UNT UNIVERSITY OF NORTH TEXAS
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COLLEGE OF ENGINEERING

Inside:

Research: PECASE, CAREER Awards
Faculty: New Department of Materials Science and Engineering Chair
Students: NASA, SMART Scholarship Awards

Spring 2010

From the Dean

Dr. Costas Tsatsoulis

Dear Alumni and Friends of the UNT College of Engineering:

I am pleased to present the spring edition of our newsletter, which highlights recent successes by our outstanding faculty and students as well as rewarding endeavors by the College.

In January, Dr. Rada Mihalcea was honored at a White House ceremony as a recipient of the Presidential Early Career Award for Scientists and Engineers. The National Science Foundation recently recognized another UNT Engineering researcher with the CAREER award. To expand the College's research efforts, faculty members visited several prestigious academic institutions in India, which resulted in two memorandums of understanding.

The College is on an upward trajectory:

- Research awards have increased by almost 150 percent from 2008 to 2009.
- Research expenditures increased by 35 percent from 2007 to 2009.
- Undergraduate enrollments increased by 45 percent in the past five years.
- Graduate enrollments are up by 78 percent in the past five years.

Additionally, our faculty has grown from 40 in 2005 to 64 this year. This is good; the increase in faculty allows for smaller classes, which offers instructors a better opportunity for one-on-one assistance, advising and mentoring of their students. Faculty additions include a new chair of the Department of Materials Science and Engineering, who has almost 30 years of experience in laser science and engineering.

The College is committed to student-centered undergraduate and graduate education and to research. Recently, two of our undergraduate students won highly competitive scholarships that bring national recognition to the undergraduates' academic accomplishments. As part of the College's efforts to enroll outstanding undergraduate and graduate students, representatives participated in the SACNAS Conference in Dallas. The College has started to receive applications to Graduate School from these students.

I hope that you will enjoy reading about the achievements of our faculty and students, the College's service to the community, and one of our many highly successful alumni.

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CENG Departments Welcome New Faculty

Computer Science and Engineering (CSE)

Dr. Mahadevan Gomathisankaran

Dr. Mahadevan Gomathisankaran, assistant professor, is the latest addition to CSE. Dr. Gomathisankaran received his Bachelor of Engineering degree in Electronics and Communications Engineering from the National Institute of Technology (formerly a Regional Engineering College) in Trichy, India. He received his Ph.D. in Computer Engineering from Iowa State University and was a post-doctoral research associate at Princeton University working in the Princeton Architecture Laboratory for Multimedia and Security. His research interests include secure systems architecture and cryptography.

Electrical Engineering (EE)

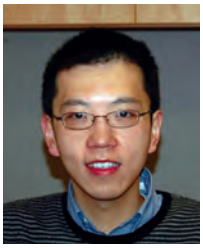
Dr. Gayatri Mehta

EE welcomes Drs. Gayatri Mehta, assistant professor; Yan Wan, assistant professor; and Hualiang Zhang, assistant professor.

Dr. Mehta received her Bachelor of Technology in Electronics and Communication from the National Institute of Technology, India; Master of Technology in Microelectronics from Panjab University, India; and Master of Science in Telecommunications and Ph.D. in Electrical and Computer Engineering from the University of Pittsburgh. Her research interests are low power VLSI design; reconfigurable computing; system on a chip (SoC) design; embedded computing; and computer architecture.

Dr. Yan Wan

Dr. Wan received her Bachelor of Science in Electrical Engineering from Nanjing University of Aeronautics and Astronautics, Nanjing, China; Master of Science in Electrical Engineering from the University of Alabama, Tuscaloosa; and Ph.D. in Electrical Engineering from Washington State University. She conducted her post-doctoral research on the genetic analysis of post-traumatic stress disorder at the Institute for Collaborative Biotechnologies, University of California, Santa Barbara. Her research interests include large-scale dynamical networks with applications; stochastic network modeling and analysis; decentralized control; air traffic flow management; and sensor networking.



Dr. Hualiang Zhang

Dr. Zhang received his Bachelor Degree in Electrical Engineering from the University of Science and Technology of China (USTC), Hefei, China, and his Ph.D. in the area of Microwave Engineering from Hong Kong University of Science and Technology. He was a post-doctoral research associate at the Millimeter Wave Circuits and Antennas Laboratory, Department of Electrical and Computer Engineering, University of Arizona, Tucson, Ariz. His research interests are RF / microwave circuits; antenna designs; metamaterials; and RF MEMS passive structures.

Engineering Technology (ETEC)

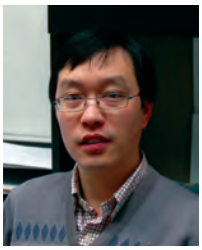
Dr. Diane DeSimone

ETEC welcomes two lecturers: Drs. Diane DeSimone and Raed Sbeit.

