

COE Has High "HOPE" for the Future

The "hope" for the future was evident as the University of Tennessee campus welcomed record numbers of new students on August 19th.

Approximately 4,436 freshmen were enrolled, a nearly 25% increase over the 3,568 figure in the fall of 2003. All of the in-state freshmen students qualified for the newly established HOPE Scholarship, funded by the Tennessee State Lottery.

The scholarship, which totals \$3,000 to \$4,000 depending on the student's grades or financial need, has attracted record numbers to universities and colleges across the state.

The College of Engineering benefited from the influx of lottery students as well, with the number of enrolled students up from 395 last fall to 535 this semester—a jump of over 36%.

Dr. Luther Wilhelm, Associate Dean of Academic Affairs, said the college was well-prepared for the large number of freshmen students.

"We have added more sections to our Engage freshman engineering program, and all of them are full," Wilhelm said. "At this point, it looks as though we have an impressive number of new freshmen enrolled in the engineering program."

UT Housing reported that over 6,400 students had checked into dorms by August 18th, the day before classes. Most of the students arrived over the weekend, with a few coming in on Monday and Tuesday.

The university decided to keep two additional dorms, Melrose Hall and Sophronia Strong Hall, open to assist with the demand for housing. The two buildings were previously slated to be closed this fall,

but remained open and ready for student housing.

The other good news about this year's freshman class is the high caliber of student test scores. The average in-state freshman scored a 25.1 on the ACT standardized college entrance test, a dramatic increase over last year's average of 24.5. ACT scores for engineering students traditionally rank higher than those in other disciplines, with the COE students' average score ranking at 25.8 over the UT general score of 24.5 for the academic year 2003.

The college also received good news when *U.S. News and World Report* released part of its newest edition of "America's Best Colleges" on August 19th. The COE tied with several other schools for 60th place, up several slots from the 67th rating received last year.

"We're very pleased with the ranking," Dr. Way Kuo, dean of engineering, said. "Although this is an improvement, we hope to see the college climb into the top 45 in the near future."

While the importance of the rankings is frequently debated in academic circles, administrators have noted that the many potential students and their families utilize the information when planning for college.

"Many times, I have parents and students walk in with a copy of *U.S. News and World Report* in their hands," Wilhelm commented. "The rankings have become a recognized resource."

UT's overall ranking moved up one spot in the listing of 162 large public universities, a four-way tie that included Auburn, Kansas and Vermont. The university tied for 90th in the listings of "Best National Universities."

Educational institutions are divided into several categories, based on their size and mission. The rankings are based on six categories, including peer assessment, which accounts for 25% of the total designation.

"We have a promising future ahead of us," Kuo commented. "We are welcoming a new group of quality students, we are improving our national profile through the *U.S. News and World Report* rankings, and we recently hired several new faculty members who are outstanding teachers and researchers. I believe this fall will be the beginning of good times for the College of Engineering."

—Story by Kim Cowart

From the Dean's Desk



Recently, my article "On the Rise in Asia: Academic Enrollment Trends in the United States and Asia" was published in *Industrial Engineer* magazine. This article has now been republished (with permission by the original publisher) and translated into five languages by eight different

journals after the original was published less than a year ago. The message of the article is very simple: In the evolving world economy, the paradigm for engineering education is continually changing, and in response, those of us involved in the engineering academic disciplines must be alert, responsive, proactive, informed and forward-thinking.

In the past 20 years, the most prominent universities in the U.S. have established engineering colleges. The majority of these upper-tier universities now have strong, highly-ranked engineering programs. There are many examples including Georgia Tech; University of California campuses at San Diego, Berkeley and Santa Barbara; University of Texas in Austin; and Texas A&M. The explanation for this is, to me, very obvious.

First of all, successful engineering colleges bring in a lot of research dollars that are essential to assist subsidizing state-supported universities, most of which receive less than 30% of their budgets from state funding. These research funds are used not only for the engineering programs, but also for other non-engineering academic programs. Additionally, successful engineering programs bring in huge endowments that universities can use to support a variety of academic programs and fund other needs.

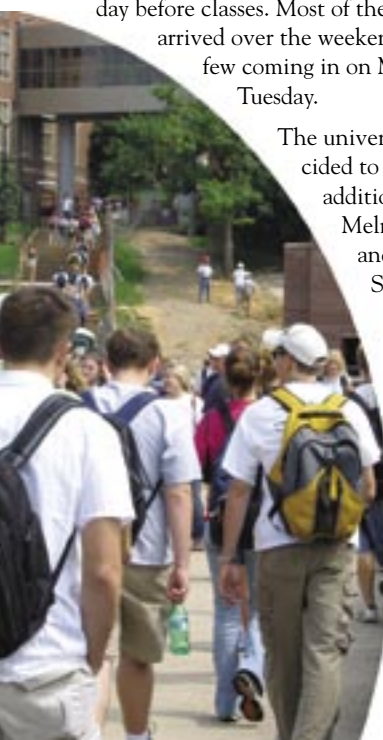
Second, our society is continually becoming more technology-driven. Engineering colleges are a central element of this process by providing society with skilled engineers who can work with present technologies as well as develop future advances.

Third, successful engineering programs complement the economic development of local communities. Austin, San Diego and Atlanta are good examples of cities that have prospered from the engineering influence (you may also notice that none of these cities are located in the northern U.S.).

These facts should serve as inspiration for all of us to strive further to make the UT College of Engineering an even better resource for engineering education. In summary: as goes engineering, so goes the university. We must all work hard to reach our goals!



Way Kuo
Dean of Engineering and
University Distinguished Professor



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Editor's Note

Welcome to the latest edition of *Tennessee Engineer*.

We have re-designed the look of our publication, and we have also updated and changed some of our feature articles while retaining popular sections such as **Alumni News**.

As always, we welcome your feedback. Please send your comments to kcowart@utk.edu.

We hope you enjoy the new and improved version of *Tennessee Engineer*!

—Kim Cowart

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Ron Nutt Announces \$1 Million "Challenge Gift"

Dr. Ronald Nutt, President and CEO of CTI Molecular Imaging Inc. in Knoxville, and his family have made a gift of \$1 million to the University of Tennessee College of Engineering. The pledge was made in an earlier surprise announcement at the college's Honors Banquet on Tuesday, April 13th, 2004.

This is the second gift made by the Nutts to the university within the last year. Previously, Nutt committed \$1 million to the University of Tennessee Graduate School of Medicine to be used to construct a research facility for cancer research. The gift is contingent on matching funds from the National Institute of Health.

In making his gift to the COE, Nutt stated at the banquet that he wanted to challenge other engineering graduates and friends of the college to join with his family in giving back some of the rewards that they have received through their association with UT.

