

## From the Chairman



This is a tremendously exciting time for Computer Science at the University of Memphis and throughout the nation. Several federal agencies are recruiting CS graduates and finding it hard to fill their positions. As though in response to these needs and the attention given by President Obama to this

field's importance, enrollment in CS programs has inched up. In the Department, our faculty have strengthened their consensus to value the quality of education and impact of research. Even under current pressing economic times, we have continued to grow and flourish. We have effectively kept the world informed of our research and teaching programs. I am proud that all our professorial faculty members have had funded research projects, and our collaborations with other departments on the campus and other universities and industry have continued. Meanwhile, our Industry Advisory Board has taken an active role in providing feedback on our programs. With their help, we have been able to place all our students seeking internships into appropriate positions.

We joined the ranks of several major universities in the country through the recent recognition of Dr. Santosh Kumar as one of *Popular Science* magazine's "Brilliant Ten" young researchers in the nation. Congratulations, Dr. Kumar! I am also pleased to welcome Dr. Marc Fisher, who brings us his expertise in software engineering and testing, as a Visiting Assistant Professor. I sincerely hope you enjoy reading our report and welcome your comments on all aspects of our activities!

*Dr. Sajjan Shiva*

## Department News

### CS Professor Named to "Brilliant 10"



In its November issue, *Popular Science* magazine named **Dr. Santosh Kumar** to its annual "Brilliant 10" list, "a selection of the brightest young researchers in the country." The magazine refers to the researchers selected as "10 young geniuses shaking up science today."

Dr. Kumar was selected based on his research and development of the AutoWitness and AutoSense systems. The AutoWitness system includes a sensor that automatically detects when an item is stolen and then sends a message wirelessly to police dispatchers in real time, without the need for the owner to detect it. Law enforcement officials say the device could have a major impact on combating theft. AutoSense is a wireless sensor suite that individuals wear with the goal of helping them monitor and reduce their daily stress level and abstain from addictive behavior.

On Oct. 12, Dr. Kumar was honored in a reception at the FedEx Institute of Technology featuring U of M President Shirley Raines, U of M Provost Ralph Faudree, U.S. Rep. Steve Cohen (D-Tenn.), and other dignitaries. Attendees were treated to demonstrations of the AutoWitness and AutoSense systems.

For more information and to see the various press coverage of this honor, please see [www.cs.memphis.edu/brilliant10](http://www.cs.memphis.edu/brilliant10)

### Third Annual Cyber Security Expo

On October 15, the Center for Information Assurance hosted its third annual Cyber Security Expo, a gathering of security experts from around the nation for lectures and networking. The theme of this year's event was "Online Fraud, Insider Threats, and Cyber Crime."

A full array of distinguished speakers participated, including representatives from the Air Force Institute of Technology, MIT, Harvard Law School, Oak Ridge National Lab, St. Jude, AutoZone, Cisco Systems, the University of Texas at San Antonio, and the FBI. For the full agenda visit [cyberexpo.memphis.edu](http://cyberexpo.memphis.edu)

### Second Annual Girls' Summer Camp

To encourage greater female interest in computer science, the Department offered its second annual Computational Thinking Summer Camp for Girls from July 19-23. Nearly 30 middle- and high-school girls from the Memphis area attended, over double the number from last year's camp. The camp covered a variety of topics, ranging from guest presentations on computer science career opportunities to activities encouraging algorithmic thinking. Participants also had a chance to get hands-on experience with AgentSheets, a game authoring and simulation tool. The camp was organized by **Dr. Linda Sherrell** and **Mr. Kriangsiri Malasri**.

### New Faculty Member

**Dr. Marc Fisher II** has joined the department as a Visiting Assistant Professor. Dr. Fisher recently received his doctorate from the University of Nebraska, Lincoln, and he brings expertise in software testing, software engineering, and program analysis.



### CS Open House Aims to Inspire Younger Generation

Computing is increasingly so essential to our daily lives at home and at work that the U.S. House of Representatives has designated the first full week of December as **Computer Science Education Week**. We will join the celebration across the country with a series of interactive demonstrations to showcase computing to the younger generation and the public at large.

High school students, teachers, and parents are especially invited to participate in this event. The event will be held on Thursday, December 9 at the FedEx Institute of Technology, from 9:30 am to 1:30 pm.