Dr. DeSimone received her Bachelor of Science in Economics/Marketing at Purdue University, West Lafayette, Ind., MBA in Business Administration/Marketing at the University of Notre Dame, Notre Dame, Ind., and Ph.D. in International Marketing at The Union Institute, Cincinnati, Ohio. Her areas of research and teaching are methods & materials; estimating; and contract documents.

Dr. Raed Sbeit

Dr. Sbeit received his Bachelor of Engineering in Mechanical Engineering from the American University of Beirut, Master of Science in Software Engineering from Southern Methodist University, and Doctor of Engineering in Engineering Management from SMU. His research and teaching focus on system engineering; mergers and acquisitions; engineering management; and organizational effectiveness.



Dr. Zhiqiang Wang

Materials Science and Engineering (MSE)

MSE welcomes Dr. Zhiqiang Wang, assistant professor. Wang received his Bachelor of Science in Mechanical Engineering from the University of Science and Technology of China and his Ph.D. in Mechanical Engineering from the University of California, Los Angeles. He was a postdoctoral research

Please see 'New Faculty' on page 7.

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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.

About the front-page photos: The College of Engineering attracts a diverse population of students who are making their mark on the College's various programs through their academic achievement and leadership in student organizations. All photos, except for car photo, courtesy of Jonathan Reynolds, UNT University Relations, Communications and Marketing.

(Left) Dr. Rada Mihalcea is standing over the right shoulder of the President.

(Below) John P. Holdren, director of the White House Office of Science and Technology Policy; Dr. Rada Mihalcea and daughter Zara; and Arden Bement, director of the National Science Foundation.

White House Recognition

Associate Professor Receives Presidential Early Career Award for Scientists and Engineers

Dr. Rada Mihalcea, UNT associate professor of computer science and engineering, said that receiving a Presidential Early Career Award for Scientists and Engineers (PECASE) was a "truly great honor for me. It means a lot to me, since it is the highest recognition that a young scientist or engineer can earn in the U.S. To be honest, I have never thought about earning this award, which makes the excitement even greater."

PECASE is the highest award bestowed by the U.S. government upon scientists and engineers in the early stages of their independent research careers, and Mihalcea is the only professor at any Dallas/Fort Worth university to earn recognition from PECASE.

Mihalcea was among the 100 university researchers greeted by President Barack Obama at a White House ceremony on Jan. 13. During the ceremony, each PECASE winner was given a letter from the president stating: "You have been selected for this honor not only because of your innovative research, but also for your demonstrated commitment to community service and public outreach."

The PECASE award was a "truly great honor for me. It means a lot to me, since it is the highest recognition that a young scientist or engineer can earn in the U.S. To be honest, I have never thought about earning this award, which makes the excitement even greater."

— Dr. Mihalcea

Dr. Mihalcea said that while the meeting with the president was brief, "I was impressed by his friendliness and also by his strong handshake."

She was recommended for the award by the National Science Foundation (NSF), which awarded her a Faculty Early Career Development (CAREER) award in 2008. The CAREER award program, the most prestigious offered by the NSF for young researchers, supports early career development activities of teacher-scholars. UNT has had five CAREER award winners.

The day before the White House ceremony, Dr. Mihalcea and 19 other NSF awardees attended an event at the NSF building. "Both (events) were exciting and a great opportunity to meet with the leaders and staff of these two institutions and also a chance to get to know the other PECASE awardees," Mihalcea said.

The PECASE awards, established in 1996, are coordinated by the Office of Science and Technology Policy at the White House. Nine federal agencies, including NSF, recommend recipients to the White House. Awardees are selected on the basis of two criteria: pursuit of innovative research at the frontiers of science and technology and a commitment to community service.

Dr. Mihalcea's research is centered on lexical semantics, which has to do with the development of automatic methods for text understanding. In particular, her CAREER project focuses on word sense disambiguation, which is considered essential for a number of language processing applications. The project is exploring rich and flexible word meaning representations that combine the benefits of multiple monolingual and cross-lingual lexical resources that can be adapted to the context and to the target application.

UNT Researcher Wins CAREER Award


Dr. Srinivasan Srivilliputhur

Vehicles have long been constructed primarily of steel because it is one of the strongest known materials. The relatively heavier weight of the metal, however, causes vehicles to burn large quantities of fuel, leading to an increase in carbon dioxide emissions.

Dr. Srinivasan Srivilliputhur, an assistant professor of materials science and engineering at the University of North Texas, will conduct a five-year research project studying ultra-light materials that could someday replace steel and lead to significant cuts in fuel consumption.

"We need to act fast to reduce fuel consumption and carbon dioxide emissions," Dr. Srivilliputhur said. "Using ultra-light, but strong materials is one of the ways we might be able to address global warming."

Dr. Srivilliputhur has been awarded a National Science Foundation (NSF) Faculty Early Career Development (CAREER) award, which is the most prestigious award offered by the NSF for young researchers. The $430,000 grant supports early career development activities of educators who effectively integrate research and education within the context of the missions of their organizations.