The Nutt family has a tradition of commitment to the college, and especially to the Department of Electrical and Computer Engineering. Nutt received his bachelor of science, master of science and Ph.D. degrees in electrical engineering from UT and all three of his children, Robert Nutt, Rhonda Nutt Goble and Randall Nutt, followed the family tradition by attending the university as electrical engineering majors. Rhonda graduated with a B.S. in electrical engineering in 1993, and Robert received the same degree in 1998. The Nutt's younger son, Randall, had just completed his freshman year at the university when he was killed in a tragic motorcycle accident. In 1998, Nutt and his wife, Robbie, made a \$100,000 gift to establish the Randall Keith Nutt Engineering Scholarship Endowment, named in memory of their son. Since that time, 18 students have been named Randall Nutt Scholars and have been awarded with more than \$108,000 in scholarship funds.

"Our gifts to the College of Engineering are a way of saying thank you for what Ron has accomplished," Robbie Nutt said. "It is our family's belief that education is the key to everything. Our son, Randall, felt that education was the pathway to world peace. By giving this support,

we are providing an opportunity to young people like Randall who believe in the power of education."

Funds from the \$1 million gift will be used to establish both a new scholarship and a new fellowship. The Ronald Nutt Family Engineering Scholarship will be available to junior and senior engineering students. The Ronald Nutt Fellowship in Image Formation and Processing will be

available to graduate students in the ECE department, with first preference given to recipients of the Randall K. Nutt Engineering Scholarship or the Ronald Nutt Family Engineering Scholarship. The remainder of the gift will be used to increase the funding for the Randall K. Nutt Scholarship.

Ron Nutt and three

other founding partners and fellow UT alumni established CTI in 1983. The company develops and globally markets positron emission tomography (PET) imaging equipment and services. PET is a metabolic imaging procedure that provides physicians with functional and molecular information about patients, often before the onset of disease.

Robert and Rhonda both helped establish and currently manage Concorde Microsystems, which produces microPET®, a dedicated small animal PET scanner that is used to non-invasively image a wide range of laboratory animals in a routine lab setting. The company was recently acquired by CTI Molecular Imaging to broaden CTI's research and manufacturing capabilities.

"My dad has essentially been responsible for the development of the 'PET world,'" Robert commented. "He has created a lot of jobs, and has helped the economy of this area. It is our hope that one of the recipients of the scholarship or fellowship could one day do the same thing."

In 1997, Ron Nutt received the Nathan W. Dougherty Award, the UT College of Engineering's most prestigious honor.

"I appreciate what my education did for me and consequently, I want to give back," Nutt said. "We have a family tradition now with the College of Engineering. Robbie and I have seven grandchildren, and believe me, there's going to be a UT engineer in the bunch somewhere."

—Story by Kim Cowart



The Nutt Family (left to right): Ron Nutt is joined by his wife Robbie, son Robert and his wife Danielle after making the surprise \$1 million challenge gift announcement.

FACULTY news

New Director, Associate Dean, Department Head Named

Dr. Way Kuo has announced that Dr. Daniel B. Fant, P.E., has been named as the Director of Research and Partnership Programs for the UT College of Engineering.

The newly established position was designed to interact with engineering centers, departments, faculty and the UT Office of Federal Affairs to facilitate the development of inter- and multi-disciplinary research teams and proposals.

Fant is a retired Air Force officer who spent much of his career as an engineering research manager and program administrator. Prior to joining the COE administration, he was a consulting engineer in the fields of project management and energy studies.



Dr. Daniel Fant

Fant received his Ph.D. in mechanical engineering from Iowa State University. His honors and awards include the Meritorious Service Medal from the Air Force Office of Scientific Research from 1990 until 1994 and the Outstanding Instructor Award from the Air Force Institute of Technology. He was also the associate editor of the American Institute of Aeronautics and Astronautics' *Journal of Propulsion and Power* from 1995 to 1997.

"Dr. Fant has the expertise and professional skills to enhance the College of Engineering's capabilities to generate first-rate research," said Dr. Wayne Davis, the Associate Dean for Research and Technology. "We are pleased to have him join our team of college administrators, faculty and researchers in our efforts to achieve the goals set for us by Dr. Kuo."

Dr. Masood Parang, P.E., has been named Associate Dean for Student Affairs for the COE. In

his new position, the former interim department head for Mechanical, Biomedical and Aerospace Engineering (MABE) will provide leadership and direction to the college's undergraduate and graduate student programs and activities, international engineering education and MS/MBA program.



Dr. Masood Parang

Parang received his Ph.D. from the University of Oklahoma, and joined the UT faculty in 1977. He is an associate fellow of the American Institute of Aeronautics and Astronautics (AIAA) as well as a member of the American Society of Mechanical Engineers (ASME).

Dr. William Hamel has been appointed Interim Department Head of MABE until the department head position is filled.



Dr. Raymond Buchanan

The college has also appointed Dr. Raymond A. Buchanan, P.E., as the new head of the Department of Materials Science and Engineering (MSE).

Buchanan has been the interim department head since 2002.

Buchanan received his M.S. and Ph.D. degrees from Vanderbilt University, and joined the UT faculty in 1985.

Buchanan is also one of the five-member team, led by MSE professor Dr. Peter Liaw, that recently generated a \$3.6 million dollar grant from the National Science Foundation (NSF) to establish the International Materials Institute at UT under the name of Advanced Neutron Scattering netWork for Education and Research (ANSWER).

Kimberly-Clark Hosts Cookout

The UT College of Engineering's Office of Cooperative Engineering and Professional Practice (OCEPP) held the seventh annual Kimberly-Clark Cookout on Friday, September 3rd.

Over 850 COE students, faculty and staff took the opportunity to enjoy free barbecue sandwiches, baked beans, potato salad, chips and soft drinks served in front of the Science Engineering and Research Facility.

Students also got the chance to interact with the OCEPP staff and learn about the Cooperative Engineering Program, in which students combine classroom learning with productive work experience. The UT program was established in 1926 and is one of the top 15 traditional programs in the United States.



Engineering students lined up by the hundreds to enjoy a free lunch courtesy of Kimberly-Clark and the OCEPP.

Sponsor Kimberly-Clark, a \$14 billion global manufacturer of tissue, personal care and health products, has previously selected UT as one of its "core schools" for recruiting graduates and supporting faculty research. Kimberly-Clark is one of UT's top recruiting employers and has operations in 41 countries.

