

North Texas Engineer

A PUBLICATION OF THE UNT COLLEGE OF ENGINEERING
FALL 2011

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UNT Gets \$22 Million Pledge

On Aug. 15, the University of North Texas announced the largest gift in the history of UNT (view video) with a pledge of \$22 million from entrepreneur and alumnus Charn Uswachoke (in top right photo).

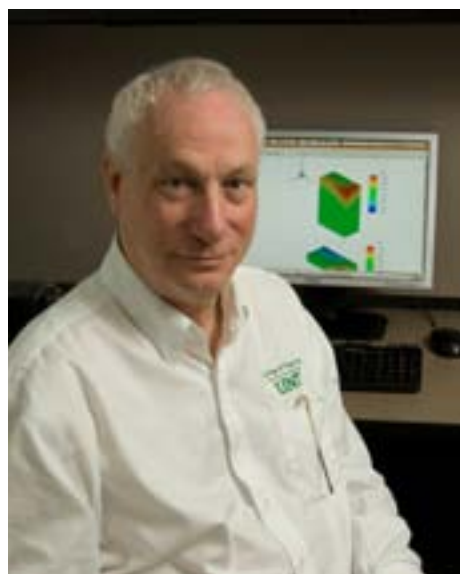
"I wanted to help the next generation have a better education so that we all can have a better world," Uswachoke said. "UNT is a top-quality school and continues to grow and strengthen as it expands into new areas."

UNT President V. Lane Rawlins (to the left in lower right photo) said Uswachoke's pledge is significant for its size, breadth and unmitigated support of the university's quest for excellence in providing a high quality education and in growing as a major public research university.

Provost Warren Burggren (to the right in lower right photo) said Uswachoke's pledge has the one-two punch of supporting students through scholarships and faculty through research support and endowed professorships and chairs. Some of Uswachoke's pledged gift dollars are expected to qualify for matching funds under the Texas program to help emerging research universities become national research universities, which would further boost the impact of his pledge.

The pledge will be divided among UNT's Colleges of Music, Engineering and Business. The College of Engineering will receive \$6.5 million:

- \$5 million to create the Charn Uswachoke Center for Energy Efficient Materials, a center that will help UNT become a leader in energy-related materials research.
- \$1.5 million to create endowed professorships in energy-related materials to attract top researchers to the center.



Professor Receives Timoshenko Medal

Dr. Alan Needleman, a professor with the Department of Materials Science and Engineering, is the recipient of the 2011 Timoshenko Medal — widely regarded as the highest international award in the field of applied mechanics — from the American Society of Mechanical Engineers (ASME). To read the award acceptance speech he made on Nov. 15, visit <http://engineering.unt.edu/alan-needleman-receives-timoshenko-medal>.

The Timoshenko Medal is conferred in recognition of distinguished contributions to the field of applied mechanics. Developed by ASME's Applied Mechanics Division, it honors Stephen P. Timoshenko,

world-renowned authority in the field, and it commemorates his contributions as an engineer and as a teacher.

Needleman has made significant contributions to several areas of mechanics of materials including the development of a ductile fracture computational methodology, the development of cohesive surface methods for fracture analysis, and creation of a framework that enables using discrete dislocation plasticity to solve general boundary value problems. His honors include election to the National Academy of Engineering and the Prager Medal awarded by the Society of Engineering Science.

Message from the Dean

For many of us at the College, this summer will be remembered not only for the scorching Texas heat but also for the construction and new initiatives that will provide us with additional teaching and research opportunities.

In July, we celebrated the ceremonial groundbreaking for the new Zero Energy Research Laboratory. Speakers at the groundbreaking expressed excitement for the impact that research and education in this lab will have on the economic development of the region and nation, and gratitude for the strong relationship that the college has with industry partners. This project is funded at \$1,150,000 with a combination of HEAF (higher education assistance funds), operating funds and gifts-in-kind. Donations from Schneider Electric, Acme Brick, Axiom Solar, Benchmark Precision Buildings and Nucor Steel helped make this project possible.

We also are expanding our research capabilities through the hiring of additional faculty, including the new chair of the Department of Computer Science and Engineering. I also want to highlight some of the achievements of our current faculty, including research into areas such as natural alternatives to fiberglass, recognition for published papers, and Alan Needleman, who has received the 2011 Timoshenko Medal.