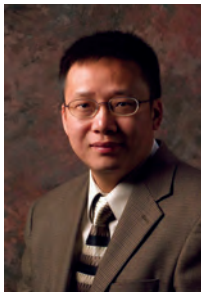
Dr. Srivilliputhur's research will focus on magnesium-lithium alloys. Replacing many heavier automobile parts with lighter magnesium-based parts could reduce automobile weight and cut fuel emissions by 30 percent. Lithium is the lightest known metal and dissolves in magnesium. Combining these two metals could produce lightweight materials that revolutionize automobile construction.

The strength of magnesium-lithium alloys, however, is currently unstable. Typical operating temperatures in automobiles cause these alloys to soften.

Using computer simulation and experimentation, Dr. Srivilliputhur will research the fundamental factors that cause the materials to lose strength over time and what can be done to address the situation.

"Once we figure out why the deformation is happening, we can more easily determine the best way to prevent it," he said. "Answering those questions could produce materials that are lightweight, yet strong enough to construct high-performance automobiles."

Researcher Helps Develop New 3-D Imaging Method


Dr. Jincheng Du

An engineering researcher at the University of North Texas has helped develop a new and more-effective way to obtain 3-D images, which could have significant applications in physical and life sciences.

Dr. Jincheng Du, an assistant professor of materials science and engineering, worked with a team of researchers from the University of California at Los Angeles and the University of Colorado on the findings, which are detailed in the December 2009 issue of *Nature*.

The group developed an imaging process, termed ankylography, which can capture a 3-D image from a single exposure using a coherent monochromatic beam. The approach measures the diffraction pattern on a spherical surface, and the two-dimensional pattern is used to construct the 3-D image.

This innovative method could eventually replace the current method, which must collect multiple measurements to generate a single 3-D image. This approach is used in confocal microscopy and crystallography.

"This is a novel development that could have a huge impact on science and technology," Dr. Du said. "It is a much more effective, efficient way of obtaining a 3-D image."

To develop the method, scientists used sodium silicate glasses as a test case. A glass structure lacks long-range order and presents one of the greatest challenges in modern physics. Sodium silicate glasses are an archetype for a wide variety of oxide glasses, from glassware and window panes to optical fibers, photonics devices and bioactive glasses for bone restoration and coating for medical implants.

Using multi-scale simulations, Dr. Du's research group generated the atomic structure and total electron density distributions of the glass, which were necessary to create a 3-D image.

For ankylography to be used readily in physical and life sciences, further advancements need to be made in detector technology. The researchers believe those developments are not far off.

Dr. Du is a member of UNT's Center for Advanced Scientific Computing and Modeling (CASCaM) and the Materials Modeling Research Cluster.

Prominent Researcher Takes Helm of Department of Materials Science and Engineering

Dr. Narendra B. Dahotre, the new chair of the Department of Materials Science and Engineering, brings almost 30 years of experience in laser science and engineering to the University of North Texas.

He comes to the College of Engineering from the University of Tennessee, where he was a professor in materials science and engineering as well as director of the Laboratory for Laser Material Synthesis and Fabrication. He also had a joint appointment at the Oak Ridge National Laboratory.

Dr. Dahotre has written three books and about 200 scientific papers, as well as has 15 U.S. patents in the field of laser materials processing. He also has been awarded the distinction of Fellow by the American Association for the Advancement of Science (AAAS). The association formally inducted him in February.

"It was a surprise and a great honor to get elected to a highly esteemed and old society of science and engineering," Dr. Dahotre said. "Especially, unlike election to other societies, the selection to AAAS Fellow attests to the recognition of one's service and achievement in the general field of science and engineering that is expected to have a broader impact on human society."

Other honors Dr. Dahotre has received include: 2009 Class of Fellows, Indian Institute of Metals; 2008 Class of Fellows, American Society of Mechanical Engineers; and 2004 Class of Fellows, American Society for Materials (ASM) International.

Research Goals

Dr. Dahotre decided he wanted to use his research experience to lead a department while also maintaining his research laboratory. He chose UNT's College of Engineering because he sees enormous potential for growth and success.

According to Dr. Dahotre, UNT's Department of Materials Science and Engineering already has the faculty that can be grouped in two important core areas: material structure-property relationship and computational materials science. "Both of these areas are highly complementary to each other and essential for growth and prominence of the department," he stated.

"To continue our march for excellence and prominence, we will firstly encourage each faculty member individually and then collectively to build research programs of national and international recognition and prominence and seek the extensive visibility in scientific and applied community through dissemination of their research via high-quality presentations and publications," Dr. Dahotre said.

Early Career

Dr. Dahotre began studying lasers in the early 1980s when high power lasers were new on the horizon, and their implementation for materials processing had just begun. His academic pursuit of lasers evolved from his being at the right place at the right time.

