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A PUBLICATION OF THE UNT COLLEGE OF ENGINEERING
FALL 2010

North Texas Engineer

Internationally Known Researcher Joins UNT

Dr. Yong X. Tao, an internationally known researcher in fundamentals of thermal sciences, refrigeration system performance, and renewable energy applications in buildings, is the new chair of the Department of Mechanical and Energy Engineering, director of the PACCAR Technology Institute and PACCAR Professor of Engineering.

Dr. Tao, who has more than 20 years of research and 17 years of teaching experience, is a Fellow of the American Society of Mechanical Engineers.

His goal for the department is to see it grow as “a well-constructed research and educational unit that offers our students a unique academic learning experience at UNT to pursue their respective degrees and achieve desired outcomes leading to great employability. To achieve that goal, I will expand our faculty team, improve curriculum through the accreditation process, and expand our graduate programs.”

Dr. Tao has made significant contributions to the engineering literature, including multiple journal publications, book chapters, edited journals and proceedings, and peer-reviewed technical



conference papers. He also holds two patents. In 2008, as Project Director of the Future House USA project, he led a consortium to represent the United States in a 10-country, international demonstration project of renewable energy and environmentally friendly construction that resulted in a 3,200 square foot zero-net-energy American House in Beijing, China.

Dr. Tao has received more than \$12.2 million dollars of research funding as a single principal investigator (PI) or Co-PI in multidisciplinary teamwork projects from the National Science Foundation, NASA, Air Force, Department of Energy, ASHRAE and various industries.

Prior to joining UNT, he was the Associate Dean of the College of Engineering and Computing at Florida International University (FIU) in Miami and a professor of Mechanical and Materials Engineering. At FIU, he also was the director of the Building Energy, Environment, and Conservation Systems Lab and the Multi-Phase Thermal Engineering Lab. For more information on Dr. Tao, visit <http://www.mee.unt.edu/Tao>.

Robocamp for Girls Wins Tech Titan Award

UNT College of Engineering's Robocamp for Girls was recognized with the Metroplex Technology Business Council's (MTBC) Tech Titan of the Future-University Level award for the program's creative, innovative approach to encouraging girls to pursue engineering careers.

The Tech Titan Award was presented by the MTBC, the largest technology trade non-profit organization in Texas, at the 10th Annual Tech Titan Awards Gala on Aug. 27. The Tech Titan of the Future-University Level award recognizes higher education institutions that encourage students to choose engineering and technology-related disciplines. Dr. Robert Akl (on the left in the photo) and David Keathly (on the right), both in the Computer Science and Engineering Department and Robocamp co-directors, received the award and had an opportunity to talk about the program at the gala, which had close to 800 people in attendance.

“It is a great honor to receive this award and to be recognized by our peers for the work that we do to promote engineering especially among women and minorities,” said Dr. Akl, Associate Professor.



From the Dean



Dr. Costas Tsatsoulis

Students and faculty at the UNT College of Engineering are conducting research in various areas such as building materials, unmanned aerial vehicles, and metallic glasses — activities that are helping the College fulfill its mission of capitalizing on the opportunity for innovation and excellence in teaching, research and service. I am proud to highlight some of the recent student and faculty accomplishments.

Please join me in welcoming the new additions to our faculty, who bring a wide variety of knowledge and experience that will strengthen our ability to deliver a high quality learning environment to our students and move forward with innovative and collaborative research. In particular, I am excited to welcome Dr.

Yong X. Tao, an outstanding researcher, educator, and administrator, as the new chair of the Department of Mechanical and Energy Engineering.

While we are planning to add more talented faculty members, our current faculty are raising the bar with their prestigious awards. I'm delighted to announce that we now have a third CAREER recipient, Dr. Cheng Yu, who will research cold-formed steel and its applications as a construction material. Additionally, Dr. Narendra Dahotre has been named a Fellow of the Society of Manufacturing Engineers.

Not only is our faculty receiving recognition, but programs and initiatives in our departments also are gaining notice. The Laboratory for Recreational Computing was named one of the 50 best undergraduate institutions in the U.S. and Canada to study game design. In other good news from the Department of Computer Science and Engineering, the Metroplex Technology Business Council recognized the UNT Robocamp for helping to grow the STEM pipeline, particularly by exciting and encouraging girls to become future engineers and scientists.

