

International Connections UNT Boosts International Reach, Expands Research Opportunities

During the spring and summer 2013, the College of Engineering initiated or was involved in events to strengthen the college's international ties, which will lead to opportunities for international collaboration and student involvement.

On May 19-22, the University of North Texas held its third annual Global Discovery Workshop, Energy Efficient Buildings and Communities, in Tartu, Estonia.

This year's event was also co-organized by the University of Tartu in Estonia, the State University of Ponta Grossa in Brazil, and the City of Denton, Texas, and sponsored by the University of Tartu, State University of Ponta Grossa, University of North Texas, Denton, Texas, the City of Denton, Texas, Defendec, Inc. (Tallinn, Estonia), the City of Tartu, Estonia, CINVESTAV (Saltillo, Coahuila, Mexico), and London South Bank University, London, United Kingdom.

Government officials, researchers and industry representatives from countries around the world including the United States, China, Mexico, Germany, Brazil, Romania, the United Kingdom and Estonia attended the event. Discussions included how to incorporate the next generation of green energy and sustainable technology into communities, current research focusing on sustainability, and green energy practices already in place in the world's top cities.

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(Top photo, top to bottom, left to right) Cristian Lungu, Javier Rodríguez Varela, Sheldon Shi, Jeffrey Levine, Saraju Mohanty, Ener Salinas, Gerhard Kier, Stan Ingman, Yong Tao, Hongwei Tan, Gabriel Carranza, Madis Saluveer, Tõnu Mauring, Mark Burroughs, Marcelo Rangel, Vergniaud Elyseu Filho, Giovana Wiecheteck, and Costas Tsatsoulis; (Bottom left) Tree Planting Ceremony in recognition of the commitment to energy efficient communities by the cities of Tartu (Estonia), Denton (U.S.), Ponta Grossa (Brazil), and Hannover (Germany); (Bottom right) Plaque commemorating the tree planting ceremony.

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A green light to greatness.

UNT

MESSAGE *from the Dean*

UNT's College of Engineering is privileged to have faculty who are talented instructors and dedicated researchers as well as students who will be making their mark on the engineering world. To continue attracting high-quality faculty and students, the College of Engineering has added new lab space that will broaden research and hands-on learning opportunities in the Departments of Mechanical and Energy Engineering and Materials Science and Engineering. Additionally, as these labs were being completed, construction began on a facility that will house labs for structural testing and manufacturing.

The College also helps support our faculty through workshops and other events that foster mutually beneficial international research cooperation. Activities such as the Global Discovery Workshop have helped foster joint research initiatives that seek to solve national and international challenges and have resulted in faculty and student research exchanges.

Additionally this past summer, we were pleased to host guests from Thammasat University, located in Bangkok, Thailand. Along with offering a tour of our facilities, we reached an understanding to pursue the establishment of 2+2 undergraduate programs in electrical and mechanical engineering. The model will be that of a transfer program agreement in which Thammasat students will take half of their undergraduate coursework in Thailand and half at UNT. We expect around 45-50 juniors from Thammasat to transfer to UNT each year starting with Fall 2016.

The College also offers research opportunities to students from Thailand through a spring program that allows them to intern in the labs of UNT engineering faculty. In Spring 2014, more than 15 students from Chulalongkorn University and Mahidol University will work with UNT faculty members and research groups and will attend fun activities in the Dallas-Fort Worth area.

Thanks to our international outreach efforts, we are becoming exceptionally positioned to attract high quality international students such as two graduate students from Universidad Autónoma del Estado de México (UAEM). Juana Mariel Davila Vilchis, who visited UNT in 2011 through the College's Summer Undergraduate Program in Engineering Research (SUPER), received her master's in Materials Science and Engineering during the summer of 2013. Omar Costilla, who will receive his master's in Electrical Engineering in May 2014, took 2nd place in a June 2013 hackathon sponsored by the Dallas Engaged Professionals organization.

I have a deep appreciation for the tremendous opportunities that await the UNT College of Engineering. I hope you will continue to follow us on our journey as we are exceptionally positioned to accomplish our goals and to increase our footprint on the global stage.



