

From the Chairman



This is an exciting time to be involved with computer science! Enrollment in our academic programs has gone up for the second year in a row. This is also reflected in national trends, indicating a potential resurgence of interest in the field. Even in the current economic climate, the computer science job market

looks promising, with 6-10 jobs per graduate expected in the next few years to come.

Computer science education received a welcome boost in recognition this year with Congress's declaration of December 6-12 as Computer Science Education Week, acknowledging that computing plays a critical role in our daily lives and that it can offer many rewarding job opportunities for students. Our Department celebrated this week by offering an open house and having several of our faculty give outreach presentations at local high schools. Our outreach efforts this year also included the Computational Thinking Summer Camp for Girls offered in July, which we plan to make an annual event.

Even with the increased emphasis on outreach, the Department has continued to strive for excellence in research, as evidenced by the numerous accolades listed in this newsletter.

I would like to personally extend a welcome to the people who have joined the Department this semester: Dr. Henry Rodriguez, Visiting Associate Professor; Dr. Jiang Li, Visiting Assistant Professor; Dr. Andrew Rajj and Dr. Sankardas Roy, Postdoctoral Fellows; and Ms. Lenetha Hunt, Secretary.

Happy holidays to all!

Dr. Sajjan Shiva

Summer Camp for Girls

Although female representation in computer science is better than it has been in the past, the field is still overwhelmingly male. To help get girls interested in computer science and possibly pursuing it as a major in college, the Department held its first annual **Computational Thinking Summer Camp for Girls** from July 20-24. Fourteen middle- and high-school girls from throughout the Memphis area attended the camp.

Camp attendees were introduced to some of the fundamental ideas behind computational thinking, such as using logic to solve problems and looking for useful patterns in data. Throughout the camp, participants attended presentations by Computer Science faculty about their research projects, as well as career opportunities in the field. The girls even got to create their own interactive games using the AgentSheets software, a modeling and simulation tool.

The camp was featured in a front-page story in the *Daily Helmsman*, the U of M's student-run newspaper. **Dr. Linda Sherrell** and **Mr. Kriangsiri Malasri** organized the camp and plan to offer it again in July 2010.



Department News

U of M Awarded Major NSF Grant

The National Science Foundation has awarded a University of Memphis-led research team \$2.7 million for the **FieldStream Project**, a study of data-management issues related to wearable wireless sensor systems that collect physiological and behavioral measurements for scientific studies from people in their natural environments.

This is the largest award made by NSF's Network Science and Engineering (NetSE) Program this year and involves an interdisciplinary team of nine researchers from six universities. Led by U of M Computer Science professor **Dr. Santosh Kumar**, the project involves computer scientists, electrical and computer engineering experts, and psychologists from the University of Memphis, Carnegie Mellon University, the University of Massachusetts, Georgia Tech, UCLA, and the University of Minnesota.

The team will develop new methods to obtain models of physiological and behavioral phenomena specific to individuals. These accurate models will boost the ability of wearable sensors to provide stringent data quality and to enable accurate detection of behavioral events, such as automatically detecting imminent panic attacks or addiction relapse, in real-time, to facilitate timely intervention. Additionally, the team will develop and apply prudent sampling methods and optimization of wireless communication to extend the operating life of such sensor systems by a factor of more than 50, thus enabling these systems to last several months using self-contained coin cell batteries.

More information is available on the project page at www.fieldstream.org

Computer Science Education Week



This year, the United States Congress declared December 6-12 as **Computer Science Education Week**. To celebrate this event, the Department hosted an Open House event on Thursday, December 10. The event was free and open to the public. Attendees got the chance to tour some of our classroom facilities and research labs.

Several Computer Science faculty also visited various Memphis-area high schools throughout the week to give presentations encouraging students to consider computer science as a major or minor. The schools visited included Bolton, Collierville, Lausanne, Overton, and White Station.

New CS Faculty Members



The Department welcomed two new visiting faculty members this fall.

Dr. Henry Rodriguez, Visiting Associate Professor, joins us with a rich variety of both academic and industrial experience throughout the world. He has served as a research engineer or professor at the Universidad Bellosa Chacin (Venezuela), Netgotium in Philadelphia, Drexel University, the Royal Institute of Technology (Sweden), the University of Lleida (Spain), and the University of Tsukuba (Japan). His research interests include using computers to support collaborative work and Web-based author communication.