"My doctoral dissertation advisor was then just dabbling with the lasers as a new tool," Dr. Dahotre said. "As a curiosity combined with his background in phase transformation in materials, he started to explore lasers in materials processing. (At) that time, I had just arrived as a new graduate student in the department (looking) for a great advisor and fascinating topic for my Master's research thesis."

My advisor asked me and I immediately agreed to join him on the exciting journey of exploration of lasers in materials processing," Dr. Dahotre said. "Furthermore, the unique capabilities of lasers and previously unknown effects/changes brought in materials by the lasers made me more curious to research them. Thus ever since then I am on the quest for exploring the laser-material interactions."

"To continue our march for excellence and prominence, we will firstly encourage each faculty member individually and then collectively to build research programs of national and international recognition."

— Dr. Dahotre

His professional, technical and scientific achievements in the field of laser surface engineering span over a wide range of activities that include research, teaching and publication. He has worked extensively with the automotive and aerospace industries to use lasers in the development of durable, temperature-resistant materials. He also is internationally known for his work on the fundamentals and applications of laser surface engineering of metals, ceramics, polymers and composites. Additionally, he has successfully demonstrated the understanding and application of laser-based surface engineering on diverse materials systems.

For more information about Dr. Dahotre and the Department of Materials Science and Engineering, visit www.mtse.unt.edu.

Professor Honored by Ukrainian Academy of Petroleum and Gas

Dr. Witold Brostow, Regents Professor of materials science and engineering, was recently elected a member to the Ukrainian Academy of Petroleum and Gas.

Dr. Brostow was inducted as a new academy member during the opening of the 5th International Conference of Petroleum and Natural Gas Chemistry and Technology that took place at Lviv Polytechnic National University in Lviv, Ukraine. The academy has members across the world and is based in Kyiv, Ukraine.

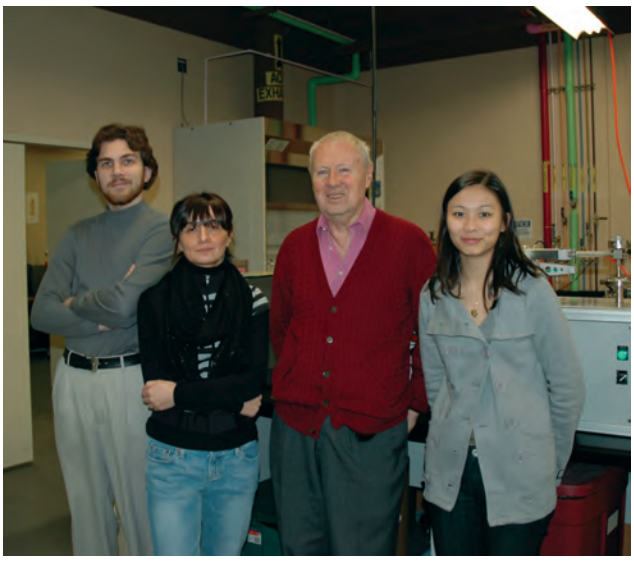
Membership criterion in the academy "apparently is to have a worldwide track record of making more efficient use of petroleum and natural gas or else of making new products from it," said Dr. Brostow, who leads UNT's LAPOM (Laboratory of Advanced Polymers & Optimized Materials). "In our case, LAPOM has jointly with colleagues in Lviv developed methods of obtaining epoxies from certain petroleum fractions by the use of peroxides. Techniques of obtaining polyethylene or polypropylene were known before us and remain in use; by contrast epoxies have been earlier obtained by different and more complicated routes."

LAPOM is dedicated to the development of materials with improved mechanical, tribological and thermophysical properties, including thermoplastics, thermosets, composites, nanohybrids and coatings. This research could lead to frying pans that are more scratch-resistant and able to better withstand high temperatures, among other possibilities.

The faculty, staff and students in LAPOM represent several professions: Chemistry, Chemical Engineering, Materials Engineering, Mechanical Engineering, Polymer Engineering and Physics. The lab's current research includes work on improving polymer coatings, including those on cookware. Since polymers are mainly made from petroleum, LAPOM works with Ukrainian colleagues at the Lvivska Politechnika National University to find methods to reduce petroleum use in the production of polymers.

Brostow is a member of the European Academy of Sciences, the National Academy of Sciences of Mexico; and the Union for Polymer Research in Berlin. He is also a fellow of the Royal Society of Chemistry in London and winner of the Fred A. Schwab International Award of the Society of Plastic Engineers.

Dr. Witold Brostow is standing next to a Swiss Gnomix apparatus for determination of P-V-T relations for solids and melts — one of seven in the world.



Dr. Brostow with students.

'New Faculty' — Continued From Page 3.

associate at Los Alamos National Laboratory and a postdoctoral researcher at the Department of Mechanical and Aerospace Engineering, University of California, Los Angeles. His research focuses on advanced materials in energy, aerospace, and nano-technology: materials under extreme conditions; super alloys at high temperatures for aerospace and energy generation industries; advanced structural materials for hydrogen storage and transportation; and nanostructured and small-sized materials for novel applications.