Robocamp is just one of the methods that helps us encourage students to consider engineering as a career and pursue their studies here; I'm pleased to report two firsts for the College: the Summer Undergraduate Program in Engineering Research and Materials Camp. Additionally, the Institute of Electrical and Electronic Engineers Region 5 Student Circuit Design Competition was held at Discovery Park, which brought student competitors from several states. We've also attracted a U.S. Presidential Scholar to conduct research, and we wish him good luck with his future studies.

We are receiving gifts that will allow our students to conduct research, and the students' education is paying off with their own honors such as the Philanthropic Educational Organization International Peace Scholarship. In another area of internationalization, UNT Engineering's Chris Heiden recently visited Germany to participate in a Fulbright seminar. This was a great opportunity to help the College expand the international recognition of its various programs.

As the semester is reaching the end, I'm looking forward to the new achievements that next year will bring, and I hope that you will continue to be a part of the College's success.



The College of Engineering is proud to announce that the Bachelor of Science Program in Electrical Engineering at UNT is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. For more information about the Electrical Engineering program, visit <http://www.ee.unt.edu>.

Other Accredited Programs

The College of Engineering's Bachelor of Science in Computer Science has been accredited since 1986, and the Bachelor of Science in Computer Engineering has been accredited since 2008. For more information about Computer Science and Engineering, visit <http://www.cse.unt.edu>.

The following undergraduate program majors are accredited by the Technology Accreditation Commission of ABET, Inc.: Bachelor of Science in Engineering Technology, Electrical Engineering Technology, Mechanical Engineering Technology, and Nuclear Engineering Technology. For more information about the Department of Engineering Technology, visit <http://www.etc.unt.edu>.

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If you want to help the college save on paper and postage, please send an message to Angela.Nelson@unt.edu to receive upcoming newsletters via E-mail.

This newsletter is published twice a year, in the Spring and in the Fall, by the College of Engineering, University of North Texas, Denton, TX 76203. All rights reserved. Copyright © 2010 by the College. Periodicals postage paid at Denton, TX.

Postmaster: Send change of address information and blocks of undeliverable copies to University of North Texas, College of Engineering, P.O. Box 310440, Denton, TX 76203-0440.

College of Engineering Welcomes New Faculty Members

Computer Science and Engineering (CSE)

CSE welcomes Dr. Song Fu, an Assistant Professor who comes from the New Mexico Institute of Mining and Technology. He is the director of the Dependable Computing Systems Lab.

Dr. Fu's research interest is primarily in distributed, parallel, and cloud systems, including: reliability modeling and failure management; autonomic resource management and reconfigurable systems; virtualization technologies; energy saving in server farms; resource access control and protection; and cloud computing. He received his M.S. and B.S. degrees in Computer Science from Nanjing University and Nanjing University of Aeronautics and Astronautics in 2002 and 1999, respectively. He obtained his Ph.D. degree in Computer Engineering from Wayne State University, Detroit, Mich., in 2008. Find out more about Dr. Fu at <http://www.cse.unt.edu/~song>.



Dr. Song Fu



Dr. Hyoung Soo Kim

Electrical Engineering (EE)

EE welcomes Drs. Hyoung Soo Kim, an Assistant Professor who comes from the Georgia Institute of Technology, and Yuankun Lin, an Associate Professor who comes from the University of Texas Pan American.

Dr. Kim's research interest focuses on mixed-signal circuits design, including design of silicon-based feed-forward equalizers enabling giga-bit communication channels. He received his Ph.D. and M.S. in Electrical and Computer Engineering from the Georgia Institute of Technology (2010 and 2003 respectively), and his B.S. in Electrical Engineering from Yonsei University, Seoul, Korea.

Dr. Lin is a member of UNT's Bio/Nano Photonics Cluster, a multidisciplinary collaboration of professors who explore how light can be used in extremely small dimensions to develop new materials and devices with applications in medicine, telecommunications, energy and numerous other fields. Dr. Lin has a joint appointment in physics and electrical engineering. His research interests are photonics, laser optics, laser-matter interaction, Raman spectrum, fiber optics and sensor, photonic band gap materials, holographic lithography and two-photon lithography. Dr. Lin received his Ph.D. in Physics from the University of British Columbia in 2000, and M.S. and B.S. in Physics, both from Nankai University. Find out more about Dr. Lin at <http://www.phys.unt.edu/faculty/lin.html>.