Besides research and teaching, our faculty and students are taking their enthusiasm for engineering to middle and high school students. Along with hosting a regional competition for the 2011 North American Computational Linguistics Olympiad, the College also delivered summer education to students through the ASM Materials Camp and Robocamp. We also reached out to students of other universities through SUPER (Summer Undergraduate Program in Engineering Research) and the Student Competition on Cold-Formed Steel Design.



At the Zero Energy Research Laboratory groundbreaking ceremony were (from the left) Dr. Miguel Garcia-Rubio, College of Engineering associate dean for outreach; Dr. Costas Tsatsoulis, dean of the College of Engineering; Dr. Yong Tao, chair of the Mechanical and Energy Engineering Department and PACCAR Professor of Engineering; U.S. Rep. Michael C. Burgess, M.D.; UNT Chancellor Lee Jackson; and Dr. Ruthanne Thomas, associate vice president for research.

If summer wasn't busy enough, the College also hosted its first Research Experiences for Teachers in Sensor Networks program, which will help enhance the curriculum of area science and math teachers, and the Nanotechnology and Materials Science and Engineering Multinational Workshop, which brought together international researchers.

I also am proud of current students and alumni, who are making their own impacts to research, including Emma Zemler, who was selected as a Texas Aerospace Scholar, and Jared Fiorentine, who received a U.S. Student Fulbright Research Grant. To attract additional UNT-Texas Woman's University (TWU) dual degree students, the dual degree offerings have been expanded to allow students the option of pursuing a degree in materials science and engineering from UNT, to be paired with a TWU math or chemistry degree.

While we are grateful for Charn Uswachoke's \$6.5 million pledge, we also thank other alumni who continue to contribute to the success of the College.

—Dr. Costas Tsatsoulis

Please help me congratulate the following faculty on their promotions:

Computer Science and Engineering

Ram Dantu – promotion from Associate Professor to Professor
Armin Mikler – promotion from Associate Professor to Professor

Electrical Engineering

Shengli Fu – promotion and tenure from Assistant Professor to Associate Professor

Engineering Technology

Cheng Yu – promotion and tenure from Assistant Professor to Associate Professor

Materials Science and Engineering

Rajarshi Banerjee – promotion from Associate Professor to Professor
Rick Reidy – promotion from Associate Professor to Professor

Editor:

Angela Nelson

Contributors:

Costas Tsatsoulis, Dean

Reginald Grant, Director of Development

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.

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College of Engineering Welcomes New Faculty Members

Computer Science and Engineering (CSE)

CSE welcomes Drs. Barrett Bryant, the new Department Chair and Professor (see page 4), and Tamara Schneider, Lecturer.

Schneider's research is in response plan analysis and optimization. She received her Ph.D. in Computer Science and Engineering from the University of North Texas (2010) and her Diplom in Computer Science from the University of Passau in Germany (2007). Following her graduation, Schneider was a post-doctoral research associate with the UNT Computational Epidemiology Research Laboratory. For more information, visit www.cse.unt.edu/~schneider.



Materials Science and Engineering (MSE)

MSE welcomes Drs. Rajiv Mishra, a Professor who comes from the Missouri University of Science and Technology, and Francis D'Souza, a Professor who comes from Wichita State University, Wichita, Kan.

Mishra's research interests are in friction stir welding and processing; processing and properties of ultrafine grained materials; superplastic forming; high temperature mechanical behavior of materials; discontinuously reinforced aluminum composites; nanophase aluminum alloys; bulk metallic glasses; materials selection for alternative energy systems; and hydrokinetic energy. He received his Ph.D. in Metallurgy from the University of Sheffield, UK (1988); his M.Tech., Metallurgical Engineering, from the Indian Institute of Technology, Kanpur (1985); and his Bachelor of Engineering, Metallurgical Engineering, from the University of Rajasthan, Jaipur, India (1982). For more information, visit www.mtse.unt.edu/Mishra.



D'Souza's research interests include chemistry and supramolecular chemistry of porphyrins and carbon nanomaterials; photoelectrochemistry and photovoltaics; electrochemical and photochemical sensors and catalysts; and conducting nanocomposite hybrid materials for energy storage and conversion. He received his Ph.D. in Chemistry from the Indian Institute of Science, Bangalore, India (1992), and his M.S. in Chemistry (1984) and B.S. (1982) from the University of Mysore, Mysore, India. For more information, visit www.chem.unt.edu/Research/DSouza.htm.