Faculty Focus

This fall, the College of Engineering is welcoming a new assistant professor, Dr. Myong K. Jeong, to the Department of Industrial and Information Engineering. Jeong's prior research experience and interest in generating innovations in advanced data mining promises to be an asset to the college.

Jeong obtained his B.S. in industrial engineering from Han Yang University in 1991 and a M.S. in industrial engineering from the Korea Advanced Institute of Science in 1993. After graduation, he worked as a senior researcher with the Electronics and Telecommunications Research Institute (ETRI) in Korea, where he studied the quality and reliability performance of complex telecommunications systems. During his six and a half year employment with ETRI, Jeong contributed to the development of an information system that was eventually commer-



cialized and is used as a standard tool for several companies, including Samsung Electronics and Korea Telecom.

"During my time at ETRI, I encountered several challenging issues in quality and reliability modeling for complex systems, but I did not have the knowledge to solve them," Jeong said. "That's why I made the decision to study at the Ph.D. level." His quest for knowledge led him to the Georgia Institute of Technology where he received a master's degree in statistics and his doctorate in industrial and systems engineering, with a concentration in engineering statistics.

Jeong's research interests are data mining, sensor data analysis, wavelet application to diagnostic systems and engineering statistics. His research applications have centered on telecommunica-

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College of Engineering Honors Banquet

The College of Engineering's 2003–2004 Honors Banquet took place on Tuesday, April 13 at the University Center Ballroom. The event, sponsored by Eastman Chemical Company, is held annually to recognize outstanding faculty, staff, students and alumni.

The theme for this year's festivities was "Collaboration for Innovation." The evening began with a musical presentation by former UT Chancellor Dr. Bill Snyder and Elizabeth Peterson (wife of ECE assistant professor Dr. Greg Peterson). Dr. Luther Wilhelm, Associate Dean of Academic Affairs, welcomed guests and honorees and served as emcee.

Speakers at the event included Dr. Way Kuo, Dean of Engineering and a University Distinguished Professor; Mr. James Harlan, II, Vice President of Operations and Support for the Viordian Company (a division of Eastman Chemical); Brandice Green, a graduate student in the Department of Materials Science and Engineering; and Dr. Richard Komistek, a professor in the Department of Mechanical, Aerospace and Biomedical Engineering.



Ms. Pam Horning

The COE's corporate speaker was Ms. Pam Horning, Division Manager for Engineering with BWXT Y-12. Mr. Michael C. Crabtree, President and CEO of IdleAire Technologies Corporation, gave the evening's donor/alumni address.

College-wide awards included:

- Outstanding Support Staff Award—Ms. Betty Frazier, Program Resource Specialist in the Department of Chemical Engineering
- Outstanding Faculty Advisor—Dr. Paul Crilly, Department of Electrical and Computer Engineering
- Allen & Hoshall Engineering Faculty Award—Dr. Roberto Benson, Department of Materials Science and Engineering
- Moses E. and Mayme Brooks Distinguished Professor Award—Dr. George Pharr, Department of Materials Science and Engineering



COE alumnus Raja Jubran (left) is presented with the Nathan W. Dougherty Award by Dr. Way Kuo.

- The Leon and Nancy Cole Superior Teaching Award—Dr. Wesley Hines, Department of Nuclear Engineering
- Charles Edward Ferris Faculty Award—Dr. Arun Chatterjee, Department of Civil and Environmental Engineering
- College of Engineering 2004 Teaching Fellow Award—Dr. Wesley Hines, Department of Nuclear Engineering

The college's most prestigious recognition, the Nathan W. Dougherty Award, was presented to COE alumnus Raja J. Jubran, founder and CEO of Denark Construction, Inc., a general contracting and engineering company in Knoxville. Jubran received his bachelor's degree in civil engineering from UT in 1981.

In a surprise announcement toward the end of the evening, Dr. Ronald Nutt, President and CEO of CTI Molecular Imaging Inc. in Knoxville, and his family made a gift pledge of \$1 million to the University of Tennessee College of Engineering.

In making his gift to the COE, Nutt stated that he wanted to challenge other engineering graduates and friends of the college to join with his family in giving back some of the rewards that they have received through their association with UT.

Dr. Wilhelm closed the evening by expressing the college's congratulations to all award winners.

—Story by Kim Cowart

Faculty Focus

Continued from page 3

tion systems as well as the manufacturing of electronics and semiconductors. In semiconductor manufacturing, he has been developing monitoring procedures for across-wafer thickness uniformity in the deposition process and the nanoscale contamination of wafer surfaces in the chemical mechanical polishing process based on spatial sensor data. Sensors used to monitor the uniformity and contamination of microscopic chips send data signals, each signal describing the chip's surface.

"It only takes one microscopic particle to obstruct a chip's pathways, rendering it unusable. The problem is how to quickly and accurately assess the massive amount of complex sensor data for real-time process monitoring," Jeong commented. "Although several data mining techniques exist, most are not effective in processing large data sets with nonstationary and noisy trends."

The lack of efficiency increases costs in the manufacturing process. Jeong has proposed more efficient data mining procedures to extract useful knowledge from complex high-dimensional sensor data for process monitoring.

He also has been collaborating with Intel to develop a multi-stage automatic control scheme to optimize chip production.

"The production of semiconductor devices typically involves hundreds of steps. It is important to develop methods of modeling and controlling synchronized process at several serially connected stages with different objectives. When the proposed controller was applied, it proved to be a valuable tool for improving manufacturing quality in a set of critical steps," Jeong explained. "Automatic fault detection makes the manufacturing process run smoother, saving consumers and manufacturers money by avoiding hidden costs."

Jeong will be teaching "Engineering Data Analysis and Process Improvement" in the fall and the graduate course "Data Mining and Its Applications" in the spring.

What other interests does Jeong have outside of engineering? "I really love to play tennis. I won the championships at a doubles match in 1998 at my research institute. I'd like to find some people to play tennis with here at UT," he added.

Jeong and his family are adjusting well to Tennessee. "Knoxville is like my home near Kwanju in South Korea. It also has several small lakes and beautiful mountains," he said. Jeong's wife, Sarah, is his best friend and supporter. They have two "very active" children, six-year-old son Heymin, and daughter Grace, who is three.

—Story by Betsy Saylor

Engineering Entrepreneurship Encouraged at MS/MBA Banquet

Graduates from The University of Tennessee's dual-degree MS/MBA program were recognized at a banquet held on Tuesday, June 15th at the University Club. Approximately 70 people were in attendance, including representatives from various national, regional, state and local political offices.

UT initiated the innovative dual degree program in the fall of 2001. It permits students, in 23 months, to obtain an MBA and an MS in an engineering discipline. The goal of the program is not only to give students two graduate degrees, but also to give them the tools to start up technology-based businesses and develop the local economy.