Mechanical and Energy Engineering (MEEN)

MEEN's recent faculty addition is Dr. Oziel Rios, lecturer.

Dr. Oziel Rios

Rios received his Bachelor of Science in Mathematics and Bachelor of Science in Mechanical Engineering from the University of Texas – Pan American, Master of Science in Mechanical Engineering from the University of Texas at Austin, and Ph.D. in Mechanical Engineering from the University of Texas at Austin. His research interests focus on mechatronic systems with an emphasis on kinematics and dynamics modeling, performance capability analysis, configuration management, and optimization for design and operation.

Dual-Degree Student Wins Scholarship from NASA's Aeronautics Scholarship Program

Katie Schniebs, a senior at the University of North Texas (UNT), said that her love for math led her to an interest in engineering.

That interest resulted in her becoming the first student to enroll in UNT and Texas Woman's University (TWU) in a dual-degree program for engineering and math. Her hard work has paid off with a $40,000 scholarship from NASA's Aeronautics Scholarship Program.

The scholarship program aims to advance the nation's aeronautics enterprise by investing in the country's educational development and to provide opportunities to highly motivated college students in aeronautics or related fields. Schniebs was one of only 20 undergraduate students nationwide who received the award. She said that she would like to get a job with the defense industry when she graduates — something that combines her love of math and engineering.

She initially attended TWU, where she was studying math. "I sat down with the math department chair, and I told him that math really comes easy for me but I wanted something that is more challenging," she said.

Schniebs initially entered a program in which she would graduate with a math degree with an emphasis on engineering. "After a year of doing that, I went back to the chair and said I was thinking about taking engineering classes at UNT," she said. Her advisor mentioned a dual-degree program with UNT for math and electrical engineering, and Schniebs agreed to enroll in the program.

"I didn't want to go to school for four years and not have a job when I got out and I told him that too," she said. "He told me that engineers are in high demand and especially women."

Schniebs is from a small town, Springtown, Texas, and she said she liked the engineering program at UNT "because it gives you that smaller, family feel."

She said she likes electrical engineering because it is a project-oriented program. "I like that we get to take the theory and use it in those project classes … getting to build and design circuits and using our own creativity to come up with projects. (We can) use what we are interested in related to the class and apply that."

Schniebs is a member of Kappa Mu Epsilon – National Mathematics Honors Society, honor society Phi Kappa Phi, the Society of Women Engineers, the Association for Computing Machinery and a robotics group being started at UNT.

Schniebs is able to keep up with her dual-degree studies and the organizations she is involved with because she is good at time management and strives to keep a well-balanced life. "In my spare time, I really like to exercise and I teach a group fitness class a couple of times a week," Schniebs said. It is also imporant to find "the right support group — my family is very supportive."

For anyone considering a dual degree, Schniebs says to have confidence in yourself — "especially the fields I'm studying, (they) can be intimidating but manageable."

Student Receives SMART Scholarship Award

Jeff Helstad, an undergraduate student in the Materials Science and Engineering Department, was awarded the Science, Mathematics and Research for Transformation (SMART) Scholarship from the Naval Postgraduate School and the American Society of Engineering Education.

The award includes: a $25,000 stipend per year for two years; full tuition; a book allowance of $1,000 per year; health insurance reimbursement allowance up to $1,200 per calendar year; and a choice of job placement at the Air Force Research Laboratory.

"I am honored that this scholarship award will bring more recognition to the Department of Materials Science and Engineering and to UNT," Helstad said. "The high quality of its laboratories, the mentoring and personal attention to students by its faculty, and its close relationship with industry, have resulted in a first-class atmosphere in the department."

As a summer intern, Helstad worked with Dr. Thomas Scharf on a critical problem in trying to mitigate friction and wear (field of tribology) at high interfacial temperatures in moving mechanical assemblies.

Upon graduation, Helstad plans to do research on metal-ceramic and ceramic-ceramic hybrids for use in thermal, mechanical, lubricious, or corrosive-resistant applications.

UNT Participates in SACNAS Conference

Leading Latino and Native American Science and Engineering Students Meet with College of Engineering Representatives, Tour Discovery Park

Representatives of the UNT College of Engineering, as well as other university representatives, met with students from across the nation at the 2009 SACNAS (Society for Advancement of Chicanos and Native Americans in Science) National Conference in Dallas.

As part of UNT's participation, 17 students visited Discovery Park to learn more about the academic opportunities offered by the College of Engineering. The visit included tours of the electron microscopy facilities in the Department of Materials Science and Engineering and the Laboratory for Recreational Computing, a facility in which UNT students learn about computer game development. Various students showed interest in the College's programs and applied for admission to graduate school.

This is the first time that UNT has been a sponsor at the SACNAS conference, although several faculty members have participated in the conference in previous years, said Dana Mordecai, student services coordinator for UNT's Toulouse Graduate School. As the Premier Platinum sponsor for the Oct. 15-19, 2009, conference, the university was offered an incredible opportunity to partner with SACNAS and showcase the university in a national spotlight, she stated.

