

From the Chairman

It is with great pleasure that I applaud the CS faculty's decision to set the goal of becoming one of the top 60 CS departments in the nation by 2012. We have come a long way since 25 or more years ago of offering a computer science program as part of the Mathematics Department. The CS Department now has an ABET accredited BS program, a well established Applied CS master's program, and a graduate certificate program in information assurance, in addition to the traditional CS master's and doctoral degree programs.

This year we have exceeded \$8 million in external funding for our research activities. This funding comes from NSF, DHS, NIH, ORNL, and other organizations. We have established new collaborations with other campus departments, other universities, and industries to achieve this funding level. We have started serving local industry through our service agreements with them. Our student recruitment activities have spanned local school systems and colleges and universities around the Memphis area. This activity will be extended to visits to local industries during the Spring semester. Retention of students has taken the front seat through the social and professional activities of the ACM student chapter, Ombudsman program for freshman students, and the upcoming Mentat program to provide peer counseling and interaction.

I am excited about the future of CS at the U of M. We are making changes to improve the fundamental preparation and breadth of perspective of our students, making them more and more competitive for positions requiring CS degrees.

Dr. Sajjan Shiva



Faculty Achievements

Dr. Dipankar Dasgupta received the College of Arts and Sciences Distinguished Research Award (CASDRA) in the Engaged Scholarship category for 2006-2007. Dr. Dasgupta was also awarded the prestigious Dunavant Professorship by the College of Arts and Sciences for his achievements. He will receive \$5,000 per year for three years (2007-2010) to support his research program.

In addition, Dr. Dasgupta received a research grant for "Genetic Algorithms for Sailor Assignment Problem-II (GenoSAP-II)." This project is sponsored by NPRST under the auspices of the ARO and administered by Battelle, from 9/12/2007 to 8/15/2008. Dr. Dasgupta is also a co-PI of the DoD Information Assurance (IA) Capacity Building grant funded by NSA for one year starting September 2007.

Dr. Robert Kozma published a book co-edited with L. Perlovsky (Harvard and AFRL) in October 2007. The book is entitled *Neurodynamics of Cognition and Consciousness* and is part of the Springer Series on Understanding Complex Systems. In addition, Dr. Kozma was elected General Chair of the IEEE/INNS 2009 Joint Conference on Neural Networks, to be held in July 2009 in Atlanta or Anchorage. He is also a Program Co-Chair for the 2008 World Congress of Computational Intelligence, to be held in May 2008 in Hong Kong.

In July, **Dr. Vinhthuy Phan** received a Donovan Travel Award from the University of Memphis to attend the 2007 International Conference on Enterprise Information Systems and Web Technologies in Orlando, FL.

Department News

Welcome to New Faculty Members

Dr. Evan Drumwright joined the department as a Visiting Assistant Professor. He received his Ph.D. in Computer Science from the Univ. of Southern California (May 2007).

Dr. German J. Hernandez, Associate Professor from the Computer Engineering Department at the National University of Colombia, joined the department as a Visiting Research Fellow under Dr. Dipankar Dasgupta.

Mr. Kriangsiri Malasri joined the department as an Instructor. He holds master's degrees from Georgia Tech and the U of M, and he was an NSF teaching fellow under Dr. Linda Sherrell's Tri-P-LETS GK-12 program.

CND Hosts Air Force Workshop

A U.S. Air Force workshop on "Intelligent Sensory Data Processing and Imaging in Dynamic Battlefield Scenarios" was held October 25-26 at the FedEx Institute of Technology. It was co-sponsored by AFRL, Wright-Patterson AFB, and Hanscom AFB, as well as Computer Science, FIT, and EECE at the U of M. Dr. Robert Kozma, director of the Computational Neurodynamics Lab (CND), co-organized the event with Dr. Amir Shirkhodaie (TSU, Nashville). For details visit cnd.memphis.edu/isdp07

DNA13 Conference

The 13th International Workshop on DNA Computing (DNA13) and 3rd Annual Symposium on Nanotechnology were held at the U of M on June 4-8, organized by Dr. Max Garzon. This premier conference attracted attendees from over 10 countries, including keynote speakers from Harvard, Caltech, Princeton, and Lucent Technologies. Details can be found at dna13.memphis.edu

Cyber Security Awareness Day



On September 5, the Center for Information Assurance (CfIA) and CISCO jointly hosted Cyber Security Awareness Day. Dr. Dipankar Dasgupta, director of the center, organized the event, whose purpose was to discuss the ever present threats to information and information infrastructure. For more information, please see cas.memphis.edu/efiles/07sept24/cisco_event.htm

Faculty Spotlight: Dr. Santosh Kumar

Dr. Santosh Kumar had two papers accepted to the extremely selective ACM MobiCom 2007 conference. In addition, he has been awarded three major grants from federal funding agencies. The first is a three-year NSF grant to develop theoretical foundations for wireless sensor networks deployed for detecting moving targets. Dr. Kumar will collaborate with faculty from Mathematical Sciences to develop new mathematical methods to determine the appropriate number of sensors needed to guarantee detection of all movements. The project will also develop optimal algorithms for reconfiguring the network through unanticipated failures.