Planned demonstrations include:

"Modeling Human and Artificial Minds"  
**Dr. Stan Franklin**

"Tracking Burglars with Tiny Sensors"  
**Dr. Santosh Kumar**

"Programming Lego Robots"  
**Mr. Kriangsiri Malasri**

"Who Ate My Packets? Diagnosing Internet Problems"  
**Dr. Lan Wang**

"Computing with Molecules: Can I Listen to My Genes?"  
**Dr. Max Garzon**

"Talking Machines that Understand Me"  
**Dr. Vasile Rus**

"Finding Errors in Spreadsheets"  
**Dr. Marc Fisher**

"Outsmarting Computers at 2-Player Games"  
**Dr. Vinhthuy Phan**

## Faculty Achievements

**Dr. Dipankar Dasgupta** has joined the advisory board of MIT's Geospatial Data Center (GDC). The GDC was formed in May 2010 and consists of three MIT labs: the MIT Auto-ID Lab, MIT Center for Grid Computing, and MIT Intelligent Engineering Systems Lab. Together, the labs are working to enable the next generation open-source GIS (geographic information system) platform.

Earlier this year, Dr. Dasgupta also gave a keynote speech on "Bio-Inspired Approaches in Cyber Security" at the Future Challenges in Network Security conference, held in Prague from June 21-23.

**Dr. Santosh Kumar** has been selected as one of the first beneficiaries of the newly established First Tennessee Entrepreneurship and Innovation Fellows program. The Fellows program is designed to deliver critical funds to U of M researchers who are entrepreneurial and engaged in promising research, allowing them to advance their projects into the commercial marketplace. Dr. Kumar was selected for this award based on his AutoWitness project, which aims to build a large-scale wireless sensor network for tracking assets such as lost or stolen objects.

**Dr. Vasile Rus** received a three-year, \$1.31M NSF grant for "Empirical Research - Detecting, Tracking, and Modeling Cognitive, Affective, and Metacognitive Regulatory Processes to Optimize Learning with MetaTutor." Dr. Rus will lead a team of researchers to extend and apply an intelligent hypermedia-based learning environment to detect, track, and model college students' multiple self-regulatory processes while learning biology. The researchers have developed a tutoring system that is expected to provide cognitive, affective, and metacognitive (CAM) support.



**Dr. Linda Sherrell** has been elected the Mid-South Regional Representative on the national board of the Consortium for Computing Sciences in Colleges (CCSC). The Mid-South region is one of CCSC's ten nationwide regions.

**Dr. Lan Wang** received a three-year, \$450K grant for "Named Data Networking" (NDN) as part of the NSF's Future Internet Architectures program. The project proposes a new architecture to better suit today's most predominant use of the Internet: content creation, dissemination, and delivery. NDN will focus on naming data itself rather than its location (IP address). This makes it easier to secure the content as well as enables several radically scalable communication mechanisms, such as the potential to move content along multiple paths to the destination. NDN is a multi-university project spanning 16 PIs/co-PIs. For more information please see [www.named-data.org](http://www.named-data.org)



# Student Highlights

Ph.D. student **Yi Gu** (pictured at right with advisor **Dr. Qishi Wu**) won second place in the ACM Student Research Competition at the Supercomputing 2010 conference held in New Orleans. Yi presented her work on "Optimizing End-to-End Performance of Scientific Workflows in Distributed Environments." The work aims to improve the performance of complex workflows of distributed computing modules, with practical applications in computation-intensive fields such as climate modeling. As part of the award, Yi received a plaque and medal, as well as a \$300 prize. Yi's work was also selected for the Doctoral Showcase at the conference.



Ph.D. student **Santanu Guha** presented a paper entitled "AutoWitness: Locating and Tracking Stolen Property While Tolerating GPS and Radio Outages" at the ACM SenSys conference in Zurich, Switzerland, on Nov. 3. The work involved contributions from members of **Dr. Santosh Kumar's** WiSe MANet Lab. The paper was recognized as one of the Top 5 papers at the SenSys, which is considered the world's top-rated conference for embedded systems.



**Yaoqing Liu** (pictured above), a Ph.D. student from **Dr. Lan Wang's** Networking Research Lab, received a \$1000 ACM SIGCOMM 2010 Travel Grant sponsored by NSF. The award was based on Yaoqing's serious interest in networking, as demonstrated by his coursework and project experience. The grant allowed Yaoqing to attend the SIGCOMM 2010 main conference from August 30 to September 3 in New Delhi, India.