It is expected that, by the completion of the program, student teams will have developed a concept, a business plan, a marketing plan and a prototype for a marketable product. The vision of the MS-MBA dual degree is not merely to allow students to receive two graduate degrees in a compressed time frame, but to tightly integrate the two degrees, so that multi-disciplinary student teams develop a real product "from concept to market."

The program at the University of Tennessee is unique in its focus on product development and entrepreneurship. Students not only learn theory, but also actually develop and build a product, considering technological challenges (in the engineering curriculum) and business and marketing challenges (in the business curriculum).

"There is no question that the combination of technical/engineering skills and business skills is powerful for future managers and entrepreneurs," said Sarah Gardial, Interim Associate Dean of Academic Programs for the CBA. "Too often, an individual's education and experience incorporates only half of that equation. Equally important is that these students are not studying a hypothetical problem or a case written about another individual's experience. They are living

the reality of birthing a new product and bringing it to the marketplace."

Guests at the banquet included Mrs. Carolyn Jensen, representing Senator and House Majority Leader Bill Frist; Alexanderia Honeycutt, representing Senator Lamar Alexander; Dean Rice, representing Congressman John J. Duncan; State Senator Tim Burchett; and Jill Van Beke and La Monte Bishop, representing the office of Knoxville Mayor Bill Haslam. The event was also attended by representatives from local corporate supporters, including Robertshaw Controls and Rohm and Haas, as well as UT administrators, faculty, staff and students associated with the MS/MBA program.

Gardial welcomed guests to the event and introduced the deans of the CBA and the COE, Dr. Jan Williams and Dr. Way Kuo. Gardial also recognized the special guests in attendance.

Dr. Masood Parang, Interim Department Head of the Department of Mechanical, Aerospace and Biomedical Engineering, and Dr. Frank Speckhart, professor of mechanical engineering and faculty advisor to the MS/MBA program, offered a brief overview of the program.

"The attendance at the meeting was very encouraging both in quantity and diversity of participating groups," Parang commented. "The attendees saw students' enthusiasm and creativity at work and provided valuable suggestions and encouragement to them. We hope that there will be increasing awareness and continuously growing support of this important educational activity in future."

After the introductory comments, MS/MBA graduates offered demonstrations of the products that they had developed through the program and discussed future manufacturing and development options. Eric Gunter, Patrick Poling and Mazi Arzantouli outlined the specifics of

a lighted, disposable dental mirror. Garrett Tinkle and Rick Kuhlman explained the mechanics behind their LED-lighted auto rims.

Two graduates from the previous group of MS/MBA students, Ben Jordan and Tony Spezia, also gave an overview of the SAFELight, a product they created with fellow classmate Nate Davis during their tenure in the program. The three inventors, through a new company called C2Innovations, are now marketing the SAFELight, a braking system mechanism that provides an early warning

system for drivers in the event of sudden stops, to potential investors and distributors.

"The banquet was a good way to show the business and government community how the university can be a part of economic development," Speckhart said. "Too often, faculty members are perceived as 'ivory tower' professors working on problems that only their peers can understand and appreciate. For those who attended, the banquet did a good job of showing another side of the university. I detected some real interest, surprise and enthusiasm from people that I spoke to about the program."

For more information on the MS/MBA program, contact Dr. Masood Parang at (865) 974-2454 or visit the program's web site at <http://mba.utk.edu>.

—Story by Kim Cowart



MS/MBA graduates Ben Jordan (left) and Tony Spezia (right) demonstrate the SAFELight.

Team Tennessee Drives FutureTruck Home and Prepares for a New Challenge

In June, after three years of development, UT's team of student engineers and their advisor headed to Ford's Michigan Proving Ground for the final round of the U.S. Department of Energy's FutureTruck competition.

The goal of the FutureTruck program is to challenge teams of students from universities across North America to reengineer a conventional, mid-size Ford Explorer to reduce greenhouse gas emissions and increase fuel economy by 25% without sacrificing performance, utility, safety and affordability.

The group of UT engineers, known as Team Tennessee, was one of 15 teams that had been working since 2002 to develop a vehicle using technology that will ultimately change the way cars and trucks are powered in the future.

The UT FutureTruck's hybrid electric powertrain featured an electric motor coupled together in parallel with a 2.3 liter, 4-cylinder engine fueled by

E85, a blend of 85% ethanol and 15% unleaded gasoline. A custom designed adaptor was used to link the motor and engine to the transmission.

The competition began with the organizers giving each vehicle a comprehensive safety evaluation. Then, over the course of nine days, Team Tennessee's reengineered Explorer, nicknamed *Evolution*, was judged on its performance in 10 categories including handling, acceleration, fuel economy and emissions. The team was also evaluated on a written technical report and an oral presentation that documented the engineering experience.



Continued on page 10

Tau Beta Pi Chapter Celebrates 75th Anniversary

The Alpha Tennessee Chapter of Tau Beta Pi marks a milestone in November with the celebration of its 75th anniversary. Established in 1929, the chapter also has the distinct honor of being located on the same campus as the national Tau Beta Pi headquarters. Currently located in Dougherty Hall, the Tau Beta Pi national office was established at UT in 1907.

Tau Beta Pi is the nation's oldest engineering honor society, founded in 1885 at Lehigh University by Dr. Edward H. Williams Jr. The society

has collegiate chapters at 228 institutions, chartered alumnus chapters in 59 cities and a total initiated membership of 469,739 located at universities across the U.S. Members of Tau Beta Pi are accomplished leaders in their respective fields, including 17 Nobel laureates, 43 astronauts, nine Presidential Medal of Freedom winners, 44 National Inventors Hall of Fame honorees and 13 state governors. Tau Beta Pi offers members scholarship and fellowships for academic study, a laureate program and an Engineering Futures Program that trains members in interpersonal and leadership development skills.

"The national office was established on campus by University of Tennessee professor Red 'R.C.' Matthews in 1907," said Jim Froula, Executive Director and Secretary-Treasurer and Editor for the honor society. "Red Matthews was quite a character. He came to UT from the University of Illinois to teach civil engineering, and because he was the national secretary for Tau Beta Pi, he brought the records with him and decided to establish the national office on the UT campus."

As a side note, Froula added, Matthews was also recognized as the originator of acrobatic cheerleading at the University of Illinois. Matthews was so interested in the sport, he continued to be an active participant until the age of 90, an anomaly that got his name listed in the *Ripley's Believe It Or Not* record books.

