UNT CSE Computer Science & Engineering @ North Texas
Tomorrow's Technology through Today's Education
UNIVERSITY OF NORTH TEXAS
Department of Computer Science and Engineering Newsletter
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www.cse.unt.edu
Ian Parberry, Interim Chairman

Parberry to remain Interim Chair

Dr. Costas Tsatsoulis, Dean of the UNT College of Engineering, has announced that the Chair Search for the Department of Computer Science and Engineering has been unsuccessful and will be reopened in Fall 2010. Further, he announced that Dr. Ian Parberry has accepted his invitation to serve as Interim Chair for a second year. Dean Tsatsoulis thanked Dr. Parberry for his dedication to the CSE Department, faculty and UNT and looks forward to working with him in 2010-2011.

Greetings from the CSE Interim Chair

As the academic year closes, I want to share with you the news of your former department. As you can see from above, I will be Interim Chair for a second year and another search will be launched in Fall 2010.

ABET visited our department this year for the purposes of reaccrediting our B.S. in Computer Science degree. Rada Mihalcea received a Presidential Early Career Award for Scientists and Engineers and was honored at the White House by President Obama in January. Robocamp will offer several camps this summer. Our research labs have been active as you will read inside this newsletter. Our programming teams have had a successful year too.

Alumni support is important for our department. Please keep in touch and let us know what you are doing. We appreciate your support of CSE and UNT.

Ian Parberry
Professor and Interim Chair

LARC in Top 50

The **Laboratory for Recreational Computing** (LARC—http://larc.unt.edu), directed by Dr. Ian Parberry, has been included in The Princeton Review's list of the Top 50 Undergraduate Game Design Programs. The Princeton Review is known for its annual college "bests" lists.

LARC has produced more than 50 students who work for a variety of computer game companies, including Terminal Reality, Paradigm Entertainment, Mumbo Jumbo and Barking Lizards. Three alumni have started their own gaming companies, three have written books and two are college professors.

Ph.D. student Jon Doran passed his Ph.D. dissertation proposal in April and had his first refereed journal publication accepted in *IEEE Transactions on Computational Intelligence and AI in Games*. The paper, "Controlled Procedural Terrain Generation Using Software Agents" was coauthored with Dr. Ian Parberry.

Rada Mihalcea honored at the White House

President Barack Obama joins recipients of the Presidential Early Career Awards for Scientists and Engineers (PECASE) for a group photo in the East Room of the White House on January 13, 2010. Dr. Mihalcea is to the President's upper right. (Official White House Photo by Lawrence Jackson)

Rada Mihalcea, Associate Professor in the Department of Computer Science and Engineering, was honored by President Barack Obama on January 13, 2010 as one of the winners of the Presidential Early Career Award for Scientists and Engineers (PECASE). This Award is the highest honor bestowed by the United States government on scientists and engineers in the early stages of their independent research careers.

Dr. Mihalcea was one of twenty PECASE awardees from the National Science Foundation who had already been selected to receive the NSF Faculty Early Career Development (CAREER) Program. She was one of the 100 recipients of the PECASE award from ten government agencies. The awards, established by President Clinton in 1996, are coordinated by the Office of Science and Technology Policy within the Executive Office of the President. Awardees are selected on the basis of two criteria: Pursuit of innovative research at the frontiers of science and technology and a commitment to community service as demonstrated through scientific leadership, public education, or community outreach. Winning scientists and engineers receive up to a five-year research grant to further their study in support of critical government missions.

Robocamps offered in Summer 2010

The Texas Workforce Commission Summer Merit Program has awarded $63,000 to the Department of Computer Science and Engineering to run six more Robotics and Game Programming Summer Camps in 2010. The Coordinating Board for Higher Education has also awarded the department approximately $18,000 for camp programs to bring our total number of camps to ten. The program will also be using funds from a 2009-2010 Motorola Innovation Generation Grant of $30,000 to initiate the Robocamp Jumpstart program, which will extend the program downwards into 7th and 8th grade student populations and train teachers at area schools to conduct the camps locally.

The Summer 2010 Robocamp sessions are coming up soon. There are ten Robocamp and XBOX camps scheduled for this summer. Students must be at least 14 years of age and not graduated High School in order to participate. We are also assisting with programs for Grandparents University for ages 7-12 and three mobile Robocamps at area schools as part of the new Robocamp Jumpstart program for 7th and 8th grade students. More details about Robocamp can be found at http://www.cse.unt.edu/robocamp.

UNT Research features CSE Faculty

UNT Research (http://www.unt.edu/untresearch) is a UNT publication that focuses on science, scholarship and the arts at UNT. In the Initiatives section, read about how UNT is planning to expand its research impact to gain from a new state of Texas program which will help seven emerging research universities become the next generation of national research universities.