Dr. Kumar's second grant is a joint effort between the University of Memphis and Ohio State University. This three-year NSF grant will focus on studying tracking of mobile targets in large-scale sensor networks. In addition to theoretical aspects, the project will build and deploy a campus-wide burglar tracking system, "AutoWitness," which is expected to reduce property thefts and robberies in and around the University of Memphis campus.



Dr. Kumar's third grant is a \$1.6M award from the National Institutes of Health (NIH) to develop a wireless skin patch sensor system, "AutoSense," which will allow scientists to collect real-time data on exposures to addiction and psychosocial stress in subjects' natural environments. A multidisciplinary team of researchers are collaborating on this innovative effort. The researchers are from the U of M as well as the University of Minnesota, Ohio State University, and SpectRx, Inc. Details on Dr. Kumar's research are available at www.cs.memphis.edu/~santosh

Dr. Vasile Rus is a Faculty Associate on an NSF-funded award on Machine Learning Experiences in Artificial Intelligence. The goal of the project is to develop a framework for teaching core AI topics through a unifying theme of machine learning. A set of mini-projects will be developed to be used in Machine Learning and AI classes throughout the country. Dr. Rus' project will focus on biomedical term classification.

Dr. Rus also participated in a recent NSF-funded workshop on natural language generation, and he is serving as Program Co-Chair and Workshop Co-Chair for the upcoming Second International Workshop on Advances and Innovations in Systems Testing.

Dr. Sajjan Shiva published the fourth edition of his book, *Computer Organization, Design, and Architecture*, through Taylor & Francis CRC Press in November. Dr. Shiva also joined Tennessee Governor Phil Bredesen's Trade and Education Mission to China. The mission visited Beijing, Shanghai, and Hong Kong in October.

Dr. Lan Wang received an NSF grant for "Enabling Future Internet Innovations through Transit Wire." The project aims to develop a new Internet architecture to ensure strong universal network connectivity at the architectural level. The award is from 9/1/2007 to 8/31/2010.

Dr. Wang also received a minority faculty travel grant from NSF and a grant from the Donovan Travel Enrichment Fund to attend the IEEE ICNP (International Conference on Network Protocols) and NPSEC (Workshop on Secure Network Protocols) in Beijing, China, in October. In addition, Dr. Wang served on the TPC of the IEEE INFOCOM 2008 conference.

Dr. Qishi Wu received an NSF grant entitled "Towards Robust and Self-Healing Heterogeneous Wireless Sensor Networks," from September 2007 to August 2010. The main goal of this project is to improve the performance of heterogeneous sensor networks (HSNs).

Dr. Wu's ongoing ORNL project has also been extended with an additional \$10K grant. This project, "Design of Control Plane and Transport Protocols for UltraScience Net," involves improving the experimental 10 Gbps extensions to UltraScience Net (USN) from Sunnyvale to the 2007 Supercomputing Conference site.

A full list of recent publications & professional activities can be found at
www.cs.memphis.edu/fall07/

Student Highlights

Ph.D. student **Deon Garrett** will present a research paper titled "Multiobjective Landscape Analysis and the Generalized Assignment Problem" co-authored by Dr. Dasgupta at a conference on Learning and Intelligent Optimization (LION-II) to be held in Trento, Italy, December 8-12, 2007.

M.S. student **Kriangsiri Malasri** presented his joint work with Dr. Wang on medical sensor network security at the ACM SIGMOBILE Workshop on Systems and Networking Support for Healthcare and Assisted Living Environments (HealthNet), held in San Juan, Puerto Rico, in June 2007. He received one of three merit-based student travel grants.

Undergraduate student **Roy Crowder** was selected as a finalist for a Campus Ambassador/Student Intern position at Sun Microsystems representing the University of Memphis.

Undergraduate student **Ernest McCracken** has joined the Networking Research Lab under Dr. Wang. He will work on an NSF-funded project on BGP monitoring.

Mentat Program Launches

As of November, a new academic society was formed called the Mentat Corps. Headed by Dr. McCauley, this undergraduate student group's primary purpose is to help any CS students who need assistance and to be role models for beginning CS majors. Plans for spreading the Mentat Corps nationally include a partnership with the award-winning MentorNet.org along with sponsorship from local and national corporations. Membership in the Mentat Corps is highly selective. Students, if you need help or advice on anything from data structures to balancing work and school, just look for the Mentat Corps pins.



Congratulations to the first set of inductees into the Mentat Corps:

Xiaoshan Cai
Roy Crowder
Kenneth Gibbs
Thomas Hilton
Brian Kennedy
Sean McKenna
Neva Smith

ACM Student Chapter Events

The ACM student chapter has hosted two events so far this fall: the traditional pizza and movie night and an Open-Source Software Showcase discussing popular projects like Cygwin and Eclipse. Both events were well attended by students.



