

From the Chairman



This spring marks the centennial anniversary of the University of Memphis, so I thought it would be appropriate to reflect on the Computer Science Department's history and progress. Over the past ten years, I have seen us develop from a division in the Department of Mathematical Sciences

into an independent department. We are now flourishing with 15 full-time faculty members, nearly 50 doctoral students, 50 master's students, and 170 undergraduates. Our overall enrollment continues to rise. Despite the University's budget cuts in recent years, we have been able to hire two new tenure-track faculty members.

The Department has made a name for itself in research, with over \$8M in current external funding and faculty members who are regularly honored by the University and the College of Arts and Sciences for their excellence in research. To encourage scholarship among our students, we are the only Department on campus to hold its own annual Research Day allowing students to present and share the results of their work.

Even with these research accomplishments, we remain focused on the goal of educating the next generation of computer scientists. Computer science continues to be a very attractive career choice, appearing on the Princeton Review's list of top majors and mint.com's list of best-paying majors.

I am very proud of our faculty, staff, students, and alumni for their accomplishments. Here's to another ten years!

Dr. Sajjan Shiva

Faculty Achievements

Dr. Dipankar Dasgupta received the Willard R. Sparks Eminent Faculty Award, the highest honor bestowed upon a University of Memphis faculty member. Dr. Dasgupta received the award at the Faculty Convocation on April 20, where he also delivered the keynote address.

Dr. Dasgupta is pictured below (right) during the academic procession preceding the convocation, along with fellow award recipient **Mr. Kriangsiri Malasri**.



Department News

CS Department Ranked 55th Nationally in R&D Expenditures

A recent survey placed the University of Memphis 55th in the United States in terms of federally-funded R&D expenditures in computer science. As of FY2009, the U of M had nearly \$7.5 million in computer science R&D expenditures, placing us in the company of schools such as the California Institute of Technology, Naval Postgraduate School, Rutgers, and Rice.

Fourth Annual Computational Thinking Summer Camp for Girls

The Department will hold its fourth annual **Computational Thinking Summer Camp for Girls** from July 9-13. This camp gives female 8th-11th graders from the Memphis area a chance to experience a taste of computer science through hands-on activities and guest lectures. One of the highlights of the camp is getting hands-on experience with AgentSheets, a game authoring and simulation tool that teaches basic concepts of computer programming.

For more information and to register, please visit www.cs.memphis.edu/summercamp

U of M to Host Testing Workshop



From July 24-25 this summer, the University of Memphis will host the **Sixth International Research Workshop on Advances and Innovations in Systems Testing**. This annual workshop aims to bring together the very best research and industry practices on the subject of systems testing. Submissions are invited on all theoretical and practical aspects of testing. **Dr. Sajjan Shiva** is the workshop's general chair.

The workshop is organized by the Systems Testing Excellence Program (STEP) at the University of Memphis. STEP is an interdisciplinary program under the auspices of the Departments of Management Information Systems, Computer Science, and Computer Engineering, and housed in the FedEx Institute of Technology. For details, see the STEP website at step.memphis.edu

2012 Programming Challenge



The Department held its annual **Programming Challenge** on Saturday, April 28. This event invites high-school students from Tennessee, Arkansas, and Mississippi to visit the U of M campus for a day of programming workshops and contests. The themes of this year's event were developing mobile applications (organized by **Dr. Vinhthuy Phan**) and programming Lego robots with Java (organized by **Mr. Kriangsiri Malasri**).

In the mobile apps category, **Lee Downen** from Memphis University School took 1st place, while **Darriion Cation, Loki Gardner, L.R. Warren, and Hunter Young** from Houston High School received 2nd place. In the robotics category, **Jake Haley and Carter Smith** from Little Rock Central High School took top honors. **Jacob Oldham** and **Ayush Saraswat**, also of Little Rock Central, placed second.