Dr. Yuankun Lin



Dr. Peter Collins

Materials Science and Engineering (MSE)

MSE welcomes Dr. Peter Collins, an Assistant Professor.

Dr. Collins' research interests are largely focused on the application of state-of-the-art characterization approaches and coupled critical modeling to develop and apply modern principals of physical metallurgy to complex, multi-phase structural engineering alloys, including Ti-based, Al-based, Mg-based alloys, and Ni-based superalloys. He received his Ph.D. and M.S. in Materials Science and Engineering from Ohio State University (2004 and 2001 respectively), and his B.S. in Metallurgical Engineering from the University of Missouri - Rolla in 1999. Find out more about Dr. Collins at <http://www.mtse.unt.edu/Collins>.



Dr. Aleksandra Fortier

Mechanical and Energy Engineering (MEEN)

MEEN's recent faculty additions are Drs. Yong X. Tao (see page 1) and Aleksandra Fortier, an Assistant Professor who comes from Southern Methodist University.

Her research interests include: electronics reliability; nano-based Pb-free technology; processing, characterization, defects identification, and application of Pb-free electronic materials and components; and deposition of thin metal films by electroplating method. She earned her Ph.D. in Mechanical Engineering and M.S. in Engineering Management in 2009, and B.S. and M.S. in Mechanical Engineering in 2005 and 2006, all from Southern Methodist University. Find out more information about Dr. Fortier at <http://www.mee.unt.edu/Fortier/index.html>.



Engineering Technology Researcher wins NSF CAREER Award

Dr. Cheng Yu, Assistant Professor in the Department of Engineering Technology, has been awarded a National Science Foundation (NSF) CAREER award for his research on cold-formed steel and its applications as a construction material.

The CAREER award program, the most prestigious offered by the NSF for young investigators, supports early career development activities of teacher-scholars who effectively integrate research and education within the context of the mission of their organization. UNT has had five CAREER award winners, among which are two other Engineering professors: Drs. Rada Mihalcea of the Department of Computer Science and Engineering and Srinivasan Srivilliputhur of the Department of Materials Science and Engineering. Dr. Yu's grant amount is \$400,010.

"We are most proud of Dr. Yu's achievement. This accomplishment reveals the high quality and importance of Dr. Yu's research," said Rick Reidy, interim Chair of the Engineering Technology Department.

The five-year research project, Comprehensive Research on Cold-Formed Steel Sheathed Shear Walls, will lead to simplified and improved methodologies for safe and more economical design of building structures using the cold-formed steel shear



walls, which are recyclable and offer better fire resistance than wood construction. The research will enable the use of cold-formed steel in taller buildings than is currently allowed in high seismic and high wind areas. The project will include establishing accurate analytical models to predict the shear strength of cold-formed shear walls made with different sheathing materials.

The educational component to Dr. Yu's work involves developing a course curriculum, textbook and associated lab manual with the latest design theories for use by educators, students and professionals. He said that he plans to improve his class in cold-formed steel by creating more experiments so students have more exposure to the actual product. He also plans to organize a nationwide student competition about cold-

formed steel structural design and innovation in collaboration with professional societies and other universities. Dr. Yu, who is the faculty advisor for the student chapter of the Associated General Contractors, said that he feels that competitions are good platforms for students utilize their knowledge with real-world problems. "Competition is an excellent way to promote education in cold-formed steel," Dr. Yu stated.

For more information on Dr. Yu, visit <http://www.etc.unt.edu/public/cyu>.

Materials Science Chair Named SME Fellow, Receives NSF Grant

Dr. Narendra B. Dahotre, who is internationally known for his work on fundamentals and applications of laser surface engineering of metals, ceramics, polymers and composites, has been named a Fellow of the Society of Manufacturing Engineers (SME), a professional organization that promotes manufacturing knowledge and education.

Dr. Dahotre, chair of the College of Engineering's Department of Materials Science and Engineering, said he is "delighted to receive the honor along with only five other inductees from the peers and the worldwide manufacturing engineering community. It is very satisfying to see the recognition to my lifelong service to the field of laser-based materials processing through teaching and research programs funded by several industrial and federal organizations."