Mechanical and Energy Engineering (MEEN)

MEEN's recent faculty additions are Drs. Mihai G. Burzo, an Assistant Professor who comes from Southern Methodist University, Dallas, Texas; Jiangtao Cheng, an Associate Professor who comes from Teledyne Scientific Company; Jaehyung Ju, an Assistant Professor who comes from Clemson University in South Carolina; Xiaohua Li, a Lecturer who comes from Florida International University; Cherish Qualls, a Lecturer who comes from Lockheed Martin – Missiles and Fire Control; and Xun Yu, an Associate Professor and graduate program coordinator who comes from the University of Minnesota Duluth.

Burzo's research interests include heat transfer in microelectronics and nanostructures, thermal properties of thin films

of new and existing materials, computational modeling of forced and natural heat convection, renewable energy, and refrigeration techniques. He received his Ph.D. in Mechanical Engineering from SMU (2001) and his Engineer Diploma (BS+MS) in Mechanical Engineering from the Technical University of Cluj-Napoca, Romania (1995). For more information, visit www.mee.unt.edu/MihaiBurzo.



Cheng's research interests include adaptive beam tracking and steering via electrowetting-controlled liquid prism; electrowetting solar house; wickless vapor chamber with active electrowetting control; nanoparticle transport in a microchannel; and hydraulic tomography. He received his Ph.D. in Physics from Purdue University (2002), his M.S. in Computer Science from Purdue (2002) and his B.S. in Applied Physics from Peking University (1991). For more information, visit www.mee.unt.edu/Cheng.



Ju's research interests are fuel efficient tire design, energy harvesting with electro-active polymers, and compliant cellular materials. He received his Ph.D. in Mechanical Engineering from Texas A&M University (2005), his M.S. from Korea University, Seoul, South Korea, (1998), and his B.S. from the Korea Aerospace University, Kyungki, South Korea (1996). For more information, visit www.mee.unt.edu/JaehyungJu.



Li's research interests are vibration control, structural health monitoring and nanocomposite materials for mechanical sensing and actuating. Dr. Li received his Ph.D. in Mechanical Engineering from Florida International University (2009), and his B.S. in Theoretical and Applied Mechanics from Lanzhou University, China (1996). For more information, visit www.mee.unt.edu/XiaohuaLi.



Qualls' research interests are flight dynamics, development of guidance and control systems, and statistical orbit determination. She received a Ph.D. in Aerospace Engineering (2004), a M.S. in Aerospace Engineering (2000) and her B.S. in Industrial and Systems Engineering (1998) — all degrees from Auburn University. For additional information, visit www.mee.unt.edu/CherishQualls.



Yu's research interests are nanotechnology based smart materials and smart structures; multifunctional materials (for energy, biomedical applications); and sensors and actuators. He received his Ph.D. in Mechanical Engineering from the University of Minnesota Twin Cities (2006), his M.S. in Mechanical Engineering from Shanghai Jiaotong University, Shanghai, China (2002), and his B.S. in Mechanical Engineering from Shanghai Tiedao University, Shanghai, China (2002). For more information, visit www.mee.unt.edu/XunYu.



Laboratory To Boost Research With Sustainable Energy Technologies

The University of North Texas has started construction on a state-of-the-art Zero Energy Research Laboratory, where students and faculty will get first-hand experience with sustainable energy technologies of tomorrow.

The facility is designed to test emerging technologies that allow building systems to have a net-zero consumption of energy, and once completed, it will be the first of its kind in the United States. The lab is designed for a whole building analysis approach, looking at the impact of the studied technologies on the lifetime energy cost of the building. A groundbreaking ceremony for the facility was held on July 9, and the 1,200 square-foot structure is expected to be completed in early 2012.

“A home consumer, as someone who is trying to price (energy-efficient) systems, is trying to make a decision about what makes sense to put into the home. For the very first time, you at the University of North Texas are going to be developing that expertise and technology. You’ll have the metrics,” said U.S. Rep. Michael C. Burgess, M.D., at the groundbreaking ceremony.

The building will include a main utility core, a bathroom with a shower, a small kitchen with a refrigerator and an open flexible laboratory space for research. Initially, the facility will be powered by solar energy and wind power and will be expanded to include other alternative energy sources to allow a wide range of zero-energy building research.

Students and faculty will use the lab as a testing ground for present and future sustainable technologies, such as structure



integrated insulation, building integrated solar panels, energy efficient windows, energy storage and energy monitoring systems for smart grid, as well as energy efficiency strategies involving user behaviors and social impacts. It will contribute to the global education and research infrastructure for collaborative initiatives in sustainable buildings.