Matthews encouraged the establishment of a Tau Beta Pi collegiate chapter at UT, and the first installation banquet of the Tennessee Alpha Chapter took place at the University Cafeteria on November 15, 1929, the night before the Tennessee-Vanderbilt game. Alums in the Knoxville area are invited to the chapter's 75th anniversary banquet and installation of new members on November 11, 2004, at 7:00 p.m. at Calhoun's on the River.

"Tau Beta Pi is unique among honor societies by including 'exemplary character' as one of its criteria, in addition to outstanding scholarship," Froula commented. "The organization seeks to promote the spirit of liberal culture in engineering colleges, and encourages students to become well-rounded. For example, the Tau Beta Pi Laureate Award is given to a student who excels in diverse achievements such as sports or the arts." The peer-nominated award is bestowed by the organization with a limit of five per year.

Dr. Mancil Milligan, an aerospace engineering professor in the Department of Mechanical, Aerospace and Biomedical Engineering, was president of the Alpha collegiate chapter from 1955-56, and has also served as faculty trea-

surer. Milligan was the national vice-president for Tau Beta Pi from 1970 until 1974, and also served on the national executive council.

"I've been involved with Tau Beta Pi in some capacity for 50 years," Milligan said. "In my opinion, the organization is more important now than it was 50 years ago. Today's students are not as exposed to high expectations. What I have seen, however, is when these students are challenged, they will rise to meet high expectations."



Celebrating 75 years (left to right): College of Engineering Dean Way Kuo, Tau Beta Pi Executive Director Jim Froula, 2005 Vice-President Kari Tjader, and Outgoing 2004 Vice-President John Garrison.

Milligan also recalled a humorous incident involving a Tau Beta Pi chapter installation.

"I was a national officer for Tau Beta Pi, and the national secretary-treasurer, Bob Nagel, and I traveled to Moscow, Idaho to install a chapter at the university. For some reason, no other Tau Beta Pi members showed up—it is traditional to have a team of seven members to lead the ceremony. It ended up that just the two of us conducted the installation and initiation—it was the smallest team to ever hold a Tau Beta Pi installation-initiation ceremony."

Dr. Bill Snyder, Chancellor Emeritus and former dean of the UT College of Engineering, has also been involved with Tau Beta Pi since his days as a student.

"One of my ambitions as an undergraduate was to earn three keys in three honor societies," Snyder recalled. "The first was Pi Tau Sigma, the mechanical engineering society; the second was Phi Kappa Phi, a society that recognizes outstanding scholarship; and the third was Tau Beta Pi. I received all three, and the importance of Tau Beta Pi has remained with me all of these years."

Snyder was honored in 1998 with the Tau Beta Pi Standard of Excellence Award. The award was established to recognize alumni who have demonstrated outstanding adherence to the ideals of Tau Beta Pi in fostering a spirit of liberal culture in society and who also demonstrate examples of excellence and leadership in character and culture to members of collegiate chapters in order to influence their professional careers and personal lives.

Snyder was deeply gratified by the award.

"Tau Beta Pi exemplifies three things that I believe in—it nurtures outstanding scholarship, promotes ethical behavior for engineers, and emphasizes engineering as a service profession. The organization is also valuable because it provides an opportunity for members to continue a relationship after their student days are over," Snyder said.

"We believe in the honor society business to promote excellence in engineering education," Froula added. "Tau Beta Pi links students together across the country and around the world."

For more information on Tau Beta Pi and the Tennessee Alpha 75th Anniversary Celebration, visit www.tbp.org.

—Story by Kim Cowart

Engineering Team Wins \$75,000 Grant for Cell Communication Study

Dr. Michael Simpson, a UT-ORNL Distinguished Scientist and professor in the Department of Materials Science and Engineering, is the leader of an interdisciplinary team of faculty members who recently received one of the prestigious National Academies Keck Futures Initiative grants. The \$75,000 award was provided to support interdisciplinary research on how cells communicate with other cells. The seed grants from Keck allow researchers to start developing a line of inquiry by recruiting students and postdoctoral fellows, purchasing equipment and acquiring preliminary data, all of which can assist in competing for larger awards from other public and private sources. The funding was limited to 11 recipients, the majority of whom were affiliated with such prestigious institutions as Cornell University, Dartmouth Medical School, Stanford University and Vanderbilt.

Simpson is partnering in the research project with Dr. Christopher Cox, an associate professor in the Department of Civil and Environmental Engineering; Dr. Greg Peterson, an assistant professor in the Department of Electrical and Computer Engineering; and Dr. Gary Saylor, a Distinguished Professor in the Department of Microbiology and the director of the Center for Environmental Biotechnology, a research Center of Excellence.

The goal of the group's project is to advance the understanding of stochastic fluctuation processing in biological systems. The stochastic process itself is a sequence of values drawn from a corresponding sequence of jointly distributed random variables. Stochastic fluctuations, or random variations in the populations of intracellular biomolecules, are the consequence of the small number of molecules that encode information within the cell. The researchers focus on the development of analytical techniques and computer-simulated models software to analyze and re-create stochastic progression accurately and to model the natural cellular randomness.

"This is an exciting initiative," Simpson said. "What we are trying to do is to create a new discipline by bringing a physical sciences/engineering approach to biological sciences so we can understand how information is processed in genetic and biochemical systems."

The team came together under initial funding from the Defense Advanced Research Projects Agency (DARPA) three years ago to focus on



Team members (left to right):
Dr. Michael Simpson,
Dr. Greg Peterson,
Dr. Gary Saylor, and
Dr. Christopher Cox

analytical and computational tools coupled with experimentation. The primary research goal is to examine the stochastic processes at the cell (or genetic) level for a type of bacterial cell-to-cell communication known as quorum sensing.

Initial research efforts were underway when the group found out about the National Academies Keck Futures Initiative (NAKFI), which is a 15-year initiative aimed at spawning new interdisciplinary research directions. Each year of the NAKFI begins with a conference organized around a central theme, with the first year's theme designated as "Signals Decisions and Meaning in Biology, Chemistry, Physics and Engineering." The topic turned out to be a perfect fit for the group. Simpson was one of the 100 invitees to this conference, and only those invited to the conference were allowed to apply for one of the seedling grants. Following the conference, the team wrote a proposal outlining how the researchers planned to accelerate the stochastic simulation of cellular processes, including quorum sensing. The initial effort was aimed at simulating only a subset of all of the cellular reactions that take place during a cell cycle.

"The real-world applications for this are exciting," Simpson commented. "In the body, invading bacterial cells

communicate with each other to coordinate their activity, which may allow them to avoid the body's immune response until the bacteria have reached a large enough population to not be overwhelmed by the immune reaction."