Dr. Jiang Li, Visiting Assistant Professor, joins us as a fresh Ph.D. from SUNY Buffalo. His research interests include biometrics, image processing and analysis, pattern recognition, and intelligent systems.

CfIA Hosts Cyber Security Expo



The Center for Information Assurance hosted the second annual **Cyber Security Expo** on October 15 at the FedEx Institute of Technology. The focus was on global cyber security threats and issues.

Participants were treated to an excellent lineup of speakers. The keynote address was delivered by **Denise D. Wood**, Corporate Vice President and Chief Information Officer of FedEx Corp. Throughout the day, presentations were made by speakers from organizations including the FBI, Symantec, Department of Justice, National Cyber Security Division, National Center for Missing and Exploited Children, and CISCO Systems. These talks covered topics ranging from identity theft to emerging Internet threats to online pharmaceutical fraud.

Faculty Achievements

Dr. Santosh Kumar received a one-year multi-university grant from the National Institutes of Health for his "Personal Stress Inferencing" project. The project supplements Dr. Kumar's existing AutoSense work and involves seven faculty members from five universities (CMU, Pittsburgh, Ohio State, Minnesota, and Memphis). Dr. Kumar was also invited to speak at the NSF workshop on "Future Directions in Networked Sensing Systems: Fundamentals and Applications," held in November.

Dr. Vinhthuy Phan received a grant renewal for \$17,000 from the University of Memphis School of Public Health, Center for Alternatives to Animal Testing (CAAT). The grant, which is a collaboration with Dr. Thomas R. Sutter from the Department of Biology, aims to develop a software package and experiments to explore its application to microarray analysis for comparisons and extrapolations relevant to toxicology.

Dr. Lan Wang attended the NSF Future Internet Summit in October and served on an NSF panel. She became a founding member of CLION (Center for Large-Scale Integrated Optimization and Networks), an interdisciplinary research center led by Drs. Robert Kozma and Paul Werbos with the support of FedEx and the Air Force Research Lab. CLION aims to become a center of excellence in large-scale networks and advanced intelligent optimization.

Dr. Qishi Wu is the recipient of this year's Early Career Research Award from the University of Memphis College of Arts and Sciences. Dr. Wu is active in a wide range of research areas, including high-performance networking, high-performance transport protocols, distributed computing and remote visualization, wireless sensor networks, and computer security. He has been funded by the Department of Energy and NSF, and he has published extensively in top-tier conferences and journals.

Student Highlights

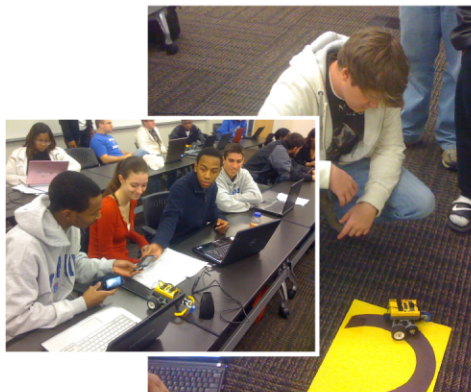
Applied CS Projects

Applied Computer Science (APCS) students completed several projects to help communities offer computer services. One of them is linked to GIS servers to assist Memphis in visualizing and organizing resources for city planning and emergencies. A second project is a service to priority queue and dispatch tow trucks to accident scenes. The APCS major is open to students from an interdisciplinary background who want to focus on a specialty of computer applications.

NetLab Activities

Ernest McCracken gave a talk on our NetViews Internet Visualization software at the NANOG (North American Network Operators' Group) 47th meeting in October. NetLab members also published three papers in 2009 and have a paper to appear in 2010. **Yaoqing Liu** and **Dr. Lan Wang's** paper "On the Aggregatability of Router Forwarding Tables" has been accepted by INFOCOM 2010. This is joint work with Xin Zhao and Beichuan Zhang at the University of Arizona. Dr. Zhang visited our lab and gave a CS colloquium talk on October 30.

Playing with Legos... in College



This semester, students in **Mr. Kriangsiri Malasri's** COMP 1800 (Problem Solving with Computers) class got the opportunity to defy the age limits suggested on Lego sets. As part of the class, students wrote programs in Java to run on Lego Mindstorms robots, using the leJOS API. These programs allowed the robots to perform activities such as moving around, avoiding obstacles by using sensor readings, and even playing music. You're never too old to play with Legos!