North Texas
Engineer



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International Visitors, from page 1

(Top left photo from Thammasat University visit) Miguel Garcia-Rubio, Chainarong Chaktranond, Prapat Wangskarn, Costas Tsatsoulis, Somkit Lertpaithoon, Vijay Vaidyanathan, and Seifollah Nasrazadani; (Top right photo from delegation visit to Japan) Jincheng Du, Fernando Fleurquin, Arup Neogi, Rick Nader, UNT President V. Lane Rawlins, John Roos, Felix Wu, Koji Fuse, and Ed Murdy; (Bottom photo from wood workshop) Ge Wang presents Yong Tao with a bamboo keyboard.

Main discussion points included:

- How can all disciplines be included in the topic of energy efficient buildings and communities?
- How can industries become more involved in the discussion on energy efficient communities?

More information, including videos from the 2013 event, can be found at <http://globaldiscoveryworkshop.unt.edu>.

Wood Workshop

Presenters from China, Ghana, Slovenia, and Turkey discussed research topics related to wood-based products and natural fiber composites during a June 13 workshop held at UNT.

The International Workshop: Wood and Natural Fiber Materials for Energy Efficient Building Construction offered attendees the opportunity to explore international research collaboration possibilities as well tour UNT College of Engineering laboratories. Research topics included:

- Bamboo-based Composites for Building Construction
- Structural insulated panels for modular homes
- Nanotechnology Applications for Environmentally Friendly Wood Composites

The workshop was organized by Dr. Sheldon Shi, associate professor of the Department of Mechanical and Energy Engineering as well as is the president-elect of the Society of Wood Science and Technology (SWST). Dr. Liping Cai, Research Professor who is working in Dr. Shi's group, helped on the details of the workshop. After the workshop, Mr. Peter Dadzie, a Ph.D. student from Ghana, stayed at UNT for a few days working on a collaborative project on the microstructure study of a few Ghana wood species.

Thammasat University visit

The College of Engineering recently welcomed guests from a Thailand university in a visit to discuss areas of cooperation with the College and opportunities for undergraduates.

On June 19, an engineering-focused delegation from Thammasat University in Bangkok, Thailand, arrived at the University of North Texas to meet with the College of Engineering Dean and department chairs, the UNT provost, and representatives from UNT's College of Education and the College of Visual Arts &

Design. Thammasat University representatives included:

- Prof. Dr. Somkit Lertpaithoon, Rector of Thammasat University
- Assoc. Prof. Dr. Prapat Wangskarn, Dean of Faculty of Engineering
- Asst. Prof. Dr. Witawats Satasook, Associate Dean for Planning and Finance, Faculty of Engineering
- Assoc. Prof. Dr. Chainarong Chaktranond, Assistant Dean for Infrastructure, Faculty of Engineering

The visit included a discussion to explore the possibility of a dual undergraduate degree in Engineering. An understanding was reached to pursue 2+2 undergraduate programs in Electrical, and Mechanical Engineering, starting with Thammasat's freshman class of 2014. The model will be a transfer program agreement. Upon successful completion of two years at Thammasat, the first group of Thammasat students will join UNT in the Fall of 2016.

Thammasat University is Thailand's second oldest institute of higher education.

UNT Delegation Japan, Taiwan Visit

A UNT delegation led by President V. Lane Rawlins visited Japan May 19-25 to celebrate longstanding relationships and to chart a new course with top research institutions in the areas of sustainability, materials science and engineering, and mechanical and energy engineering. The delegation also visited top universities in Taiwan to promote student and faculty exchange in the same areas.

The visit's objectives were to:

- Maintain and build new research relationships between UNT and top institutions in Japan
- Recruit international students interested in sustainability and STEM (science, technology, engineering, and mathematics) fields
- Hold the first alumni network meetings in Japan and Taiwan

UNT delegation members included Drs. Jincheng Du, associate professor in the Department of Materials Science and Engineering, and Xun Yu, associate professor in the Department of Mechanical and Energy Engineering, who joined the delegation in Taiwan.

Research Displayed at the Perot Museum of Nature and Science



UNT faculty members and graduate students showed off their research during an evening of exhibits and entertainment at the Perot Museum of Nature and Science in Dallas. Seven exhibitions were part of the museum's newly opened Social Science night on June 21, 2013. The university also provided a sneak peek of the research on June 8 at UNT on the Square in downtown Denton.

Exhibitions from UNT included "Relating DNA to Individual Vulnerability to Disease" by Qunfeng Dong, assistant professor in the Department of Biological Sciences, and Department of Computer Science & Engineering, which showed how genes relate to genetic and infectious diseases.

