UNIVERSITY OF NORTH TEXAS

COMPUTER SCIENCE & ENGINEERING

ALUMNI NEWSLETTER

Greetings from the CSE Interim Chairman

Dear CSE Alumni and Friends,

The Dean of the College of Engineering has appointed me Interim Chair for 2009-2010. A search committee for the new Chair has been formed and a national search will begin soon. As Interim Chair, I want to send the news of our Department of Computer Science and Engineering to all of our CSE alumni and friends.

In this newsletter, I will share with you the following news of our CSE department. First, congratulations to Rada Mihalcea who was the only professor in the DFW area to receive a national award. For the fifth year, Robocamp offered another summer of successful camps for students, teachers and counselors. In early October, we will be visited by ABET evaluators who will review our undergraduate computer science program for accreditation purposes.

In addition, you can read about our our newest CSE faculty member, Mahadevan Gomathisankaran and other faculty members who have received promotions. Both Yan Huang and Phil Sweany received tenure and Dr. Huang was promoted to Associate Professor. Don Retzlaff, Ryan Garlick and David Keathly received promotions in the new lecturer track system. Finally, you can read below the news of our CSE research groups.

We appreciate our alumni as a link to the past, but alumni can also help us build a bridge to the future. In this newsletter below, we offer a number of ways you can contribute to our current CSE students. I hope you will choose one of those ways to help our CSE department this year. Thank you for your support.

Ian Parberry
Professor and Interim Chair

Principal Lecturer: To be eligible for the classification of principal lecturer, the faculty member must have a record of sustained excellence in teaching and have the equivalent of five years of college-level teaching, including at least two years qualified at the senior lecturer rank and/or the equivalent professional experience. Full-time principal lecturers may be eligible to apply for development leave and certain travel funds and grants if they meet university, college, and department requirements. Faculty promoted from senior lecturer to principal lecturer will receive a standard increase in base salary at the time the new rank appointment begins. Principal lecturers may hold up to five-year appointment contracts, which are renewed annually.

Congratulations to all of our outstanding lecturers!

Net-Centric I/UCRC Meeting on October 8-9

The **Net-Centric Industry/University Cooperative Research Center** administration has announced that its next Industrial Advisory Board meeting will be held October 8-9, 2009. The meeting will be held at the Courtyard by Marriott at Legacy, 6840 North Dallas Parkway, Plano, TX 75024.

The meeting is open to anyone who wants to find out more about the Industry/University Cooperative Center concept, meet current members, hear about current research projects undertaken by the center, and meet students and faculty researchers working on these projects. There is no registration fee to attend the meeting, but registration is required. Please register at **http://netcentric.cse.unt.edu/registers/** .

Dr. Krishna Kavi, Professor in the Department of Computer Science and Engineering, is one of the founders of this NSF supported center. More information is available at **http://netcentric.cse.unt.edu/** .

Dr. Saraju P. Mohanty receives multiple research grants from NSF and SRC for his Low-Power Research

Dr. Saraju P. Mohanty, received a NSF (National Science Foundation) research grant to support his research in nanoscale CMOS device and architecture modeling. The project titled "Infrastructure Acquisition for Statistical Power, Leakage, and Timing Modeling Towards Realization of Robust Complex Nanoelectronic Circuits" received funding of $249,265 and will span over 2009-2012. Accurate modeling of power, leakage, and timing while accounting for process variations is crucial for the manufacturable design of nanoscale CMOS integrated circuits. Thus, there is a pressing need for statistical models that allow design engineers to make fast architectural or system level design space exploration without resorting to a complete design iteration, from system to physical level.

The research is applicable in everything from mobile phones to laptop computers to PDAs to automobiles in which battery life or energy cost is critical. While the new NSF grant deals with "nano-CMOS modeling," the other active NSF grant of Dr. Mohanty (titled "A Comprehensive Methodology for Early Power-Performance Estimation of Nano-CMOS Digital Systems") deals with "nano-CMOS estimation". In addition, Dr. Mohanty internationally collaborates with the University of Bristol in a closely related project titled "Process Variation Aware Synthesis of Nano-CMOS Circuits", funded by Engineering and Physical Sciences Research Council (EPSRC), UK which deals with "nano-CMOS synthesis".

The educational impact of the project is three-fold: impact on curricula at UNT, impact on curricula of other researchers who will use this infrastructure, and impact on the community colleges around the Dallas-Fort Worth metroplex. To conduct research on nanoscale CMOS modeling that can be used for realization of robust circuits, and to make the deliverables available to the VLSI and educational communities, the project utilizes the following infrastructure:

1. Specialized equipment: mixed-signal analyzer, probing station and arbitrary waveform generator for sample data collection, probing and analysis for model validation.

2. Computing resources: a high-end, 4 processor server with 16-GB local memory and 4-TB RAID5 storage to be used by two faculty members and 10 students for nanoscale data acquisition, control, analysis, and storage.