"The university's proximity to the conference held in Dallas allowed us to have a unique opportunity to allow a considerable number of our own faculty, students and staff a chance to meet and be involved, (as well as) allowing prospective students to visit the campus and see first-hand the incredible opportunities available at UNT," Mordecai explained.

Michael Monticino, Dean of the Toulouse Graduate School, discusses UNT at the annual SACNAS Conference.

From Left: Dr. Costas Tsatsoulis (Dean of the College of Engineering), Dr. Joseph Oppong (Associate Dean, Graduate School), Dana Mordecai (UNT SACNAS Coordinator - Graduate School), and Kelly Williams (Director of Communications, SACNAS).

The sponsorship provided the university with significant advertising at the conference, such as UNT's logo on each conference bag. The university also was provided a central location for its exhibit booth (among 300 exhibitors), which allowed UNT representatives to meet with almost 200 prospective students. Faculty members participated in the conference as judges and mentors, which put them in contact with students. Additionally, UNT engineering students conducted presentations on their research at the conference.

More than 60 students and SACNAS board members attended the campus tour and visited with faculty, current students and administrators such as Dr. Michael Monticino, Dean of the Toulouse Graduate School.

According to Mordecai, UNT will attend the 2010 SACNAS national conference in Anaheim, Calif., and will sponsor a booth at the exhibit hall. Also, there are several committees with SACNAS for UNT to participate in, along with judging and mentoring opportunities at future conferences.

"We were able to begin deep relationships with the SACNAS community and look forward to creating a UNT/SACNAS student chapter that will further strengthen those relationships," Mordecai said.

SACNAS is a society of scientists and engineers dedicated to fostering the success of Hispanic/Chicano and Native American scientists and engineers, from college students to professionals, in attaining advanced degrees, careers, and positions of leadership. The conference drew 2,874 registrants with more than 1,700 students among the attendees. For more information, visit www.sacnas.org.

UNT Delegation Brings Back Important Connections, Ideas from Trip To India

For eight University of North Texas (UNT) representatives, including several faculty members of the College of Engineering, a trip in January to India involved seven days of visits to several institutions of higher learning, reconnecting with former associates and taking home several ideas to pursue.

The visit to India "was a very jam-packed, action-filled travel schedule that allowed us to meet with institutions and collaborators that have tremendous opportunities with long-term research potential and academic collaboration," said Dr. Kuruvilla John, Associate Dean of Research and Graduate Studies, College of Engineering, who was part of the delegation.

The focus of the trip was the signing of memorandums of understanding (MOU) with the Indian Institute of Science in Bengaluru (Bangalore) and the Tata Institute of Fundamental Research in Mumbai (formerly Bombay). The agreements, which broadly list collaboration in the area of material science and engineering, will foster graduate, post-doctoral and faculty research exchange programs and joint research activities.

In addition, the delegation was examining possible faculty/scholar collaborations and investigating graduate student recruitment at the institutions they visited. UNT representatives also visited and discussed agreements with the New Horizon Educational Institution in Bengaluru (Bangalore); Indian Institute of Technology, Bombay in Mumbai; Bhabha Atomic Research Centre in Mumbai; Indira Gandhi Centre for Atomic Research in Kalpakkam; and the Indian Institute of Technology Madras in Chennai.

Dr. Vishwanath "Vish" Prasad, UNT's Vice President for Research and Economic Development, led the delegation that included:

- Dr. Alan Needleman, professor with the Department of Materials Science and Engineering;
- Dr. Jeffry A. Kelber, chemistry professor;
- Dr. Raj Banerjee, associate professor with the Department of Materials Science and Engineering;
- Dr. Srinivasan Srivilliputhur, assistant professor with the Department of Materials Science and Engineering;
- Dr. Ram Dantu, associate professor with the Department of Computer Science and Engineering (who joined in Chennai only); and
- Dr. Saraju P. Mohanty, an assistant professor with the Department of Computer Science and Engineering (who joined in Bangalore only).

The delegation started with New Horizon Educational Institution's College of Engineering and the Indian Institute of Science, visits from which they returned with several partnership ideas. "One idea that came about there was to be able to jointly do student design / classroom design programs where we could have teams of undergraduate students on both campuses ... working on joint design projects," John said.

Dr. Kuruvilla John

> *The trip to India "was a very jam-packed, action-filled travel schedule that allowed us to meet with institutions and collaborators that have tremendous opportunities with long-term research potential and academic collaboration."*
>
> *— Dr. John*

The delegation met with former associates or students who are placed at some of the institutions they visited. The former students "were excited to see their mentors come to the campus," John said. "It was eye opening to be able to link the faculty with former protégés and colleagues and associates ... and they are reconnecting and wanting to explore new projects and new ideas."