Simpson sees computer analysis, modeling and simulation as critical tools to replicate and understand the cell cycle in order to comprehend complex biological systems.

"The goal out there is to eventually simulate

everything, all reactions in a cell, for a complete cell cycle. That is a tremendous challenge and it will require significant advances in software algorithms, computing hardware, and the analytical understanding of large systems of interacting stochastic processes. However, once that is achieved, the comprehension of complex biological process will be greatly accelerated," Simpson added.

The team's research has other applicable areas, including biomedicine, where biofilm formation can often lead to difficulties with or rejection of implants such as hip or knee replacements; the condition may be mediated by "quorum sensing." Simpson also envisions possibilities for Homeland Security applications, utilizing the research to develop systems that are able to sense biological threats and develop antibodies in defense.

Additionally, Simpson's group is collaborating with researchers at Vanderbilt University to discover how this research can be used to fight diseases such as Type II diabetes.

The National Academies Keck Futures Initiative was launched in 2003 to stimulate new modes of scientific inquiry and break down the conceptual and institutional barriers to interdisciplinary research. Funded by a \$40 million dollar grant from the W. M. Keck Foundation, the Keck Initiatives is a 15-year effort to catalyze interdisciplinary inquiry and to enhance communication among researchers, funding agencies, universities and the general public.

Simpson's group is currently using the Keck funding to support two graduate students and a post-doctoral candidate who will assist the team in continuing their research work.

"We're making progress," Simpson commented. "This is a totally new frontier for both science and engineering, and this research will eventually facilitate the emergence of an entirely new scientific discipline. We are very excited about what the future holds for this type of research."

—Story by Kim Cowart

"What we are trying to do is to create a new discipline by bringing a physical sciences/engineering approach to biological sciences so we can understand how information is processed in genetic and biochemical systems."

—Dr. Michael Simpson

Hashemian Cites Hard Work and Practical Education Keys to Success

Hashem M. Hashemian (MS/NE '76) is ready to bring his experience and enthusiasm to the UT College of Engineering's Board of Advisors. Hashemian has 26 years of experience working with Analysis and Measurement Services Corporation (AMS), a company of which he is now President and CEO. He completed his undergraduate degree in physics at National University in Iran and his master's in nuclear engineering in 1976 from the University of Tennessee. He has a firm belief in education's empowerment.

"During my career I have often referred to my notes and textbooks from UT. My education has given me the ability to do what I really enjoy," Hashemian said. He has been with AMS from its conception with Dr. Thomas W. Kerlin, professor emeritus of the UT Nuclear Engineering Department.

"Tom Kerlin was my advisor at UT. He was an excellent motivator, and the one that really got me started. When we founded AMS in 1977, it was

chaotic! We all worked constantly. We never closed. If you wanted one weekend off, you had to ask in advance. I worked 16 hours a day for at least the first ten years. We didn't have much office help, we had to do everything ourselves. We took on a lot with very few people. I think our employees stayed



Newly appointed COE Board of Advisors member Hashem Hashemian

on because of the lively atmosphere," Hashemian explained. While he was Director of Engineering and Quality Assurance Manager for AMS, Hashemian held technical and managerial responsibilities, from conducting field-testing in nuclear power plants to development and presentation of training courses in 15 countries.

In 1985 Kerlin turned the company over to Hashemian prior to accepting the position of head of UT's Department of Nuclear Engineering. AMS continues to be a busy company, frequently working with national and international organizations.

"One of the most rewarding aspects of working for AMS has been seeing what we can do. We surprised everybody, successfully obtaining million dollar projects in Europe, competing against billion dollar companies," Hashemian said.

He's quick to credit the education that opened the doors. "The dynamic nuclear engineering department and professors like Dr. Pasqua encouraged us to go beyond the course work, to do things on our own. We stayed late, sometimes using the facilities to develop ideas and experiments that showed commercial potential. Other companies that started at that time began that same way, with dedicated students."

Hashemian strongly believes in the practical application of an education in engineering. "It troubles me to think of an engineering student's thesis merely warming a space on a library shelf. All of that hard work should involve real-world applications. Education pays off—it provides opportunities to contribute," he explained.

His own list of publications includes books, book chapters, journal articles, conference papers and government reports. He has provided peer reviews for multiple technical magazines and contributions to the standards of the International Electrotechnical Commission (IEC) and Instrumentation, Systems and Automation Society (ISA).

He also is a Fellow of ISA and member of the American Nuclear Society (ANS), European Nuclear Society (ENS), Institute of Electrical and Electronic Engineers (IEEE), and American Society for Materials Testing (ASTM). His new membership on the UT College of Engineering's Board of Advisors will provide another valuable setting in which to share his ideas. "I think Dr. Kuo's invite was timely—I can offer my foresight for commercial promise as well as my experience with technology and education in practice," he commented.

When Hashemian travels internationally to teach courses in his field, he likes to take his family with him. His wife Nazzy is also from Iran. They have two children, 14 year-old son Alex and 12 year-old daughter Nikki. Even with Hashemian's work and volunteering, Alex's soccer games and Nikki's ballet lessons, they find time to relax together. "My family and I like UT football and try to attend all of the games, including some away games," Hashemian said.

—Story by Betsy Saylor

College of Engineering • Board of Advisors

Dr. Norbert Ackermann, Jr.
(BS/NE '65, MS/NE '67,
PhD/NE '71)
CEO, SPINLAB
Knoxville, Tenn.

Ms. Karyl Bartlett
(BS/ME '84, MBA '00)
Senior Manager for Manufacturing
Operations, Commercial Airplanes
Propulsion Systems Division
The Boeing Company
Seattle, Wash.

Mr. Thomas R. Blose, Jr.
(BS/CE '70)
President-Mid States Division
Atmos Energy Corp.
Franklin, Tenn.

Dr. Tom F. Cheek, Jr.
(BS/EE '61, PhD/EE '69)
President, Statistical Design Institute
Garland, Texas

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(BS/IE '65)
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Mountain Group Capital, LLC
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Dr. Mark E. Dean
(BS/EE '79)
IBM Fellow and Vice President, IBM
Tucson, Ariz.

Dr. R.G. Gilliland
(BS/ChE '58, MS/MetE '63)
Associate Laboratory Director for Energy
and Engineering Sciences
Oak Ridge National Laboratory
Oak Ridge, Tenn.

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Bechtel Jacobs Company LLC
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Mr. James B. Porter, Jr.
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Mr. Jerry R. Repass
(BS/ChE '65, MS/IE '72)
Vice President and General Manager
Tennessee Operations
Eastman Chemical Co.
Kingsport, Tenn.

Mr. Dennis R. Ruddy
President and General Manager
BWXT-Y12, LLC
Oak Ridge, Tenn.