A SME Fellow is a member recognized by the manufacturing community as a contributor to key aspects of the profession. This is an honor that can only be earned through years of dedication and service to manufacturing engineering.

The National Science Foundation has recently awarded a \$208,868 grant to Dr. Dahotre for a project that will seek to alter

the microstructure of metallic glasses so that they can be used in commercial applications.

The objective of the research project is to develop a new class of metallic glasses by increasing its strength and energy efficiency using laser-based technology. Possible uses include replacing steel cores used in electric transformers with the metallic glasses for higher efficiencies. The project is a collaborative effort with Dr. Sandip Harimkar of Oklahoma State University, who also has received separate funding of \$188,521.

"The grant provides an opportunity and a platform to research and develop a new class of amorphous materials through laser based technique. The cutting-edge laser interference technique will allow physical, chemical, and molecular transformations at submicron levels in selective volumes of amorphous material," Dr. Dahotre said. "Such controlled

transformations will generate physical and chemical properties that are conventionally conflicting to each other. Such unique transformations are slated to wide open the doors for a host of industrial and commercial applications of these materials."





From Left: Dr. Ian Parberry during a LARC meeting; Harold Myles (LARC Alumnus #45) and Chris Bream (LARC Alumnus #12) during a Terminal Reality panel discussion at the UNT Willis Library; new LARC location with posters of games alumni developed.

UNT's LARC Listed in the Top 50 Undergraduate Game Design Programs

The University of North Texas is one of the 50 best undergraduate institutions in the United States and Canada to study game design, according to the *Princeton Review*, which is known for its annual college “bests” lists.

UNT became one of the first universities in the country to offer courses in game programming in 1993 and launched a certificate program in 2008. Students also can work towards a MS in computer science with a track in game programming and a Ph.D.

More than 50 students have gone to work for a variety of computer game companies, including Terminal Reality, Paradigm Entertainment, Mumbo Jumbo and Barking Lizards. Notable Laboratory for Recreational Computing (LARC) alumni include Jason West, who started the Call of Duty franchise, and Cesar Stastny, director of Technology, Treyarch, responsible for Call of Duty Black Ops.

LARC’s other achievements include:

- Three alumni who have authored books;
- Three alumni who have started companies; and
- Two alumni who have become professors.

Dr. Ian Parberry, interim chair and professor of computer science and engineering, said the collaboration between students in computer science and visual arts makes the UNT program stand out among its peers.

“It’s a truly interdisciplinary program,” said Dr. Parberry, who is the director of LARC. “This sets us apart from many others.”

The Princeton Review surveyed 500 schools before arriving at its top 50 with game design studies. Programs were evaluated on several criteria: curriculum, faculty, facilities, infrastructure, career opportunities for students and graduates and scholarships and financial aid. *GamePro* magazine, which worked with the *Princeton Review*, published the list in its April issue. For more information on LARC, visit <http://larc.unt.edu>.

College of Engineering Administrator Receives Fulbright Grant

Christopher Heiden, Associate Director of Academic Services for UNT's College of Engineering, recently traveled to Germany to participate in the 2010 Fulbright Seminar for U.S. Administrators in International Education.

Conducted by the Fulbright Commission from Oct. 16 through Oct. 30, the seminar began with a week in Berlin. During the second half of the program, Heiden visited different universities in Hamburg, Dortmund, and Mainz.

Fulbright is the most widely recognized and prestigious international exchange program in the world, supported for more than half a century by the American people through an annual appropriation from the U.S. Congress and by the people of partner nations. The program — working with universities, schools, binational Fulbright commissions, government agencies, non-governmental organizations and the private sector — actively seeks out individuals of achievement and potential who represent the full diversity of their respective societies and selects nominees through open, merit-based competitions.

“The Fulbright seminar will allow me to be at the forefront of

pioneering new rapports and eventual agreements for enhanced visitation and exchanges of students and faculty from Germany and from the University of North Texas,” Heiden said. “The

contacts made and the relationships that follow can foster partnerships that would provide student and/or faculty exchanges between our institutions. The long-range impact will also entail increased exposure and goodwill between Germany and the people of Texas.”

