developing security mechanisms for medical wireless sensor networks. Kriangsiri Malasri is writing embedded programs to run on wireless sensors manufactured by Moteiv (the sensor is attached to the back of his laptop).

Summer 2006 Graduates

Hui Chen, PhD
Dissertation:
Cache Access and Replacement for Wireless Data Access

Advisor:
Dr. Yang Xiao

Zhou Ji, PhD
Dissertation:
Negative Selection Algorithms: from the Thymus to V-detector

Advisor:
Dr. Dipankar Dasgupta

Aregahegn Negatu, PhD
Dissertation:
Cognitively Inspired Decision Making for Software Agents:Integrated Mechanismsms for Action Selection, Expectation, Automatization And Non-Routine Problem Solving

Advisor:
Dr. Stan Franklin

Andrew Olney, PhD
Dissertation:
Unsupervised Induction of Latent Semantic Grammars with Application to Parsing

Advisor:
Dr. Lee McCauley

MS Graduates

Deepali Abhyankar, Robert Scott Brown, Sandhya Chennuru, Satish Kumar Chitupolu, Bharat Kalyan Doddala, Sai Kolli, Madhavi Puppala, Malleswari Saranu, Riaz Uddin, Rajasekaran Venkatachalam, Guoqing Wei

CS Roundup

STEP

The System Testing Excellence Program sponsored by the FedEx Institute of Technology brings the talents of CS, MIS and EECE faculty together to support and enhance software and system testing activities and capabilities in industry. Thirteen research proposals (including four from CS by Drs. Sherrell, Wang and Rus) as applied to problems at FedEx Corporation have been funded by STEP. The first international workshop on Advances and innovations in System Testing to be held at UM, May 6-8, 2007 is being planned with Dr. Shiva as general chair and Dr. Rus as program chair.

CS Colloquium

This semester's CS Colloquiums run from late September to early December. We are glad to have outstanding academic researchers like Dr. Sujeet Shenoi (University of Tulsa), Dr. Pavel Sumazin (Portland State University), Dr. Li Yang (UT-Chattanooga) and Dr. Hung-Chi Su (Arkansas State University). Dr. Congjun Yang from Autozone also gave a talk about CS from the industrial perspective. This semester we also initiated an after-talk session where students gathered to interact with the speakers. The after-talk sessions raise various issues, and the speakers share their personal experiences and viewpoints about their careers. We have had about 35-40 students, faculty members and others attend the colloquium every Friday. The after-talk sessions have also attracted an average of 20 students.

For Spring 2007, we have invited Dr. Dougles Blank (Byrn Mawr College) for a talk in early Feburary, and we are making an effort to invite other speakers, in addition to talks by our faculty members. Please refer to the CS web site for the latest information."

CS Internships

The Department has doubled efforts to set up a full internship program and is happy to announce that it is now able to provide an opportunity for any student that would like one. Internships provide real-life experiences in an Indsutrial setting that usually prove highly valuable in many ways. Full details on requirements and procedures can be found at www.cs.memphis.edu/internships, or by contacting Dr. Max Garzon or Julia Campbell.

CS Social - October 27, 2006

Great personalities in the history of computing inspired some model libations by the departmental troupe, the incredulous linkers.

Classical Indian Dance

Programming Competition

A CS Department Programming team recently finished in 9th place in the programming competition held during the CCSC conference in Nashville, TN. Contact Dr. Vinhthuy Phan for more information.

Recent Graduates and their Employers

Mykola Aleshchanov - *Alexander Open Systems*
Sankalp Balanchandran - *Amdocs Inc.*
Deon Garrett - *AutoZone*
Ben Humphreys - *Autozone*
Zhou Ji - *Autozone*
Pavan Karnam - *Microsoft*

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