The Zero Energy Research Laboratory will be an important facility for UNT’s research cluster in Renewable Energy and Conservation. Dr. Yong Tao, chair of the Department of Mechanical and Energy Engineering and PACCAR Professor of Engineering at UNT, and a committee of experts oversaw the design of the Zero Energy Research Laboratory.

View photos of the construction at <http://engineering.unt.edu/zero-energy-research-laboratory>.

College Welcomes New Chair of Computer Science and Engineering

As the new chair of the Department of Computer Science and Engineering, Dr. Barrett Bryant brings a distinguished record of teaching and service, including advising 14 Ph.D. and 36 M.S. students and publishing over 130 refereed articles in books, journals, and conferences.

Bryant comes to UNT from the University of Alabama at Birmingham, where he served as the associate chair of Computer and Information Sciences since 1996 and as the undergraduate program director since 1998. He was an Association for Computing Machinery (ACM) Distinguished Lecturer from 1993-2006 and twice was awarded “Distinguished Lecturer of the Year.” Additionally, he has received the Special Interest Group on Applied Computing (SIGAPP) Outstanding Service Award, the Award for Distinguished Service to SAC (Symposium on Applied Computing) and two university-wide teaching awards. He also was PI or co-PI on research grants totaling more than \$9.3 million.

Bryant said that he wanted to work at UNT because he “really liked the growth that is planned for UNT particularly in the College of Engineering and the Department of Computer Science and Engineering.”

Bryant received his Ph.D. and M.S. in Computer Science from Northwestern University in 1983 and 1980, respectively. He received his B.S. in Computer Science from the University of Ar-



kansas at Little Rock in 1979. His research interests are programming languages and compiler design, component-based software engineering, and formal methods in software engineering.

Bryant said one idea being discussed is the launch of a North Texas High School Programming Contest, which would help raise the awareness of the department’s offerings to area students. Other initiatives the department is considering are programs to provide more support to graduate and undergraduate students and a study abroad program in China primarily for undergraduate students.

Bryant also is busy with plans as the department celebrates its 40th anniversary, which include at least one plenary speaker or a distinguished speaker series, as well as alumni activities. “Hopefully, it will give a lot of visibility to our department and we’ll be able to reach

out and have contact with alumni we haven’t had contact with in recent times,” Bryant said.

Another plan is for a dinner event on campus for alumni and retired faculty members. “Some of the people have not been on the campus for a long time, so it’s not only a case of seeing what’s new at the department but also seeing what is new at UNT,” Bryant said.

For more information about Bryant, please visit www.cse.unt.edu/~bryant.

Professor, Co-authors Recognized for Solid Lubricants 'Best Paper'

Dr. Thomas Scharf (on the left in the photo), an associate professor with the Department of Materials Science and Engineering (MTSE), and co-authors (also in the photo) have been named the 2011 recipients of the Society of Tribologists and Lubrication Engineers' (STLE) Al Sonntag Award for the researchers' paper on a novel nanocomposite coating.

"The research that went into the paper was a collective effort between UNT and Sandia National Laboratories in Albuquerque, N.M.," Scharf said. "Much of the work would not have been possible without UNT's Center for Advanced Research and Technology."

Scharf is the lead on the paper; co-authors are David Dirckx, facilities manager, Center for Advanced Research and Technology; Brian Gorman, Colorado School of Mines; and Somuri Prasad and Mike Dugger, Sandia National Laboratories. The award honors the STLE member or members author-



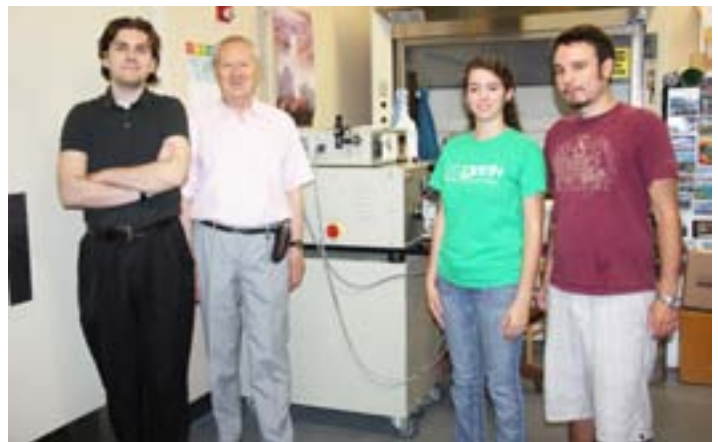
ing the best paper on solid lubricants published by the society during the year preceding the Annual Meeting. It is named for a pioneer leader in the specialized field of solid lubricants.