"Multi-Agent Collaborative Exploration with Robots:" by Kamesh Namuduri, associate professor in the Department of Electrical Engineering, which showed off autonomous robots that followed visitors and roamed the hallways.

"Relating Population Characteristics to the Spread of Disease:" by Armin Mikler, professor in the Department of Computer Science and Engineering. In this exhibit, researchers from the Center for Computational Epidemiology and Response Analysis used novel methods to create computational simulations of disease outbreaks that can help public health professionals control and respond to real-life disease outbreaks.

For more photos of the event, visit <http://engineering.unt.edu/unt-projects-perot-museum-nature-and-science>.

Engineering Offers Summer Camps

During the summer, the College offers programs designed to boost middle and high school students' interest in engineering through a variety of fun, hands-on activities.

Along with its popular RoboCamp and Xbox Game Camp, the Department of Computer Science and Engineering (CSE) introduced a new camp in 2013. Dozens of students ages 13-17 got a chance to learn app programming basics hands-on during the inaugural Android AppCamp. Four weeklong AppCamps were offered — two at UNT's Discovery Park, one at Collin College and one at Cisco's campus in Richardson.

RoboCamp is a week-long day camp that features numerous hands-on activities and experiments in robotics, engineering design, critical thinking and computer programming. The Xbox Game Camp is a one-week day camp that engages middle and high school students in team project-oriented activities. See top two and middle right photos for CSE camps

The Department of Materials Science and Engineering (MTSE) also holds a summer event for high school students, Materials Camp. Students are given the opportunity during the two-day event in July to tour the MTSE facilities, and participate in experiments focusing on various aspects of materials science. Some of the subjects students learned about in 2013 included laser processing, showing how lasers are used in material synthesis, and polymer materials, learning about the various roles of polymers in people's lives. See the middle left and bottom two photos for the MTSE camp.

The event was sponsored by MTSE and the American Society of Materials (ASM), with help from the UNT chapter of Material Advantage.



The College of Engineering Proudly Introduces New Faculty Hires

The **Department of Computer Science and Engineering** welcomes Dr. Hassan Takabi, an assistant professor from the University of Pittsburgh, where he completed his Ph.D. in Information Science. Before joining the University of Pittsburgh, he was a research scholar in the e-Security research centre at the London South Bank University. Takabi's research is on access control models, trust management, privacy enhancing technologies, usable security and privacy, and security, privacy, and trust issues in cloud computing environments and online social networks. Takabi completed a M.S. in Information Technology from Sharif University of Technology in 2007 and a B.S. in Computer Engineering (Software) from AmirKabir University of Technology (Tehran Polytechnic) in 2004.



The **Department of Engineering Technology** welcomes Dr. Michael Shenoda, a senior lecturer of Construction Engineering Technology. He previously served as a faculty member at University of Massachusetts Lowell, The College of New Jersey, and California State Polytechnic University, Pomona. He received a Ph.D. in Civil Engineering from the University of Texas at Austin in 2006, an M.S. in Environmental Engineering from the New Jersey Institute of Technology in 1999, and a B.S. in Civil Engineering from the New Jersey Institute of Technology in 1998. He has carried out research in several areas, including traffic control for high-volume work zones, intelligent transportation systems infrastructure, community engagement in roadway projects, and pavement management.



Engineering Faculty Named Distinguished Research Professors

Three engineering professors were named UNT's 2013 Distinguished Research Professors.

This prestigious award recognizes tenured faculty at the rank of professor who have achieved a truly exceptional record of creative activities or research productivity and demonstrate a record of continued extraordinary productivity. The three faculty members — Drs. Narendra Dahotre, Yong Tao, and Francis D'Souza — are among only 11 faculty members at UNT to hold the title of Distinguished Research Professor.

Tao (in top photo) is the chair of the Department of Mechanical and Energy Engineering, director of the PACCAR Technology Institute and PACCAR Professor of Engineering. He is an internationally known researcher in fundamentals of thermal sciences, refrigeration system performance, and renewable energy applications in buildings. Tao has more than 20 years of research and 17 years of teaching experience. Tao has produced more than 154 journal publications, book chapters, edited journals and proceedings. In addition, he holds two patents and has received more than \$12.2 million of research funding from various industries. He also serves as associate editor of Journal of Science and Engineering Applications and reviewer for several international journals in his research field.