"Researchers Use Simulations to Forecast Disease Outbreaks" features Associate Professor **Dr. Armin Mikler**. **Marty O'Neill II** and **Jorge Reyes**, current CSE doctoral students, and **Courtney Corley**, CSE Ph.D. graduate in August 2009, are also included in this *UNT Research* article.

Associate Professor **Rada Mihalcea** is in the Awards section of *UNT Research* as a "Top Young Scientist" for her NSF CAREER and PECASE awards. Dr. Mihalcea is also recognized again in the News Brief section as a UNT Honors Faculty.

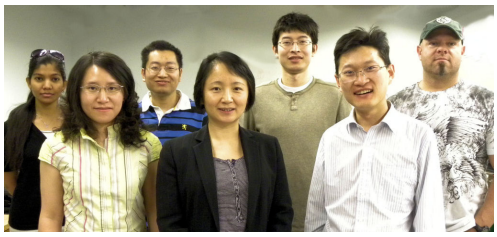
Dr. Krishna Kavi, Professor, is featured in "UNT Leads NSF Center for Networks of the Future," which explains how the National Science Foundation Industry/University Cooperative Research Center is creating cutting-edge software to make complex networks possible.

New CSE Faculty

Mahadevan Gomathisankaran joined the CSE Department as an Assistant Professor in Fall 2009. Dr. Gomathisankaran holds a B.E. in Electronics and Communication Engineering from Regional Engineering College, Trichy, India, and a Ph.D. in Computer Engineering from Iowa State University where his research concentrated in secure computer systems architecture.

Dr. Gomathisankaran did his post-doctoral research at Princeton University where he did research on developing a testing framework using virtualization technology. Dr. Gomathisankaran has worked as software engineer at Philips and Texas Instruments and as a Research Scientist at Intel.

The Trusted Secure Systems Laboratory (http://tssl.cse.unt.edu/tssl) is directed by Dr. Gomathisankaran and conducts research on building trusted and secure computing systems.



IMKD: Front row (L-R): Ning Luo, Dr. Yan Huang, Peng Sun. Back row (L-R): Roopa Vishwanathan, Chengyang Zhang, Shu Chen, Terry Griffin.

Dr. Yan Huang directs the **Information and Knowledge Management and Discovery Lab.** Chengyang Zhang received the Outstanding Ph.D. Student in Computer Science and Engineering award at Honors Day on April 9. Chengyang joined IMKD lab in Fall 2006, and has since published 15 papers at peer reviewed conferences and journals. He is currently working on his Ph.D. dissertation that brings novel contributions to the area of geospatial data stream processing.

The paper titled "A Two-level Protocol to Answer Private Location-based Queries" authored by Ph.D. student Roopa Vishwanathan and Dr. Yan Huang received the "Best Paper Honorable Mention" award at the IEEE International Conference on Intelligence and Security Informatics (ISI), 2009.

Peng Sun is a visiting scholar from the Spatial Information Processing Technology Lab, Institute of Computing Technology, Chinese Academy of Science (CAS). He will be visiting the IMKD lab from November 2009 to August 2010. At the IMKD lab, he is working on integrating selective functionalities of spatial data mining to a spatial database system. He is learning all the features of an open source spatial database management system. At the end of Peng's research project, the system will be able to perform certain spatial data mining tasks in a seamless manner.

Ph.D. student Terry Griffin passed his qualifying exam in March 2010. Terry recently published a paper titled "Intelligent System for Locating, Labeling, and Logging (ISL3)" in the proceedings of the Twenty Second International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems. Terry is working on predicting a user's trip purpose from his/her GPS trajectories.

CSE Research Lab News

Nanoscale Energy-Efficient VLSI Research from NanoSystem Design Laboratory (NSDL— http://nsdl.cse.unt.edu) Dr. Saraju P. Mohanty, NSDL Director, received multiple grants to support NSDL's research in nanoelectronics. One NSF (National Science Foundation) grant of $249,265 spanning over 2009-2012 supports "nano-CMOS modeling" research. Another NSF grant of $200,000 supports "nano-CMOS estimation" research. Dr. Mohanty internationally collaborates with the University of Bristol on a EPSRC (Engineering and Physical Sciences Research Council) grant of £285,394 that supports "nano-CMOS synthesis" research. For progression of his research from power to thermal, Dr. Mohanty received a SRC (Semiconductor Research Corporation) research grant of $105,000 spanning over 2009-2012 to study PVT-Tolerant RF (Radio Frequency) circuits.