Researchers Discover Process to Create Stronger Plastic Products

Researchers are still trying to engineer plastics to have properties, such as strength and wear resistance, that are more commonly found in metals. Materials scientists manipulate the properties of plastics by adding solid fillers and reinforcers to molten plastics, but the addition of the solids increases the viscosity of the liquid, making it more difficult to mold.

Researchers in the Laboratory for Advanced Polymers & Optimized Materials (LAPOM) recently discovered a process that overcomes this dilemma. By grafting the filler Boehmite with another agent, the researchers were able to improve the adhesion of the filler to the polymer. The improved adhesion results in a polymer melt with a decreased viscosity. This discovery allows manufacturers to produce stronger plastics at lower temperatures, resulting in energy savings and improved production efficiency.

The research team included Dr. Witold Brostow, director of the LAPOM (second to the left in the photo), Dr. Haley Hagg Lobland, a LAPOM staff member and UNT alumna; Piotr Blaszczyk, a student at Northwestern University; and Dr. Tea Datashvili, associate director of the LAPOM. Datashvili presented some



of these results in March at the POLYCHAR 19 Annual World Forum on Advanced Materials in Kathmandu, Nepal. In competition with researchers from 46 countries, Datashvili received the prestigious Bruce Hartmann Prize for a Young Scientist.

Professors Receive NSF Funding to Develop Sustainable Building Materials

Researchers at the University of North Texas are on the verge of revolutionizing the construction industry by developing natural alternatives to fiberglass and other popular, non-biodegradable building materials.

Four UNT researchers recently received almost \$600,000 to develop sustainable, energy-efficient and multi-functional bioproducts for construction purposes from the National Science Foundation's Partnership for Innovation program. The program connects researchers and small businesses in an effort to transform knowledge created by academic research into innovative solutions.

UNT will work with InnoVida Southeast in Miami, Fla., and Ladonia Market Center (LMC) in Ladonia, Texas, to develop



composite panels that use plant fibers in the place of glass fibers. The UNT team will be led by Dr. Nandika D'Souza (in photo), a professor in the Department of Mechanical and Energy Engineering, who will oversee the design and creation of the new materials. The composite materials could be used for construction, cars and for a number of other uses.

D'Souza and her team have been studying the fibers produced by kenaf, a plant in the hibiscus family, as an alternative to glass and other synthetic fibers for several years. Kenaf fibers are attractive because they offer the same strength to weight ratio as glass fibers. The U.S. Department of Agriculture and LMC will provide the raw plant material to the researchers.

UNT Hosts International Nanotech Workshop

This summer, the UNT College of Engineering hosted its first Nanotechnology and Materials Science and Engineering Multinational Workshop, which brought together renowned nanotechnologists, material scientists, and engineers from Colombia, Greece, Mexico, and the United States for networking opportunities.

The purpose of the workshop, held June 27-28, was to foster international research collaborations and joint research funding initiatives, promote faculty and student research exchanges, and facilitate opportunities for doctoral student training and post-doctoral research.

The workshop sessions focused around topics such as nanoapplications, tissue and bone mechanics, nanoscale analysis and solar cells. Other covered subjects included formation of hybrid nanocomposites by green chemistry methods, realizing the full potential of semiconductor nanowires for device applications, and nanowire biosensors for medical diagnostics. Participants also toured UNT's Center for Advanced Research and Technology.

This workshop has already resulted in specific collaborations between faculty and students from CINVESTAV, UNT and UTD. In the first week of August, a group of CINVESTAV students visited UNT to work with the electron backscattered diffraction (EBSD) system and Raman Spectrometer at CART.



Student Cold-Formed Steel Competition Draws International Competitors

The inaugural Student Competition on Cold-Formed Steel Design received a total of 78 entries from nine universities in the United States, Canada, China, Turkey, and Australia.

The purpose of the competition was to promote higher education in cold-formed steel structural design and to encourage students to use creative thinking skills to solve engineering problems. The sponsors of the competition are the University of North Texas, National Science Foundation, American Iron and Steel Institute, and Cold-Formed Steel Engineers Institute.