Mr. Richard T. Snead
(BS/IE '73)
President and CEO
Carlson Restaurants Worldwide
Dallas, Texas

Mr. Mike Young
(BS/CE '71, MS/EnvE '72)
Senior Vice President/CEO
Allen and Hoshall, Inc.
Memphis, Tenn.

1960s

Charles D. Hardin (BS/ChE '60) received the Standards & Practices Award at the Instrumentation, Systems, and Automation Society's annual banquet. He resides in Sevierville, Tenn.

Larry D. Davis (BS/EPh '64) is a division chief with NASA in Houston, Texas.

Ronald L. Turner (BS/AE '68) is the 2004 chairman of the Electronic Industries Alliance's Board of Governors. Turner is chairman, president, and CEO of Ceridian Corporation in Minneapolis, Minn. He lives in Wayzata, Minn.

1970s

James M. Adair (BS/EE '70) is an electrical engineer superintendent with Coronet Industries Inc. in Plant City, Fla.

Gary P. Alexander (BS/CE '70) is the owner of Alexander Engineering Services P.A. in Raleigh, N.C. He lives in Raleigh, N.C.

Michael Rudolphi (BS/CE '71, MS/CE '75) is manager of the Space Shuttle Propulsion Office at NASA's Marshall Space Flight Center in Huntsville, Ala. He is a registered professional engineer in Tennessee, Alabama and Mississippi.

Richard L. Copeland (BS/EE '72, MS/EE '74, PhD/IE, EE '77) is a senior advisory consultant engineer with Tyco Fire and Security. He holds 23 U.S. patents and is a member of Antennas & Propagation, Sensors and Microwave societies. Copeland lives in Lake Worth, Fla.

Ernest H. Neubauer (BS/EE '72) works as the Marathon district manager for the Florida Keys Electric Cooperative Association Inc. He lives in Marathon, Fla.

Robert "Bob" H. Brotherton (BS/CE '73) has established a consulting firm, Brotherton Engineering Inc., in Dunedin, Fla. The firm specializes in public works management assistance, utility design, and downtown redevelopment. Brotherton retired as city engineer and director of public works and utilities from the city of Dunedin. He was recognized as a fellow of the National Society of Professional Engineers at its 2003 annual meeting.

Bobby B. Gillenwater (BS/EE '73) is Barnes & Thornburg's Fort Wayne, Ind. office managing partner. He practices in the firm's Intellectual Property Department and has served as intellectual property chair since 2000. He earned his master's in technology and policy from Massachusetts Institute of Technology in 1980 and received his J.D. from Boston College Law School in 1983.

Dennis E. Gowan (BS/ME '73) is an engineering manager with TVA's plant in Gallatin, Tenn. He currently resides in Gallatin, Tenn.

Marvin L. Mitchell (BS/ME '73) is vice president of Johns Manville Corporation in Denver, Colo. He lives in Parker, Colo.

Rodney Bruce Smith (BS/ME '74, MS/ME '77) is a design specialist in containment technology for BWXT Y-12 in Oak Ridge, Tenn. He lives in Knoxville.

Gary S. Boles (BS/ME '77) is a component engineering manager-nuclear with TVA in Chattanooga, Tenn. He lives in Ooltewah, Tenn.

Robert Dean Warren (BS/CE '79) is president of Warren Engineering in Smyrna, Tenn. He resides in Murfreesboro, Tenn.

1980s

Alan K. Mayberry (BS/CE '81) is the area head for system operations for Washington Gas in Springfield, Va. He resides in Woodbridge, Va.

Kathy Jean Scott (BS/CE '81) is site manager for Akzo Nobel Chemicals in Lima, Ohio.

Jeffrey D. Draper (BS/ChE '82) is chief of facilities and logistics at the NASA Ames Research Center in Mountain View, Calif. He resides in San Mateo, Calif.

Robert Mark Hammond (BS/CE '83) is a design manager with Walt Disney World in Lake Buena Vista, Fla. He lives in Orlando, Fla.

Emad M. Bitar (BS/ME '84, MS/ME '87) is a regional manager for Emerson FZE based in Dubai, United Arab Emirates.

Todd A. Knuckey (BS/CE '84, MS/CE '97) is associate vice president for HNTB Corp. He resides in Louisville, Ky.

C. Wade Nottingham (BS/CE '84, MS/CE '98) is associate physical plant director at East Tennessee State University in Johnson City, Tenn. He resides in Kingsport, Tenn.

Tony Alan Valentine (BS/ChE '84) is president and CEO of TK Research Inc. of Boynton Beach, Fla. He lives in West Palm Beach, Fla.

Dr. Mark O. Barnett (BS/ChE '85, MS/EnvE '91) has received tenure and is now an associate professor in the Department of Civil Engineering at Auburn University.

Eric L. Brown (BS/CE '85) is president of ProjDel Corp. in Cincinnati, Ohio. He resides in West Chester, Ohio.

Erle J. Medford (BS/ChE '86) corporate director of engineering for RBX Industries Inc., was awarded a U.S. patent for a method of embossing a foam article. He resides in Burlington, N.C.

Billy "Bill" E. Tipton (BS/CE '87) is an instructor at Kansas State University in Salina, Kan. He lives in Salina.

Dr. Riza Can Berkan (MS/NE '88, PhD/NE '91) Annapolis, is CEO of Answer-Chase in Annapolis, Md.

Jorge Luis Sotolongo (BS/IE '88) works for Copper Tools in Lexington, S.C., as a manufacturing analyst. He lives in Lexington.

1990s

Penny Sparks Britton Selman (BS/CE '92) is a principal civil engineer with TVA. She lives in Signal Mountain, Tenn.

Dr. Henry J. White (MS/MetE '92) is an assistant professor with Stony Brook University in Stony Brook, N.Y. He lives in Nesconset, N.Y.

Thomas Christopher Gibson (BS/EE '93) works for Perceptics Corporation as a product engineer. He lives in Knoxville.

Stephen Gregory Middleton (BS/IE '93) is a project manager with Robert Bosch in Reutlingen, Germany.

Timothy Wayne Page (BS/ES '93) is vice president of Stanley Jones Corporation in South Fulton, Tenn. He lives in Martin, Tenn.

Jonathon G. Overly (BS/ES '94, MS/ES '97) is executive director with East Tennessee Clean Fuels Coalition in Knoxville. He lives in Maryville, Tenn.

Ramon E. Gonzalez (BS/ME '95) received the designation of certified

quality manager from the American Society for Quality. He is lead engineer for Copeland in Shelby, N.C., in charge of all scroll compressor assembly. He lives in Gastonia, N.C.