Yunyue Lin and **Xiaoshan Cai** received the Best Paper award at the 4th International Symposium on Innovation and Real-time Applications of Distributed Sensor Networks held in Hangzhou, China, from May 18-21. Yunyue, a Ph.D. student, and Xiaoshan, an undergraduate, are co-authors of the paper "Deploying Multiple Base Stations for Lifetime Maximization in Wireless Sensor Networks," with Yunyue being the primary author. The work was performed under **Dr. Qishi Wu**.

Graduate students **Somnath Mitra** and **Santanu Guha** demonstrated an initial version of the AutoWitness system at the demo session of ACM SenSys, held at UC Berkeley from November 4-6. Under the direction of **Dr. Santosh Kumar**, AutoWitness aims to build a scalable, affordable wireless sensor network system that can be used for large-scale tracking of assets such as lost or stolen objects.

ACM Activities

This semester the ACM student chapter had **Chris Przybyszewski** come speak to students about iPhone software development and mobile development in general. Chris is the founder of Resolute Games and Apps, a local company specializing in software for mobile phones.

The ACM chapter was also awarded a STEM (Science, Technology, Engineering, Mathematics) mini-grant to get more students interested in STEM related fields.

Next semester the ACM plans on several events, including an Xbox 360 social and a workshop/lecture series for students that will highlight relevant topics like specific software tools or programming languages.

Interested in the ACM? Please contact **Ernest McCracken**, Student Chapter President (emccrackn@memphis.edu) or **Dr. Vinhthuy Phan**, Faculty Advisor (vphan@memphis.edu).

CS Social 2009

This year's **CS Social** was held on Halloween Friday, Oct. 30, at the U of M's Panhellenic Building. Over 70 attendees defied rainy weather to enjoy one of the best CS Socials ever on the theme of "Truth, Lies, and Cybergames." Performance and door prizes were given to participants in a variety of shows and computer games. For example, over twenty students participated in the ghosting competition, a Private Space Invasion (PSI) game, where winners beat the world record for duration and comedy (over 60 s). A number of students and faculty also showed off their musical talents, including a booming rendition of "Besame Mucho" by Dr. Henry Rodriguez.

You can still enjoy some of these moments from a short video produced from the event, available by request for personal use only from mgarzon@memphis.edu. It is not too early to think about what you will do at next year's Social!

Fall 2009 Graduates

M.S.

Hema B. Gudiseva
Yunyue Lin
Min Meng
Naga S. V. R. Nagisetty
Hai Nguyen
Ahmed I. Owian
Nagarjun Reddipalle
Mahesh B. Satharla
Pavan K. Vejandla

M.S. Applied Computer Science

Zach Cordell (Software Engineering)
Abhishek Logishetty (Software Engineering)
Ranjeet S. Thakur

B.S.

Wesley A. Field
Michael A. Klodzinski
Ernest A. McCracken (Summer 2009)
Steven M. Walkley

CS Colloquium

The CS Colloquium this semester included talks from distinguished visiting researchers as well as members of industry and University of Memphis faculty.

Andrew Raij, University of Memphis
"Facilitating Reflection on Interpersonal Skills through Interactions with Virtual Humans"

Yuri Quintana, St. Jude Children's Research Hospital
"Cure4Kids - A Global Online Education and Informatics Network"

Paul Ruth, University of Mississippi
"Toward Dependency-Aware Live Migration of Virtual Machines"

Yongmei Wang, University of Memphis
"What Do Computational Chemists Do?"

Lee Giles, Penn State University
"SeerSuite: Enterprise Search and Cyberinfrastructure for Science and the Academia"

Beichuan Zhang, University of Arizona
"GreenTE: Power-Aware Routing"

Cathy Jao, Oak Ridge National Lab
"Accelerating Scientific Discovery through Extreme-scale Data Analysis"

Matthew Anyanwu, University of Memphis
"Enhancement of Churn Prediction Algorithms"

Herman Tavani, Rivier College, New Hampshire
"Cyberprivacy, Data Mining, and Bioinformatics" (Online Talk)

Mihai Lintean, University of Memphis
"Textual Analysis of Student Inputs in Intelligent Tutoring Systems"

Upcoming Events

The 6th annual **CS Research Day** is scheduled for Friday, March 19, 2010. As in the past, this event allows Computer Science students to present their research and share ideas in a friendly environment. A panel of faculty judges will evaluate the presenters, and prizes will be awarded. Details will be made available as the date approaches!

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