## Fall 2010 Graduates

### M.S.

Padmini Bonala  
Animikh Ghosh  
Bhanu Prakash Gogineni  
Basanth Koganti  
Srinivas Reddy Kukunoor  
Sandeep Kumar Ladda  
Bhanu Srinivas Mangipudi  
Soujanya Medapati  
Manasa Medikonda  
David Leon Mills  
Harshavardhan Reddy Mukkera  
Phani Deepak Vajjha  
Sukshith Shankar Veerappajja

### M.S. Applied Computer Science

Ning Liu  
David Sears  
Jai Shivarao  
Yanchen Wei

### Graduate Certificate in Information Assurance

Leetisha Jones  
Neva Kay Smith

### B.S.

Dorsie B. Jenkins

## Upcoming Events

The annual **CS Research Day** will be held in March 2011. Research Day allows students to present and discuss their current research with faculty members, with the best presentations and posters receiving awards. More details will be announced soon!

### CS Social

The now-traditional annual CS Social was held on Friday, Nov. 5, at the new University Center. Although this year's event was a few days late for Halloween costumes, there was no shortage of fun activities at the event, including musical performances and door prizes. The highlight of the evening was a "heads-only" volleyball tournament refereed by **Dr. Qishi Wu**.



### ACM Student Chapter Events

On October 27 the ACM student chapter held a workshop for new computer science students. The workshop highlighted several interesting projects that current CS students are working on, including software development for Android mobile phones (**Craig Herndon**), a Web-based interactive mapping system for the U of M campus (**Swetha Popuri**), and the AutoWitness citywide burglary tracking system (**Somnath Mitra**).

Interested in the ACM? Contact President Ernest McCracken ([emccrackn@memphis.edu](mailto:emccrackn@memphis.edu)), Vice President Craig Herndon ([cthrndon@memphis.edu](mailto:cthrndon@memphis.edu)), or faculty advisor Dr. Vinhthuy Phan ([vphan@memphis.edu](mailto:vphan@memphis.edu)).

### CS Internship Experiences

Applied CS student **LaKenya Mixon** did a summer internship with Boeing in St. Louis, MO. She worked on the Project Management phase of IT projects within the organization and with business partners (local, national, and international).

**Danielle Jones** interned for a second year at Aerospace Testing Alliance (ATA), which manages Arnold Air Force Base in Tullahoma, TN. ATA runs test facilities such as wind tunnels for companies looking to test their engines. Last year, Danielle worked in their software development group doing corrective maintenance.

Undergraduate student **James Curtis** completed an internship with the Center for Partnerships for GIS during Summer and Fall 2010.

*Check out the newly redesigned CS website!*  
[www.cs.memphis.edu](http://www.cs.memphis.edu)

## CS Colloquium

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

**Ron Schultz**, ARGO Data Resource Corp.  
"Deer in the Headlights"

**Dr. David MacDonald**, Information School, University of Washington, Seattle  
"Designing Lifestyle Behavior Change Technology for Everyday Life"

**Dr. Marc Fisher II**, Department of Computer Science, University of Memphis  
"Using Program Analysis to Improve the Quality of Web Applications"

**Dr. Vladimir Filkov**, Department of Computer Science, University of California, Davis  
"From Architecture to Function in Biological Networks"

**Yunyue Lin**, Department of Computer Science, University of Memphis  
"Algorithm Design for Advance Bandwidth Scheduling in Dedicated Networks"

**Dr. Sajal Das**, National Science Foundation / University of Texas, Arlington  
"NSF CISE Core and Cross-Cutting Programs: Funding Opportunities"

**Dr. Bernard Chen**, Department of Computer Science, University of Central Arkansas  
"Protein Local Tertiary Structure Prediction by Super Granule Support Vector Machines"

**Dr. Max Garzon**, Department of Computer Science, University of Memphis  
"Molecular Programming"

**Yi Gu**, Department of Computer Science, University of Memphis  
"Optimization and Management of Scientific Workflows in Distributed Network Environments: From Theory to Practice"

**Dr. Vasile Rus**, Department of Computer Science, University of Memphis  
"The Ubiquity of Language Processing in a Linked, Knowledge-driven World"

**Dr. Usef Faghihi**, Institute for Intelligent Systems, University of Memphis  
"The Use of Emotions in the Implementation of Various Types of Learning in a Cognitive Agent"

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