ACM chapter president **Joseph Vannucci** at the Open-Source Software Showcase

Upcoming ACM events include a LAN party and talks by speakers from industry including International Paper and Cook Systems. The ACM student chapter remains dedicated to its principles of career development, education enhancement, and student networking. For more information please visit acm.cs.memphis.edu

CS Ombudsman

Ph.D. student **Joe Burleson** is the department's new Ombudsman. The Ombudsman takes the initiative to contact and assist, on a one-on-one basis, undergrad CS students whose class performance and/or attendance have suffered.

Like the Mentat Corps described above, this program was developed as an effort to improve student retention. Although a similar program exists at the university level, the CS department felt that having its own Ombudsman would allow for more personalized attention.

Summer / Fall 2007 Graduates

Ph.D. Student

Andrew J. Neel (Summer 2007)
Dissertation Title: "Memory Systems for DNA Computers"
Major Advisor: Dr. Max Garzon
Current Employment: FedEx Corp.

B.S. Students

Wojciech Biernacki
Wesley Anderson Field
Ernest Ardell Howry
Tyler W. Royal
Thomas W. Sellers

M.S. Students

Computer Science

Sarah Colleen Bowen
Naga Jyothi Gurram
Siddhartha Gautam Janga
Madhu Kumar Kolli
Kriangsiri Malasri
Dincsh G. Mallam
Sameer Mohammed
Krishna Chaithanya Nerusu
José Milet Rodríguez-Borbón
Rajitha Rani Satharla
Rachana Tippavajjula
Phani Priya Uppalapati
Shekhar Vemuri

Applied Computer Science

Sokhna Mame Sarr

Bioinformatics

Jahangheer Shareef Shaik
Quynh T. Tran

Graduate Certificate in Information Assurance

Madhu Kumar Kolli
Kranti Kiran Sittula
Rajitha Rani Satharla

CS Roundup

CS Colloquium

This semester's CS Colloquium series included talks from distinguished visiting researchers as well as University of Memphis faculty.

Dr. Jun Xu, Georgia Tech, "Network Data Streaming - A Computer Scientist's Journey in Signal Processing"

Dr. Evan Drumwright, University of Memphis, "Advanced Rigid Body Dynamics for Improved Robotic Simulation"

Dr. Stan Franklin, University of Memphis, "A Computational Architecture for Human-Like Learning in Machines"

Dr. Nageswara Rao, Oak Ridge National Laboratory, "Ultra ScienceNet and Dynamics of Internet Transport Protocols"

Dr. Lan Wang, University of Memphis, "Engaging Edge Networks in Preventing and Mitigating Undesirable Network Traffic"

Applied CS Program

The Applied Computer Science master's program is growing rapidly, with 7 new students in the program this year. **Troy Francisco** and **Sokhna Sarr** graduated from the program this past spring and summer, respectively.

For details about the Applied CS program and admission, please see the department website at www.cs.memphis.edu or contact Dr. Max Garzon, Applied CS Coordinator, mgarzon@memphis.edu

CS Social 2007

This year's CS Social, organized by Dr. Garzon, was the best ever! We gathered at the Pink Palace Museum for an evening of music, dance, comedy, fun, and exotic foods. The event was attended by over 100 students, both graduate and undergraduate, as well as by alumni and people from the local industry. The best show prize was awarded by popular demand to Aswarya, who performed a twirling classical Indian dance, with a runner-up prize to Dr. Lin's group for his physical comedy about a typical day in the life of a CS professor. Door prizes were awarded in random drawings to many other participants. We're looking forward to topping this next year, so it isn't too soon to start dreaming about it now. What will your show be come Halloween?



Upcoming Events

The CS department's **Industrial Advisory Board** meeting will be held on November 30, 2007, in the FIT Fishbowl.

The Center for Information Assurance will be hosting "**SANS Security Essentials Bootcamp Style**," a six-day course from December 10-15, 2007, at the FedEx Institute of Technology. For more information or to register, please visit www.memphis.edu/releases/nov07/sans.htm

The **First Conference on Artificial General Intelligence** (AGI-08) will be held March 1-3, 2008, at the FedEx Institute of Technology. The conference is co-sponsored by the Computer Science Department and the Institute for Intelligent Systems in cooperation with AAAL. Dr. Franklin is the general chair, and Dr. McCauley and Sidney D'Mello are in charge of local arrangements. For more information, please visit www.agi-08.org

The annual **CS Research Day** is tentatively scheduled for March 21, 2008. Research Day allows students to present and discuss their current research with faculty members.

The **Second International Research Workshop on Advances and Innovations in Systems Testing** will be held on the U of M campus from May 4-6, 2008. The workshop is sponsored by the System Testing Excellence Program (STEP). Dr. Shiva is the general chairman, Dr. Rus is the program and workshop co-chair, and Dr. Sherrell is the registration co-chair. For more information please see STEP.us.com/conference/

Department of Computer Science
University of Memphis
209 Dunn Hall
Memphis, TN 38152-3240

Phone 901.678.5465
Fax 901.678.1506
E-mail info@cs.memphis.edu
Web www.cs.memphis.edu