In all, teams from eight area schools were present: Bartlett High School, Bolton High School, Central High School (Little Rock, AR), Elmore Park Middle School, Houston High School, John Overton High School (Nashville, TN), Kingsbury High School, and Memphis University School.

The LIDA architecture being developed by **Dr. Stan Franklin's** Cognitive Computing Research Group has been the subject of journal papers in the *International Journal of Machine Consciousness* and the inaugural issue of *Biologically Inspired Cognitive Architectures*; a book chapter in *Theoretical Foundations of Artificial General Intelligence*; and a conference paper at the 11th International Conference on Cognitive Modeling in Berlin.

Dr. Max Garzon has been invited to deliver a plenary address at the first International Conference on the Theory and Practice of Natural Computing. More information can be found at grammars.grlmc.com/tpnc2012/

Dr. Santosh Kumar gave a keynote speech at the ACM Mobile Sensing Workshop at the ACM/IEEE IPSN Conference, an invited lecture at the National Institutes of Health (NIH) as part of a mobile health lecture series, and invited talks at the NSF Workshop on Measuring Population Health, Annual Meeting of the Society for Behavioral Medicine, Georgia Tech, and Dartmouth College. Dr. Kumar also received the College of Arts and Sciences Distinguished Research Award (CASDRA).

Mr. Kriangsiri Malasri was selected as a recipient of the 2012 Thomas W. Briggs Foundation Excellence in Teaching Award, the university's premier award for commitment to undergraduate education. Mr. Malasri was also named a finalist for the 2012 Alumni Association Distinguished Advising Award.

Dr. Vasile Rus is a co-Principal Investigator on a newly funded STEM Grand Challenge grant from the Office of Naval Research (\$1.5M for 3 years). Four teams were selected as STEM Grand Challenge winners: the University of Memphis, Arizona State University, the University of Massachusetts, and Raytheon BBN Technologies. Each team will be developing intelligent tutoring technology that will be ultimately used to enhance the STEM skills of students, Sailors, and Marines.

In March, Dr. Rus also received the Best Paper award at the 13th International Conference on Computational Linguistics (CICLing 2012) for his work on "Automated Detection of Local Coherence in Short Argumentative Essays Based on Centering Theory."

Student Highlights

CS Research Day 2012



The eighth annual CS Research Day, held on March 16 at the University Center, allowed students to present and share their research with faculty and other students. This year we had submissions in three categories: oral presentations, short "lightning talks," and posters. The winners in each category were:

Oral Presentations:

1st Place: Md Mahbubur Rahman, "mConverse: Inferring Conversation Episodes from Respiratory Measurements Collected in the Field" (Advisor: Dr. Santosh Kumar)

2nd Place: Stephen Ash, "Automatic Check Image Quality Testing and Feature Extraction in the Banking Industry" (Advisor: Dr. Max H. Garzon)

Lightning Talks:

1st Place: Danilo Rairan, "Period Approximation for Reconstruction of (Quasi-) Periodic Signals" (Advisor: Dr. Max H. Garzon)

2nd Place: Riya Saluja, "Determination of the Optimal Value of Non-linear Control Based Dynamic Braking Resistor to Improve the Transient Stability of Smart Grid System" (Advisor: Dr. Mohd. Hasan Ali)

Posters:

1st Place: Ramya Dharam, "A Framework for Development of Runtime Monitors" (Advisor: Dr. Sajjan Shiva)

2nd Place: Chris B. Simmons, "An Issue Resolution System for Cyber Attack Classification and Management" (Advisor: Dr. Sajjan Shiva)

Thanks to **Dr. Lan Wang** for organizing this year's event, and to the panels of faculty judges: **Dr. Max H. Garzon**, **Dr. Scott Fleming**, and **Dr. King-Ip Lin** (presentations); **Dr. Dipankar Dasgupta**, **Dr. Karen Hovsepian**, and **Dr. Santosh Kumar** (lightning talks); and **Dr. Qishi Wu**, **Dr. Timothy Hnat**, and **Dr. Vinhthuy Phan** (posters). Congratulations to the winners and to all participants!