Dahotre (in center photo), a professor of the Department of Materials Science and Engineering, has devoted his career to developing laser-based surface engineering for advanced materials. He has made pioneering contributions to understanding and engineering laser-materials interactions and implementation of high power lasers for materials processing and surface engineering. He is internationally known for his work on fundamentals and applications of laser surface engineering of metals, ceramics, polymers and composites. He has published and edited more than 200 technical papers, books and book chapters in his career. He also holds 15 patents and research funding as principal and co-principal investigator totals more than \$6 million.



D'Souza (in bottom photo), who has joint appointments in Chemistry and Materials Science and Engineering, is an expert in electrochemistry, supramolecular and nanomaterials, optoelectronics, and chemical sensor technology. Since 2005, he has received grants totaling \$1.4 million from the National Science Foundation and the American Chemical Society Petroleum Research Fund. He is a co-editor of Handbook of Carbon Nanomaterials and associate editor of the Journal of the Electrochemical Society, Electrochemical and Solid State Letters and the Journal of Porphyrins and Phthalocyanines.



Professor Named SPE Fellow

Dr Nandika D'Souza, professor in the Mechanical and Energy Engineering Department, was recently named as a Fellow of the Society of Plastics Engineers. She was one of five receiving this honor at the Annual Technical Conference in Cincinnati in April 2013. Only 289 members of an organization whose membership has ranged from 15,000 to 35,000 worldwide have been elected to this prestigious status since it was established in 1984.

D'Souza is head of the Polymer Mechanical and Rheology Laboratory, and her research interests are in interactions and properties of heterogeneous materials, blends, alloys, composites and nanocomposites.



Members of UNT's National Society of Black Engineers
Jalyn Nickerson, Brandon Anderson, and Ferrin Matthews



Barrett Bryant, Chair of the Department of Computer Science and Engineering, Oscar Garcia, Electrical Engineering professor and Founding Dean of the College of Engineering (2003-2008), Enrique Barbieri, Chair of the Department of Engineering Technology, and Shengli Fu, Interim Chair of the Department of Electrical Engineering.

(Left) Yong Tao, Chair of the Department of Mechanical and Energy Engineering, and Lisa Martin, assistant to the dean
(Below) Engineering Ambassadors Oscar Angulo and Maria Moreno



Development Officer's Report

Dear alumna/alumnus:

I am happy to note my fifth anniversary as your Development Officer. This year the College of Engineering (CENG) completes its tenth year educating students, producing ground-breaking research and bolstering the economic development of the North Texas region. I hope that you are as pleased as I am to be a part of the advancement, development, growth and success of the University of North Texas.

Your success provides me so many great opportunities to connect with you. Whether it's:

- getting a tour of your company, or meeting other CENG alumni at your employer;
- attending a banquet honoring distinguished alumni or awarding of your patent; or
- having coffee with you as you tell your story.

I also enjoy advancing the current breakthroughs with graduates who have been away too long. Each department chair opens their calendar to me so that I can schedule or host your tour of the latest senior design projects or faculty research.

Some of you don't live in the Dallas-Fort Worth area, so arranging meet-ups with you and faculty brings everyone closer to CENG. In the past year, we've had great alumni interest in Atlanta, GA, Austin, TX, the Baltimore-Washington, DC area, Connecticut, New Jersey and New York areas closest to New York City, Houston, TX, the Silicon Valley area of northern



Reginald Grant with Carl Singleton (Class of 1992) at Homecoming

California, Southern California nearest Los Angeles, CA, and Seattle, WA.

These visits have propelled us toward more than 94% of our capital campaign goal of \$11 million. Support that you've provided establishes scholarships to attract the best and brightest students and endows facilities and resources to attract and retain the best faculty to teach now 3,000 students.

I work to increase the value of your diploma. And I'm having fun. See you soon!

*With Mean Green Pride,
Reginald Grant*

Your support of UNT Engineering makes a difference.

Please consider a gift to support College scholarships and programs. You can make your gift online at https://development.unt.edu/givenow/givenow_ceng.php. or you can send your donation to the UNT College of Engineering, ATTN: Reginald Grant, 1155 Union Circle #310440, Denton, TX 76203-5017. The College appreciates your support. For a description of scholarships, go to <http://engineering.unt.edu>.

New Laboratories

New facilities will help serve the College's faculty and students.



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(Alumni)

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We would like to hear from our alumni. Please help us tell the story of the College of Engineering and promote the achievements of our alumni by completing the form at engineering.unt.edu/alumni-update.