At the Bhabha Atomic Research Centre, the delegation was hosted by the chairman of the Indian Atomic Energy Commission, Dr. Srikumar Banerjee — Dr. Banerjee's father. "He was very instrumental in organizing our trips," John said. "We were able to (visit the atomic research centres) only on the standpoint that there was a vested interest in the programs and the researchers at Bhabha and Indira Gandhi Centre for Atomic Research were very interested in working with some of the premier material science engineering faculty."

John said that UNT wants to explore similar types of international collaboration with institutions in other countries. "UNT has very well-established programs and collaborative relationships with institutes in China, Korea, institutes in Mexico and Latin America."

Texas BEST

UNT Hosts Student Robotics Competition for Second Year

On Dec. 4-5, 2009, about 1,200 students converged on the University of North Texas (UNT) to compete in Texas BEST, the BEST Robotics, Inc. regional robotics championship for high schools and middle schools.

BEST — Boosting Engineering, Science and Technology — seeks to inspire students to pursue careers in science, technology, engineering and math (STEM disciplines) through participation in a sports-like competition. By hosting the Texas competition for the second year, UNT had the opportunity not only to help influence young men and women to consider a STEM-related career but also to help bring increased awareness of the College of Engineering to prospective students. The Engineering Ambassadors Team conducted tours of Discovery Park, introducing the visiting students to the College's modern laboratories and facilities. The event also garnered print and broadcast media attention, being covered in publications such as the *Denton Record-Chronicle* and *Dallas Morning News*.

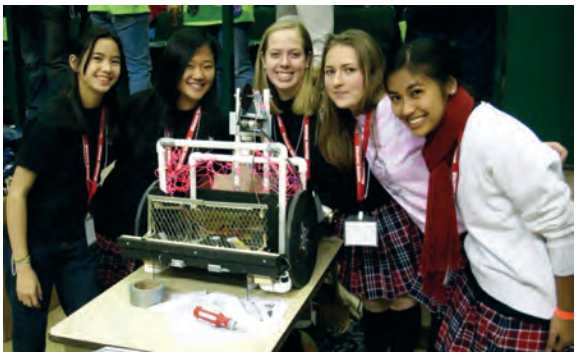
Forty-eight teams qualified for 2009 Texas BEST, and 47 teams competed at the event, according to Tom Fitzmaurice, Texas BEST regional director. These teams qualified to attend by competing in the 14 local hubs in the Texas BEST region. There were 276 teams involved in BEST in Texas and New Mexico overall at the local hub level. According to Fitzmaurice, the sizes of the teams varied from a two-member crew to those comprising 60+ members.

Robots built and operated by the students competed at the UNT Coliseum in an event that seemed like a state basketball championship. As the students took their robots through their paces, pep squads and parents cheered on their teams. Fitzmaurice said that the team cheering sections "go wild with bands, cheerleaders, noisemakers, costumed mascots, team and school-specific T-shirts, and everything else you might imagine in a major sports competition."

BEST features two parallel competitions:

- A robotics game, which is based upon an annual theme with four teams competing at once in a series of three-minute, round-robin matches.
- The BEST Award, which is presented to the team that best embodies the concept of Boosting Engineering, Science, and Technology. Elements include a project summary notebook, oral presentation, table display, and spirit and sportsmanship.

At the conclusion, awards are given out; the trophies for the first three places in the robot contest and the BEST award competition are as large as UIL sports trophies, Fitzmaurice said.



The national BEST competition will be held April 23-24 at the Dallas Convention Center, and the top four Texas teams will be invited. For more information, visit www.eng.unt.edu/texasbest.

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— Tom Fitzmaurice

Discovery Park Garden of Honor

Discovery Park's Honor Societies Commemorated

From left, Scott Wallace, president, Wells Fargo community banking; Dr. Mitty Plummer, associate professor of engineering technology; Dr. Rollie Schafer, retired professor of biological sciences; former President Gretchen M. Bataille; Provost Wendy K. Wilkins; and Dr. Costas Tsatsoulis, Dean of the College of Engineering.

Along the walkway of the Discovery Park's student entrance is four 6-foot-tall monuments — each one bears a plaque with the name of an honor society at Discovery Park and is topped by a sculpture with a symbol representing the society.

While the garden acknowledges the different honor societies representing academic departments and colleges at Discovery Park, it also represents much planning, coordination and hard work.

Mitty Plummer, associate professor of the Department of Engineering Technology and coordinator of nuclear engineering technology, said that "the intent of the garden is to honor the students in their education and demonstrate that we value and acknowledge their work."

There are four honor societies represented in the garden: Tau Alpha Pi, the national honor society for Engineering Technology; Beta Phi Mu, the library and information studies honor society; Alpha Sigma Mu, the honor society for materials science and engineering; and Sigma Xi, the Scientific Research Society.

Marking the entrance to the garden are two stones bearing a plaque: one acknowledges Wells Fargo for funding the development of the garden of honor, and the other states whom the garden was named for: Rollie Schafer, retired professor of biological sciences.