ACM Student Chapter News

This semester, the ACM student chapter has been meeting regularly to work on developing a mobile app for University of Memphis students. Once completed, the app will allow students to access location-sensitive information on campus events and class schedules.

Interested in getting involved with the ACM student chapter? Contact President Craig Herndon (cthrndon@memphis.edu) or faculty advisor Dr. Vinhthuy Phan (vphan@memphis.edu).



Student Achievements



Graduate student **Nobal Niraula** presented "Automated Detection of Local Coherence in Short Argumentative Essays Based on Centering Theory" (joint work with primary author and advisor **Dr. Vasile Rus**) at the 13th International

Conference on Computational Linguistics (CICLing 2012) held this March in New Delhi, India. The work received the Best Paper award at the conference, one of the most prestigious in the field of text processing. This summer, Nobal will be interning at AT&T Research Labs working under Dr. Amanda Stent and Dr. Srinivas Bangalore.

Graduate students **Mustafa Hajeer** and **Alka Singh** won 2nd place for their poster presentation at the university's 24th annual Student Research Forum on April 2. Their project on "Finding Online Network Communities through a Genetic Clustering Algorithm" was advised by **Dr. Dipankar Dasgupta**. Congratulations!

Spring 2012 Graduates

Ph.D.

Denise Ferebee (Advisor: Dr. Dipankar Dasgupta)

Sujoy Roy (Advisors: Dr. Ramin Homayouni and Dr. Vinhthuy Phan)

M.S.

Kwasi Amoah
Murali Ankaraju
Harish K. Chaziyotil
Bharath R. Cherukula
Niklesh K. R. Katta
Praveen Kolla
Beata Kubiak
Srinivas Kukunoor
Vineela Malladi
Ernest A. McCracken
Soujanya Medapati
Somnath Mitra
Ashutosh Patil
Siddhartha Poreddy
Venkata Pothireddy
Abhinav Sharma
Kuldeep Sharma
Madhavi S. Sunkavalli

M.S. Applied Computer Science

Silas K. Njoroge
Renee Payne

B.S.

Oksana Koziaryk, *summa cum laude*
David Ngo, *summa cum laude*
Joshua Beers
Antoine Richardson
Hari Krishna Thapa

CS Colloquium

This semester's CS Colloquium series included talks from distinguished visiting researchers and industry professionals as well as University of Memphis faculty. For abstracts and speaker bios, see www.cs.memphis.edu/colloquium

Dr. Thomas Serre, Department of Cognitive, Linguistic, and Psychological Science, Brown University
"Bottom-up and Top-down Processing in Visual Perception"

Dr. King-Ip Lin, Department of Computer Science, University of Memphis
"Using a Feedback System to Enhance Chart Note Quality in Electronic Health Records"

Dr. Jim Rehg, School of Interactive Computing, College of Computing, Georgia Tech
"Behavior Imaging and the Study of Autism"

Dr. Gaurav Sharma, Department of Electrical and Computer Engineering / Department of Biostatistics and Computational Biology, University of Rochester
"Decoding RNA Secondary Structure: An Iterative Belief Propagation Turbo-Decoding Approach"

Megan Bailey, BrightVine Solutions
"Clustering Source Code Files to Predict Change Propagation during Software Maintenance"

Dr. Andrian Marcus, Department of Computer Science, Wayne State University
"Text Retrieval Support for Concept Location in Software"

Dr. Sajjan Shiva, Department of Computer Science, University of Memphis
"A Holistic Approach to Cyber Security"

Dr. Bonny Banerjee, Department of Electrical and Computer Engineering / Institute for Intelligent Systems, University of Memphis
"Seamless Integration of Perception and Cognition in the Same Architecture"

Dr. Janyce Wiebe, Department of Computer Science, University of Pittsburgh
"Subjectivity and Sentiment Analysis: From Words to Discourse"

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