3. Research and development personnel to develop the models and libraries, to validate the methodology, and to maintain the infrastructure.

For further natural progression of his research from power to thermal aspects, Dr. Mohanty received a SRC (Semiconductor Research Corporation) research grant. The project titled "Fast PVT-Tolerant Physical Design of RF IC Components" received funding of $105,000 and will span over 2009-2012. In this project, Dr. Mohanty will study the effect of temperature on Radio Frequency (RF) circuits which are present in all consumer appliances, such as mobile phones and remote controls.

For more information on VDCL, go to **http://www.cse.unt.edu/~smohanty/** .

Multimedia Information Group receives NIH grant

Multimedia Information Group
(L-R) Jayantha Kumara, Praveen Karri, Dr. Junghwan Oh, Ruwan Nawarathna

Dr. JungHwan Oh is one of five PIs (from Mayo Clinic, Indiana University Hospital, Iowa State University and University of North Texas) to be awarded a National Institutes of Health (NIH) grant for a research project entitled "Improving Colonoscopy Quality Through Automated Monitoring." Dr. Oh's Multimedia Information Group will receive $190,000 of a $700,000 grant. Colorectal cancer is the second leading cause of cancer-related deaths in the United States, claiming more than 50,000 lives in 2006. Colonoscopy is currently the preferred screening modality for colorectal cancer. However, recent data suggest that there is a significant (4 to 12 percent) miss-rate associated with colonoscopy for the detection of even large polyps and cancers.

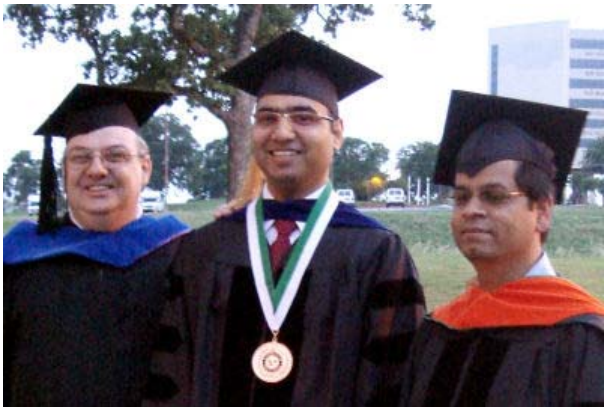
This project hypothesizes that computer algorithms can generate quality-related metrics from video files obtained during colonoscopy, that metrics are different for beginning versus experienced endoscopists, and that awareness of monitoring alters endoscopist behavior. Using novel computer algorithms developed specifically for generation of quality-related metrics, the research will test whether computer-derived metrics reflect quality of colonoscopy, whether computer-derived metrics reflecting quality differ among beginning and experienced endoscopists, and whether awareness of automated quality monitoring alters endoscopic behavior towards best possible adherence to recommended American College of Gastroenterology and American Society of Gastroenerology guidelines.

Successful evaluation and implementation of the proposed, automated system has the potential to improve the quality of care for over 14 million US citizens—the approximate number of people undergoing colonoscopy—on an annual basis. In addition, the technology lends itself for rapid adaptation to other endoscopic medical procedures such as upper gastrointestinal endoscopy, cystoscopy, arthroscopy and bronchoscopy.

For more information on this grant and CSE's Multimedia Information Group, please go to **http://mig.cse.unt.edu/** .

Two Ph.D. Graduates in Computer Science and Engineering

Dhruva Ghai received his Ph.D. in Computer Science and Engineering at the Spring 2009 UNT graduation. Dr. Saraju Mohanty and Dr. Elias Kougianos were his major professors and advised his dissertation: *"Variability-Aware Low-Power Techniques for Nanoscale Mixed-Signal Circuits."* He was the first Ph.D. graduate with VLSI specialization. Dr. Ghai is now working as an adjunct instructor for the Department of Computer Science and Engineering.



(L-R) Dr. Kougianos, Dr. Dhruva Ghai and Dr. Mohanty

Dr. Armin Mikler with Courtney Corley

Courtney Corley received his Ph.D. in Computer Science and Engineering in August 2009 at the UNT Summer graduation. Dr. Armin R. Mikler was his major professor. The title of his dissertation was *"Social Network Simulation and Mining Social Media to Advance Epidemiology."* Courtney is currently working as a research associate in the Knowledge Systems Group at Pacific Northwest National Laboratory located in Richland, WA. He is grateful for the opportunities that UNT provided. He added many people he has met in Washington are familiar with UNT's research in various domains.

College of Engineering News

Meet the Associate Dean for Undergraduate Studies, Dr. Vijay Vaidyanathan

Dr. Vijay Vaidyanathan became the Associate Dean for Undergraduate Studies in the UNT College of Engineering September 1, 2009. "I am looking forward to working with the Dean and the entire faculty in the College of Engineering to take our College to the next level of achievement," Dr. Vaidyanathan said.