Schafer's contributions to UNT include serving as vice provost for research and dean of the Toulouse Graduate College. Schafer helped to establish the College of Engineering; he completed the paper work to obtain approval for the college and negotiated the purchase of the Texas Instruments building to house the college.

The Garden of Honor at Discovery Park was named for Dr. Rollie Schafer, left.

The effort to create the garden goes back to April-May 2008, when a proposal for the garden was submitted by Plummer, Randy Wallace and Nandika D'Souza to then UNT President Gretchen M. Bataille, and funding for the garden was approved. Construction of the monuments took nine months, and the project was a collaboration between the College of Engineering and the College of Visual Arts and Design.

A product design class was commissioned to design the monument and the molds to pour the monument as part of a class project. One group designed the concrete molds, another worked on the monument details. Jeff McClung, art technician, helped with the bronze castings for the garden of honor. "We used our bronze smelter to melt the metal and pour it into that sand molds that Mitty rammed up for the plaques, and ceramic shell molds for the sculptures," McClung said. "I also helped Mitty assemble, grind, and patina the bronzes."

The ribbon-cutting ceremony for the garden took place last year.

Etta Clark:

Advisory Board Member Brings Experience as UNT Graduate, PepsiCo Employee

As an employee for PepsiCo, Etta Clark's assignments have ranged from working in systems engineering, applications, operations, and back to systems engineering. PepsiCo has a policy of moving people around different job functions to gain critical experiences, which has allowed her a role in various company innovations including Uniform Code Council (UCC) projects, SAP implementation, and iPhone apps.

"It's been fun; It's allowed me to do all sorts of different things over my career," she said. "Fun for me because about every two years, I'm ready to learn something new."

Clark, a 1981 University of North Texas (UNT) graduate, is Director - Information Technology for PepsiCo and serves on the College of Engineering Advisory Board. She also is working on a special project: integrating the IT systems of two of the largest bottling operations in the country into PepsiCo's system.

Clark said that receiving a UNT education helped her to move successfully into the various job functions she has held over her career. Although technology has changed since her graduation, she said that the key critical skill to have is the ability to absorb new technologies as they develop. "Getting really the basics of thinking logically — being able to arrange systems, the system design principles, the data principles — none of that really changes," she said.

After graduating with a Bachelor of Science in Computer Science, she worked for Texas Instruments as a systems analyst in the Equipment Group supporting cross-platform data conversions for printed wiring board manufacturing and design. In 1983, Clark joined Frito-Lay to develop sales and food service applications.

She soon was involved in helping the company leverage the latest technologies in a number of key business initiatives. At Frito-Lay, she used satellite maps, onboard computers, and route engineering algorithms to improve efficiency and productivity in the route sales environment. She was a technical lead on Frito-Lay's first handheld computer project. Clark also has participated in PepsiCo's consolidation of divisional IT departments into a shared services function.

Working at a company that is consumer-driven, as well as very dependent on and leveraging of technology, has been a good career choice for her, she said. "I can walk into a grocery store and see the guy with the handheld, and say I coded that. I coded the first one of those," she said.

Clark said that the key to being successful in technology is being curious and being the type of person who takes stuff apart. Her UNT education prepared her for integrated problem solving because "UNT was good at exposing people to a variety of thoughts and ideas and curriculum." She was happy to see this philosophy continuing because being able to work with people with different backgrounds and disciplines is more important now that it ever has been.

Along with her technical work, Clark is a member of the Cheesy Riders Cycling team that raises money in the fight against multiple sclerosis. She also is a breast cancer survivor. Clark is married to Cyrus Clark, an electrical engineer at Raytheon, and they have two daughters.

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Report from the Director

Reginald Grant
Development Director
College of Engineering

When I joined the College of Engineering in April 2009, I was excited to attend an alumni event that involved introductions of the Dean, faculty and me along with a report of recent developments in the College. Our alumni gatherings are growing in attendance, frequency and pride. We used our Homecoming theme, "Wild with Pride," to attract a record crowd of alumni and friends to our tailgating tent. Pride will aide us in leveraging the resources of the College to advance the University of North Texas as an emerging research university.

UNT is building on its strengths as a comprehensive institution with global reach and is investing millions in its faculty, graduate students, academic programs and research facilities. Fall 2009 brought an 11-percent growth in graduate students to the university (with a 25-percent climb in engineering alone) — an addition that will significantly increase the university's impact on the advancement of knowledge and the development of industry and communities.

UNT is becoming known as much for science and engineering as for music, arts and education. To ensure the university continues to meet its goals, your pride and financial support are needed to add to the investment in innovative programs that support students, attract first-rate faculty and make funded research possible. These efforts will add value to your diploma and position UNT to become a national research university.

So, please know that I'm willing and able to assist in our efforts to move forward with vision and purpose.

— With green pride,
Reginald Grant

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