The competition was open to full-time graduate and undergraduate students, and competitors were instructed to solve a cold-formed steel design problem using open source software.

The competition was launched by Dr. Cheng Yu (in photo), associate professor in the Department of Engineering Technology and coordinator of the Construction Engineering Technology Program. Last year, Yu was awarded the prestigious National Science

Foundation CAREER award for a five-year research project to study the design of cold-formed steel shear walls.

"We thank all the participating students and their faculty advisors for making the first CFS Design Student Competition a truly successful one," Yu said.

The students were challenged with designing an optimal cold-formed steel cross-section shape. Student entrants were required to work on the challenge individually.

The winners received an award plaque, and their submissions will be exhibited at industry conferences.



Student Receives Fulbright Research Grant

Jared Fiorentine, who has just completed his undergraduate studies in Mechanical and Energy Engineering at the University of North Texas, has received a U.S. Student Fulbright Research Grant that will allow him to travel to Chile and participate in a project involving concentrated solar power systems (CSP).

Sponsored by the U.S. Department of State, the Fulbright is the largest U.S. international exchange program allowing students to participate in international graduate study and advanced research, as well as teach in a country of their choice. The grant includes round-trip transportation to the host country, a stipend for the academic year based on living costs in the host country, tuition reimbursement, health insurance, book and equipment allowances, and language study programs.

Fiorentine's advisor will be Dr. Humberto Vidal, professor of civil and mechanical engineering at the Universidad de Magallanes (UMAG) and Director of UMAG's Center of Energy Research. By partnering with Vidal, Fiorentine will participate in a Comisión Nacional de Investigación Científica y Tecnológica (CONICYT) funded research project in collaboration with Pontificia Universidad Católica de Chile in Santiago titled Net energy analysis of concentrated solar power in Chile: Applications to power generation in parabolic trough plants.

Texas Governor's School Named Finalist for Tech Titan Award

The Texas Governor's School at the University of North Texas was chosen as a finalist for the Tech Titan of the Future-University Level award, which recognizes higher education institutions that encourage students to choose engineering and technology-related disciplines.

The purpose of the Texas Governor's School (TGS) is to provide a rich and challenging academic experience in Science and Technology for advanced high school students. According to Dr. Richard F. Reidy (on the left in photo), interim chair of the College of Engineering's Department of Engineering Technology and TGS director, surveys (by phone and web) of the first two classes found that 97 percent of the students attended college (93 percent attending a four year college); 68 percent of the students attended college in Texas. Additionally, 80 percent of TGS students state a preference for a STEM (science, technology, engineering and math) major as they enter college.

The Tech Titans Awards are presented by the Metroplex Technology Business Council, the largest technology trade non-



profit organization in Texas. TGS is a free, three-week intensive summer educational program, open to all qualified resident Texas students who have completed 10th grade, regardless of race, ethnicity, income or background, from all across the state of Texas.



Program Brings Student to Work with NASA

Emma Zemler, an electrical engineering senior at the University of North Texas, will work from January until August 2012 at the NASA – Johnson Space Center (JSC) in Houston under the JSC Cooperative Education Program.

The Cooperative Education Program at Johnson Space Center is open to graduate and undergraduate students from around the country. As a co-op, she will alternate semesters at school with semesters at JSC working in a paid, full-time position directly related to her field of study.

Zemler, who is enrolled in both UNT and Texas Woman's University dual degree program in engineering and math, worked in the spring at JSC under the Texas Aerospace Scholars' Internship Program and has participated in other NASA-related programs for students.

Zemler's goal is to work as a full-time employee at Johnson Space Center. "This has been my childhood dream," she said. "I always wanted to be a flight controller, helping others explore the realms of space. My participation with the NASA programs has allowed me to be exposed to that type of atmosphere. It gets my foot in the door, allowing me to get closer to my dream."

Besides her participation in the NASA programs, Zemler is involved in the UNT Lambda Zeta chapter of IEEE-Eta Kappa Nu, the Electrical Engineering student honor society, as well as a few TWU organizations.

College Expanding TWU Dual Degree Offerings

In an effort to graduate well-rounded students who will be competitive in the tightening job market, the College of Engineering at the University of North Texas and the College of Arts and Sciences at Texas Woman's University have expanded their dual degree offerings.