The International Education Administrators seminars program is designed to help international education professionals and senior higher education officials from the United States gain a better understanding of and develop long-lasting connections with the higher education systems of other countries. Grantees take from their experience an enhanced ability to serve and encourage international students and prospective study-abroad students.

Heiden participated in a group seminar on German higher education and society designed for U.S. university, college and community college administrators whose current responsibilities have a direct relation to international exchanges, career services, or alumni affairs in higher education.



UNT Studying Methods to Extend Service Life of Thermoelectric Devices

Research being conducted at UNT could result in waste heat recovery innovations for applications such as replacing Freon used in refrigerators and using wasted heat from automobile exhaust to provide cooling inside the car.

The II-VI Foundation has awarded a gift in the amount of \$100,000 to UNT's Laboratory of Advanced Polymers & Optimized Materials (LAPOM), Department of Materials Science and Engineering and Department of Physics. The gift will go toward a project titled "Polymeric Sealants for Improvement of Effectiveness of Electric Power Generation."

The agreement was signed on May 26 by Dr. Witold Brostow (Director of LAPOM, seated on the left), Dean of Engineering Costas Tsatsoulis (seated in the center), and Dr. Carl J. Johnson, chairman of the II-VI Foundation (seated on the right). Also present at the signing were undergraduate students who will be working on the project.



For more information on LAPOM, visit www.unt.edu/LAPOM.



Students Receive International Scholarships

Two Engineering graduate students — Rajitha Peesari and Swetha Adama — were recognized for their academic achievements with the Philanthropic Educational Organization (P.E.O.) International Peace Scholarship.

Both Peesari and Adama are Computer Engineering students — and friends — who will be graduating in the spring of 2011 (Peesari's specialization is Computer Networks, and Adama's is Network Security). Each was awarded a \$10,000 scholarship to help subsidize the cost of their education.

P.E.O. is a philanthropic organization for women with almost 250,000 members in chapters in the United States and Canada.

ASHRAE Sponsors Senior Project

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recently awarded a grant in the amount of \$5,000 for a senior design project titled "Harvesting Built Environments for Global and Accessible Modular Energy Audit Training."

The UNT project, which involves the development of an economical building energy auditing kit for a senior design project, is part of the Modular Energy Engineering Laboratory Curriculum (MEELC) being created by Dr. Matthew Traum (on the far left in the photo).

Dr. Traum reports that the ASHRAE-sponsored senior design team has made two site visits to Preston Tower in Dallas, which is a high-rise residential building they plan to audit in Spring to improve its energy efficiency. One of the team's important initial findings is that the windows of Preston Tower were installed almost 40 years ago, and the weather stripping and seals have degraded to a point where the building envelope is no longer sealed tight.

The conventional method to evaluate infiltration is called a "Blower Door Test," which sucks the air out of a room, dropping the internal room pressure about 50 Pascals below ambient. The test protocol assumes that the building envelope is tight enough to establish a measurable 50 Pa pressure difference. However, some buildings are so poorly sealed that the initial 50 Pa pressure difference required to perform a Blower Door Test cannot be achieved. Anticipating this case might be true for Preston Tower, the students devised a new Blower Door Test protocol. The students recently took delivery of a blower door from Infiltec using funds from ASHRAE. They have already used this new piece of building energy audit equipment to test their new protocol. Initial results of these experiments were submitted to the Student Technical Section of the 2011 American Society for Engineering Education (ASEE) Gulf Southwest Annual Conference, and the students will travel to Houston in March 2011 to present their results.



For more information on the project, visit www.mee.unt.edu/public/traum/SD_ASHRAE.php.



IEEE Region 5 Student Competition Held at UNT

The University of North Texas College of Engineering welcomed teams of students who came to compete in the Institute of Electrical and Electronic Engineers (IEEE) Region 5 Student Circuit Design Competition, held on April 17.

The competition was part of the IEEE Region 5 Annual Business Meeting, which was held at the Gaylord Hotel and Convention Center in Grapevine. The contest took place at the Projects Laboratory of the College of Engineering's Electrical Engineering Department.

"We were honored that Region 5 of the IEEE chose UNT to host the circuit design competition," said Dr. Murali Varanasi, chair of the Department of Electrical Engineering. "This competition is a great way for students to test their engineering skills in an environment not so different from how design activities take place in industry, and we were excited to be a part of it."