NSDL members have published 5 journal and 15 conference papers in the last academic year. Two papers titled "A P4VT (Power-Performance-Process-Parasitic-Voltage-Temperature) Aware Dual-VTh Nano-CMOS VCO" and "A Combined DOE-ILP Based Power and Read Stability Optimization in Nano-CMOS SRAM" were presented at the 23rd IEEE International Conference on VLSI Design were held in Bangalore, India.

Nanoscale SRAM (static random access memory) research by NSDL members got significant recognition. Members of NSDL presented multiple papers at the IEEE International Symposium on Quality Electronic Design (ISQED), San Jose, CA: "A 2-Port 6T SRAM Bitcell Design with Multi-Port Capabilities at Reduced Area Overhead" and "P3 (Power-Performance-Process) Optimization of Nano-CMOS SRAM using Statistical DOE-ILP". Dr. Mohanty was also invited to chair a session titled "SRAM Manufacturability" in the same conference.

To set a roadmap of integrating these SRAM circuit in system-level cache design, a master thesis research was conducted in NSDL. Ms. Ruchi Rastogi defended her thesis last semester: "A New N-Way Reconfigurable Data Cache Architecture for Embedded Systems." This thesis led her to receive the Outstanding Master's Student in Computer Engineering Award for year 2009-2010. In addition, Ruchi received an International Education Committee Scholarship Award.

The Net-Centric Software and Systems Industry/University Cooperative Research Center held its Industrial Advisory Board meeting on April 1-2. NSF program managers were on hand to explain the IUCRC concept. Industrial members gave testimonials about current projects and academic members made project presentations. At the end, industrial members selected projects to fund.

Industrial members include Boeing, Cisco, Codekko, EDS/HP, GlobeRanger, Hall Financial Group, Lockheed-Martin Aero, Raytheon, Texas Instruments, and T-System. Academic members include Southern Methodist University, University of North Texas, and University of Texas at Dallas.

"Net-Centric Computing-UNT leads NSF Center for networks of the future" about Dr. Krishna Kavi and the IUCRC recently appeared in *The Chronicle of Higher Education*. More information is available at http://netcentric.cse.unt.edu/.

(L-R) Oleg Garitselov, NSDL Director Saraju Mohanty, Garima Thakral, Mohana Asha Latha Dubasi with their new cutting-edge nanoelectronics design and simulation facility.

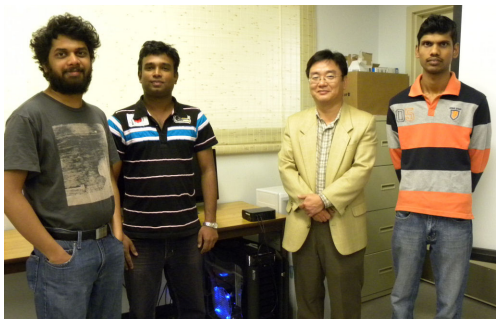
News from the **Multimedia Information Group** (MIG): Dr. JungHwan Oh, MIG Director, served on program committees for the third International Conference on Advances in Semantic Processing (SEMAPRO 2009), October 11-16, 2009 in Sliema, Malta.

MS student Avnish Malik Rajbal, who graduated Summer 2009, is working for Verizon Communications in New York, NY. Ph.D. students Ruwan Dharshana Nawarathna and Jayantha Kumara Muthukudage are working as research assistants. One MS student, Venkata Praveen Karri, will graduate this summer.

In this past year, MIG has published one journal and four conference papers and successfully completed two projects funded by the National Science Foundation ("Video Analysis Techniques for Computer-Aided Quality Control for Colonoscopy") and University of Bridgeport in Connecticut ("Developing Smart View Module in Wireless Capsule Endoscopy Videos"). MIG is continuously working on a project ("Computer-aided Diagnosis for Gastrointestinal Bleeding using Wireless Capsule Endoscopy") funded by Texas ARP/ATP.

Two new grants have been funded by the National Science Foundation and the National Institute of Health as follows: "Toward Real-Time Computer-Aided Quality Monitoring of Colonoscopy," from NSF STTR IB (University partner), and "Improving Colonoscopy Quality through Automated Monitoring" from the National Institute of Health.

In February, Dr. JungHwan Oh was featured in a UNT press release about his research to improve colon cancer screening. Dr. Oh's research also appeared in the March 2010 issue of the UNT Insider. For more information on the Multimedia Information Group, please go to http://mig.cse.unt.edu/.



MIG members (L-R) Venkata Praveen Karri, Ruwan Nawarathhna, Dr. JungHwan Oh, and Jayantha Kumara with their multicore CPU & GPU system.

The UNT Computer Science and Engineering Alumni Newsletter is assembled and produced by the Computer Science and Engineering Department by Genene Murphy and Don Retzlaff. Please contact the department at **csenewsletter@unt.edu**