The dual degree program, which began in 2007, allows students to attend both UNT and TWU and simultaneously earn bachelor's degrees from both schools. The program grew out of a \$1 million grant from the National Science Foundation for an innovative electrical engineering program, which included

funding for scholarships to attract women and minorities to the UNT College of Engineering. Katie Schniebs (in the photo) is the first student to graduate from the dual degree program.

Initially, the program allowed students to earn a bachelor's in mathematics from TWU and a bachelor's in electrical engineering from UNT. Now students have the option of pursuing a degree in materials science from UNT, to be paired with a TWU math or chemistry degree. The College of Engineering also is developing a dual degree option for students interested in mechanical and energy engineering.



UNT Hosts Regional Competition for Linguistics Olympiad

On Feb. 11, 28 high school students from the North Texas area came to the University of North Texas to participate in the regional competition for the 2011 North American Computational Linguistics Olympiad (NACLO), hosted by the Department of Computer Science and Engineering (CSE).

NACLO is an educational competition for U.S. and Canadian high school students in computational linguistics, the science of designing computer algorithms to solve linguistic problems. The competition challenges students to develop strategies for tackling problems in real languages and formal symbolic systems.

Dr. Rada Mihalcea, CSE associate professor, and Genevieve Murphy, student assistant, supervised the event.



Teachers Work on Research, Lesson Plans During Summer Program



Nine North Texas teachers had the opportunity to develop novel lesson plans based on research they conducted at the University of North Texas this summer.

These teachers participated in UNT's Research Experiences for Teachers in Sensor Networks program, which is designed to enhance the teaching of mathematics and science by exposing high school teachers to leading-edge research. A team of seven

UNT professors received a \$499,932 grant from the National Science Foundation (RET Site: Research Experiences for Teachers in Sensor Networks) to run the program through 2013.

The teachers worked with faculty mentors from UNT's Departments of Electrical Engineering, Computer Science and Engineering and Biological Sciences, as well as graduate students, on a variety of projects.

Students Learn More about Engineering Opportunities at Summer Camps



Now in its second year, UNT's **ASM Materials Camp** invites high school students to learn more about the world of materials engineering and nanotechnology through fun activities.



Robocamp and Xbox game development camps offer students the opportunity to participate in fun robotics and game programming activities — as well as learn more about engineering.



SUPER (Summer Undergraduate Program in Engineering Research) offers undergraduates from throughout the country the opportunity to conduct research projects for eight weeks.

Alumnus Spotlight:

Microsoft Career Carries Larry Sullivan Through Variety of Projects

Since Larry Sullivan joined Microsoft in the 1990s, he has worked on a variety of projects that people take for granted in their daily lives. He has been Director of Development for the Developer Division (Dev Div), as well as a Group Manager and a Development Manager for the Common Language Runtime (CLR), a portion of the .NET Framework. Sullivan also was one of the original developers assigned to the CLR project and prior to that worked on Internet Explorer 2, 3 and 4 and Windows 95.

Currently, he is Director of Engineering for Dev Div at Microsoft Corp., responsible for a team that handles a variety of functions that includes defining what is expected of engineers in Dev Div as well as providing the tools and services that allow them to do their job. "This is typically referred to as the Engineering System for Dev Div. I also own Fundamentals for Visual Studio including areas like Performance and Reliability along with product features like the Windows 8 Simulator," he said.

Sullivan, who earned a B.S. in Computer Science in 1992, said that UNT's focus on algorithms and the development of software was instrumental in his choice of attending the university and critical in his role as a developer early in his career. "This solid foundation allowed me to be successful early and has been the solid base for my advancement," he said. "At Microsoft, strong technical ability is a requirement of even our upper management



so while today I manage an organization of more than 100 people, it is still my technical ability and UNT Computer Science education that provide my foundation for leadership at Microsoft."

He said that when he interviews candidates, he does not focus just on grades but also asks interviewees to solve problems. Therefore, Sullivan advises current students to not view what they are learning from a memorization and grade perspective, but rather as honing their problem solving skills and building a toolkit for solving problems. "Enjoy the area you are pursuing as there is no substitute for loving your job. If you can go to work every day, and it can be something you truly enjoy doing, you are in a great place. Computer Science and

other forms of engineering are disciplines where what you learn in school and enjoy can have a strong correlation to what you can do for a career and have the enjoyment factor," Sullivan said.

Along with being a leader in the workplace, Sullivan also is involved in soccer, playing two or more times a week on two teams. He holds a USSF B License for coaching and coaches two teams. "I also enjoy winter sports – primarily snowboarding. Active hobbies are great for your health by relieving stress, keeping fit and giving you more energy during the day," he said.