Undergraduates who are IEEE Region 5 members and were registered for the annual meeting were eligible to enter the contest, with two members per team. Thirteen teams of students competed, and UNT was represented by seniors Jeremy Llewellyn (who is in the photo) and Todd Crocker.

U.S. Presidential Scholar Works With Professor

David Crouse, who was named a U.S. Presidential Scholar for his excellence in academic performance, worked for more than a year in the laboratory of Dr. Shengli Fu, Assistant Professor in the Electrical Engineering Department, successfully completing two projects: remote laboratory and real-time ECG monitoring.

Crouse, who received one of the nation's highest honors for high school students, helped conduct research at UNT from February 2009 until he left for Michigan State University this fall with a full scholarship. Crouse began research work at UNT after sending a letter to the university and interviewing with Dr. Fu, who described Crouse as an excellent student whose background in electronics and programming skills were a good match.

"This is a big project," Fu said. "The long-term goal is (for the monitoring system) to detect abnormal heart signals in real time and send warning information to the doctor."

Crouse said he was motivated to work on a ECG monitoring project due to his grandfather's two heart attacks. He stated that he would like such a system to gather a holistic view of a person's health – "not only heart rhythm, we also thinking of setting it up for blood sugar monitoring for diabetics and measuring the oxygen content in blood for asthmatics."

Crouse said that he enjoyed the good collaboration between the researchers at UNT and hopes to stay in touch while at Michigan State.



David Crouse and Dr. Shengli Fu display their work from the ECG monitoring project.

Scholars Day Features Design Project

A senior design project by students in the departments of Electrical Engineering and Computer Science and Engineering was featured during the Seventh Annual University Scholars Day on April 15.

Hosted by the Office of the Provost and Vice President for Academic Affairs and the Honors College, the event celebrates the work of undergraduate researchers at UNT. The project involved designing and building an unmanned aerial vehicle for the purpose of photography and surveillance at a much lower cost than the current industry standard.

"Senior design is one of the key parts for the innovative design- and project-oriented electrical engineering curriculum. I am impressed with the quality of their work and the professional performance during both presentation and poster sessions," said Dr. Shengli Fu, Assistant Professor, Department of Electrical Engineering.

Jennifer Williams, one of the students who worked on the project, said that the team received outstanding publicity and support from the Honors College and the Department of Undergraduate Research, including being provided with funding for an enrichment activity — a day trip to the Johnson Space Center in Houston in May. The students' research also was featured in *The Eagle Feather*, A Journal of Undergraduate Research sponsored by the Honors College at the University of North Texas. Read more about the research at <http://web3.unt.edu/honors/eaglefeather/2010/flight-control-subsystem>.



(Above) Students present their findings during the Electrical Engineering senior project presentations. (Below) Aircraft is displayed during senior design presentations.



UNT Gathers SUPER Students to Conduct Summer Research

The UNT College of Engineering gathered 17 high-quality undergraduates from across the nation and Mexico to conduct research through the UNT College of Engineering's SUPER (Summer Undergraduate Program in Engineering Research).

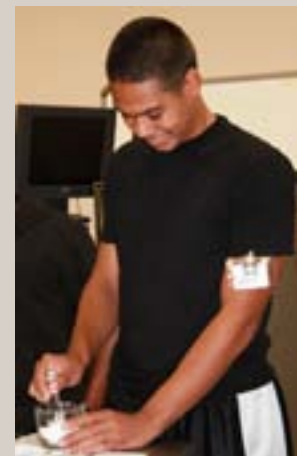
The eight-week program is oriented towards students who have completed at least two years of study in Computer Science, Computer Engineering, Electrical Engineering, Mechanical Engineering, or Materials Science and Engineering with a cumulative GPA of 3.5 or higher at the end of the Fall 2009 semester.

SUPER students were assigned a faculty mentor and were allowed to perform research under one of UNT's research areas or propose a research project of their own. Research conducted by the students included measuring live music to determine whether musicians could be at risk for hearing loss, finding the most profitable routes for taxis, and designing artificial lung capillaries.

"I have spent every summer working at some sort of internship or research position and have never been so satisfied with the overall program or the work that I was able to do," said participant Rob Wheeler, a Massachusetts Institute of Technology student. "Everyone I worked with in the Materials Science department couldn't have been more helpful. They did a great job of giving me the opportunity to have as much work as I wanted."



Above: Students give final presentations of their work. Below: Students display their certificates after completing their SUPER studies.



From Left: Students learn about polymer chemistry by creating slime; Dr. Narendra Dahotre congratulates a student for successful completion of the camp (Dr. Srinivasan Srivilliputhur and Graduate student Arun Devaraj are in the background); a student creates a mixture for the glass making demonstration.

High Schoolers Explore Opportunities in Materials Science at UNT Summer Camp

High school students learned more about the world of materials engineering and nanotechnology during the UNT College of Engineering's Materials Camp, July 12-14.

Making its debut this year, Materials Camp offered participants various opportunities that included: studying microchips and other materials using using sophisticated microscopes and computers; heating materials to thousands of degrees or cooling them with liquid nitrogen; and melting and making materials using lasers, plasmas, and furnaces.

As souvenirs of their experience, students received course notes, diagrams, and photos, as well as some of the unique engineering materials fabricated during the camp.

Dr. Narendra Dahotre, chair of the Materials Science and Engineering Department, said that the camp was "wildly successful beyond our imagination. The credit for the success goes to a team of graduate students, faculty members, and the staff in Materials Science and the staff in the (College of Engineering) Dean's office."

Graduate student Arun Devaraj, who along with other UNT Material Advantage Society (<http://orgs.unt.edu/MA>) members organized the camp, said that "because the current high school students will play an important role in shaping our future, it is important to increase their awareness of the fascinating field of materials science and engineering."

Chris Pearce Discusses Career From UNT to Cisco Systems

Chris Pearce, who is a Distinguished Engineer at Cisco Systems, Inc., and a member of the College of Engineering Advisory Board, said that he discovered computer programming when he was a teenager and knew from the start that he wanted to make this field a career. “I played my share of early computer games. My parents bought me a Commodore 64 during high school and one of the first things I did was write a little 2D shooter in BASIC. Yes, it ran slow,” he said.

“When I was attending computer science classes at UNT, I had the impression that all a computer programmer did was take problem descriptions and figure out how to write software to solve the problems—and that’s not completely incorrect,” Pearce said. “But when I was at UNT, I would never in a million years have envisioned myself standing on a stage in front of 400 people who were hanging on most every word, as happened when I needed to give an extended presentation on the capabilities of the 5.0 release of CUCM to members of Cisco’s sales force.”

Pearce attended UNT from 1985 to 1990 and graduated with a Bachelor of Science in Computer Science and a Bachelor of Arts in English Composition. Pearce said that his education at UNT gave him a very solid grounding in computer architectures and industry programming languages and practices. “I was able to go directly from the UNT computer science program into a software development job, where I immediately began contributing enhancements to the company’s flagship product,” he said.

Upon graduation, he went to work as a software engineer for InteCom, Inc., an Allen-based company. As a software engineer, Pearce helped develop features for the IBX, InteCom’s private branch exchange (PBX) product. PBXes are enterprise oriented



telephone systems that provide extensive suites of features to end users.

In 1997, Chris joined a small team to help design a PBX that, rather than running in a standalone mainframe computer, ran on a standard computer server and communicated with phones over a standard Internet Protocol (IP) network. In 1998, Cisco Systems, Inc., acquired the software and developed it into Cisco Unified Communications Manager. Cisco phones have been on every continent, including Antarctica, as well as outer space.

A Cisco Distinguished Engineer is a technical position at Cisco Systems, Inc., that’s roughly equivalent to a director level on a managerial track, Pearce said. “I act as a software product architect for Cisco Unified Communications Manager (CUCM). Just as with construction of actual buildings, an architect

prepares the software designs that other people use to actually construct the product,” he said.

This position at Cisco not only involves enhancing the existing product with features but also often requires working with product managers and architects for other products and figuring out how the products can work together better. “For example, Cisco makes an Instant Messaging and Presence product called Cisco Unified Presence (CUP), and CUCM interoperates fairly tightly with it. As an architect, I don’t get to write very much code anymore, though it is a treat when the opportunity arises,” Pearce said.