Sullivan is married to Reko Sullivan, a UNT alumna from the class of 1993 and has two daughters.



College of Engineering Advisory Board

Attending the Nov. 18, 2011, Advisory Board meeting were (from left to right, top to bottom)

James Warden, Research In Motion

Jeannie Shackelford, Lockheed Martin Aeronautics Company

Cesar Moncada, Verizon

David Walterscheid (standing in for Finley Ledbetter, Group CBS, Inc.)

Larry Eckersley, Freese and Nichols, Inc.

Rick Beutter, Stryker Communications

Lettie K. Haynes*, BNSF Railway Company

Rick Haws (standing in for Don Moody, NUCONSTEEL)

Chris Pearce*, Cisco Systems

Casey Litaker, Triumph Aerostructures - Vought Commercial Division

Mario Garza, Jr., AT&T

Etta Clark*, PepsiCo

Costas Tsatsoulis, Dean, College of Engineering

Jason Cinek*, TDIndustries

John Turner, Weber Aircraft, LLC

(not in photo)

Craig Berry, Siemens PLM Software, Inc.

James Gibson, L-3 Communications

Bill Lawrence, B. Lawrence Consulting, LLC

Sean McMenam, Peerless Mfg Co.

Edward Moorehead, Victor Corporation (Retired)

Michael Severson, Bell Helicopter

Landon Sproull, Peterbilt Motors Co.

Jim Womack, Research In Motion

*College of Engineering alumni

Development Officer's Report

Key Announcements and Alumni Meetings Highlight Busy Spring and Summer

Thank you for taking interest in the advancement and development of your alma mater. Since my last report to you, we've had several great successes, the most noteworthy being a gift of \$6.5 million to the College of Engineering, which is part of a \$22 million pledge (see page 1). While I am happy with all of the positive publicity that this pledge has brought to the university and to the College of Engineering, I also want to emphasize that the funds are significant in our advancement as a national research university. To bring up what UNT President V. Lane Rawlins said when announcing the pledge, "Mr. Uswachoke knows how committed UNT is to becoming one of the best universities in the nation and to transforming our students in the process. He experienced that dedication while earning his MBA (at UNT), and he has supported our progress throughout the years. He also understands that it will take a legion of supporters for UNT to accomplish our goals, so he is leading the way."

- More alumni and friends are contributing to the development of the College of Engineering and its five departments – twice the amount has been given in 2011 versus 2008.
- More alumni are attending receptions to meet Dean Tsatsoulis and department chairs. Two receptions for alumni have been held this Fall: one for the New York, New Jersey and Connecticut area in mid-September and another in the Houston area in late September.

Now that the fall semester is underway, I'm booking my calendar with meetings that will grow industry awareness of the wide variety of programs offered by the College and events that help me keep in contact with you, our alumni. I am enthusiastic about meeting you soon to hear how together we can make the College of Engineering better. I hope that you take the opportunity to attend an upcoming alumni-related event.

I am excited about my role in developing the future of the University of North Texas as a national research university. As always, I am open to the great ideas that our alumni have and can't wait to report on successes in future publications.

I am eager to empower people through resources and to transform the lives of students.

*With Green Pride,
Reginald Grant*



Photos from alumni event held earlier this year at PepsiCo: (Top) Reginald Grant and Jamey Reeves (Class of 1981); (Middle) Etta Clark (Class of 1980), Jarrett Dixon (Class of 2010) and Mark Pickens (Class of 2006); (Bottom) John Campbell (Class of 2006) and Cheryl-Annette Parker (Class of 2003).

Students Present Projects at CENG's first Senior Design Day



The UNT College of Engineering held its first Senior Design Day on April 29, which featured a variety of research projects including a motorcycle safety system, an economical building energy auditing kit, a compact vertical gas separator, and a nitrogen laser.

The program was open to anyone interested in learning more about what the College of Engineering students are doing, and the event allowed the students to present their work to their peers, professors, and invited industry guests. Companies that are interested in working with seniors on a design project are invited to contact the College of Engineering for further information. Additional photos of the projects can be viewed at <http://engineering.unt.edu/senior-design-day>.

College of Engineering Is Expanding

Construction is ongoing or recently has been completed on new facilities:



Research Labs



Business Incubator Space



Zero Energy Laboratory

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