Pearce has since authored the book *Cisco CallManager Fundamentals*, in its second edition, and is holder of 22 software patents. Pearce said that most of his patents relate to core enhancements that he designed over the years for CUCM and that he is proud of the actual implementation of the software within CUCM on which the patents are based.

College of Engineering Advisory Board

Attending the May 21, 2010, Advisory Board meeting are (from top to bottom, left to right):

- Craig Berry, Siemens
- Jason Cinek (class of 1994 - CNET), TDIndustries
- Larry Eckersley, Freese and Nichols
- Mario Garza, Jr., AT&T
- Chris Pearce (class of 1990 - CS), Cisco Systems
- John Beasley (class of 1983-MBA), Consultant
- Rakibul Islam, Zodiac Aerospace
- Sean McMenamin, Peerless Manufacturing
- Costas Tsatsoulis, Dean, College of Engineering
- Wes Mays, Peterbilt
- Bill Lawrence, B. Lawrence Consulting, LLC
- Etta Clark (class of 1980 - CS), PepsiCo
- Jeannie Shackelford, Lockheed Martin Aerospace
- Cesar Moncada, Verizon

(not in photo)

- Michael Severson, Bell Helicopter
- Landon Sproull, Peterbilt Motors



Development Officer's Report

More than 4,000 of our College of Engineering alumni reside in the Dallas – Fort Worth metropolitan area. In the past year, alumni events have been held in Denton (away from campus), Fort Worth, and north Dallas/Plano. I'm happy to report we also have successful alumni in Atlanta, Denver, the greater Los Angeles area, the San Francisco Bay area, and Seattle — not to mention our growing number of graduates in Austin, Houston and San Antonio. They're reading this newsletter and other correspondence from their department, whether it's Computer Science and Engineering, Electrical Engineering, Engineering Technology (formerly known as Industrial Arts or Industrial Technology), or Materials Science and Engineering. They've been reading about our rapidly growing Department of Mechanical and Energy Engineering and our efforts as an emerging research university.

When I meet with alumni, industry executives, or members of the community, their questions focus on students. How many? Where do these students hail from? SAT scores? I'm pleased to report that we've grown by nearly 50 percent since 2004, when the College of Engineering was established. Many of our students are from the Metroplex, and our ability to draw students from outside the state or outside the nation is growing. The latest class of freshman has some of the highest SAT scores in the state, and our outreach efforts are attracting a growing number of well-qualified applicants outside of Texas.

That information affects our development efforts in one word: scholarships. Scholarships will help us continue to attract the best and brightest students. In recent months, Blackberry developer – Research In Motion, as well as Siemens, PepsiCo and Zodiac Aerospace have committed scholarship funding for our students. Dean Tsatsoulis has noted that three years ago the College had a few alumni supporting our scholarship fund. Last fiscal year, we had more than 80 donors, who gave on average more than the previous year. Economic conditions are challenging, but you're tougher. Your toughness and financial support will ensure the College's ability to provide innovative programs. Innovative programs are needed to support students, attract first-rate faculty, and make funded research possible. These efforts will advance UNT in science and engineering to the level of recognition noted for our music, arts and education programs. These efforts will add value to your diploma.

I look forward to meeting you on a tour of Discovery Park, at your company or at the next alumni event.

— *With green pride,*
Reginald Grant
Development Director
College of Engineering



Reginald Grant talks with Finley Ledbetter, CEO, Group CBS Inc., at a Sept. 22 alumni reception.



Nergis Soylemez-Sayed (Electronics Engineering Technology, 2006), Quality Engineer, Thermadyne Corporation, with husband, Harris Sayed (Computer Science, 2003, and MBA, 2007), conversing with George Gilchrist, Network Engineering Manager, Verizon, and William "Bill" Stamm, Director, Denton County-BEST, at a Sept. 22 alumni reception.



Dr. Krishna Kavi and Lettie Haynes (Computer Science, 1982), BNSF-Assistant Vice President, discuss article on Dr. Kavi's research during a recent visit.



Reginald Grant talks with Harvey Stockman, Manager-Midstream Operations, Chesapeake Energy, and his wife, Pamela, during Homecoming (Oct. 16).

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Making Headlines

UNT College of Engineering faculty, students and alumni have been featured in various publications, including:



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