R. Slade Sevier (BS/CE '95) has joined Bass, Berry, & Sims as an associate in the Nashville office. He lives in Columbia, Tenn.

Justin Drafts (BS/AE '96) recently earned multi-engine commercial pilot's rating. He is a structures engineer with ABX Air, Inc. He lives in Wilmington, Ohio.

Donald Lee Marsh (BS/NE '96, MS/NE '98) is a senior engineer with Sargent & Lundy in Chicago, Ill. He lives in Oak Park, Ill.

Rob Power (BS/AE '98, MS/IE '00) is director of engineering at Vintara in Oakland, Calif. Vintara develops web-based solutions for ISO standards certification, Six Sigma implementation, and other management and regulatory compliance systems.

2000s

Brian Keith Bohannon (BS/ChE '01) is a chemical engineer with E.I. DuPont. He lives in McEwen, Tenn.

Jan-Paul Salamat (BS/IE '01) is an industrial engineer supervisor with Best Buy Company, Inc. in Staunton, Va. He lives in Charlottesville, Va.

Michael John Swiatkowski (BS/EE '01) is an electrical engineer with Naval Undersea Warfare Center in Newport, R.I. He lives in Exeter, R.I.

Dr. Erik Christian Nielsen (PhD/ChE '03) is a processing development engineer with Engelhard Corp. He lives in Huntsville, Ala.

Memorials

Dr. Robert Rochelle (BS/EE '47) UT Professor Emeritus in the Department of Electrical and Computer Engineering, died on June 10, 2004, at Brakebill Nursing Home. In 1947 he received his bachelor's degree in electrical engineering from UTK. He obtained a master's degree in engineering from Yale University in 1949, and a Ph.D. from the University of Maryland in 1963. He became a Fellow in the Institute of Electrical and Electronics Engineers (IEEE) in 1970 for contributions to spacecraft instrumentation. In September 1973, Dr. Rochelle joined UT and taught until his retirement in 1989, after which he continued contributing to UT, including volunteering in the freshman advising center. He was a resident of Knoxville.

Victor Houk (BS/EE '42) died on March 6, 2004. Houk was nicknamed "The father of closed-circuit TV" for contributing to the success of CCTV surveillance as a business in North America. He was a resident of Santa Barbara, Calif.

James Dooley (BS/ME '41) died on February 23, 2003. He was a resident of Stevensville, Md.

Alfred Mouron Jr. (BS/CE '41) died on January 9, 2004. He was a resident of Mountain Brook, Ala.

Julian V. Link Jr. (BS/CE '43) died on January 16, 2004. He was a resident of Knoxville.

Harry G. Hopper Jr. (BS/MetE '62) died on October 10, 2004. He was a resident of Milton, Fla.

Fellowships and Assistantships Key to Recruiting Graduate Students

Engineering graduate students are priceless. They mentor and teach undergraduate students, contribute to faculty research and represent the next generation of professional engineers and engineering educators. Without them, our value as an engineering research institution would diminish.

Competition among academic institutions for the most talented graduate students is at an all-time high and therefore, financial incentives play an increasingly important role in recruiting them to the College of Engineering. Graduate fellowships and assistantships are among the most effective recruiting enticements for an advanced degree student; they also have the power to make or break the selection of an academic institution for pursuing that coveted graduate degree.

As a college, we fall behind our peers in these critical resources and as a result, securing sufficient funding for graduate fellowships and assistantships is one of the college's most pressing challenges. To be successful in our quest to increase funding, primarily through private philanthropy, it becomes important for us to not only build the case of the integral role that graduate students play in research innovation and academic excellence, but in substantiating how private graduate funding contributes to the overall academic excellence of the college.

Take, for example, the Robert E. Bodenheimer Fellowship Endowment in the Department of Electrical and Computer Engineering (ECE)—This fellowship was established with private funds in 1989 to honor Professor Bodenheimer who taught ECE courses in the college for nearly 40 years prior to retirement. The establishment of the Bodenheimer Fellowship had an immediate effect on the caliber of student recruited to the ECE program because of the financial incentive associated with it.

In its infancy, the Bodenheimer Fellowship supported only two students per year. Today, its value has matured allowing it to serve six students on an annual basis. The fellowship's value has been multiplied not only in terms of private investment from donors, but also through

the creative efforts of the selection committee in attracting the best and brightest students. Through a collaborative effort with the ECE Department, the fellowships have been combined with graduate teaching and research positions to bring the total financial package to exceed more than \$30,000 per year. This move allows the ECE Department to compete with some of the most respected graduate programs in the country and illustrates the importance of our graduate students' relationships, through research, with the intellectual quality of the department and college.

ECE professor Don Bouldin, a member of the Bodenheimer Fellowship selection committee observed, "A primary donor to the Bodenheimer Fellowship Endowment is Michael C. Crabtree, who received his B.S. in 1973 and M.S. in 1975 from UTK, both in electrical engineering. Mr.



Dr. Don Bouldin works with an ECE graduate student.

Crabtree is not only a benefactor to the endowment, but he is a former graduate student of Professor Bodenheimer—his post-graduate success as one of the founders of CTI Molecular Imaging, Inc. and now CEO of IdleAire Technologies Corporation of Knoxville—demonstrates not only his, but the college's and department's academic excellence. Furthermore, his successes and continued

participation in the Bodenheimer Fellowship validate the significance of post-graduate support to the college."

When asked about specific parameters concerning the fellowship, professor Bouldin added, "Each student may receive the fellowship for up to five semesters while pursuing a M.S. degree and an additional ten semesters when pursuing a Ph.D. degree on a full-time basis. To give you an idea of the caliber of student we are competing for with other engineering programs—these students often have GPA's of 3.8 or above."

Fellowship versus graduate assistantship—which is better?

Fellowships are outright awards that require no service in return. Most fellowships are awarded on the basis of academic merit and potential for scholarship. However, graduate assistantships are the primary source of funding for engineering graduate students. An assistantship is a financial award to a graduate student for part-time work in teaching or research. In addition to the stipend, assistantships with appointments at a one-quarter-time basis or higher are entitled to a waiver of maintenance fees and tuition for the period of the appointment in accordance with university policy.

Donor Opportunities for Graduate Student Support

Fellowships

Annual named fellowship—minimal gift of \$16,000

Endowed named fellowship—minimal gift/pledge of \$500,000

Graduate Student Assistantships

Annual graduate student assistantship—minimal gift of \$12,000

Endowed graduate student assistantship—minimal gift/pledge of \$250,000

As graduate students search for funding sources, it is important to analyze what they are looking for in return for compensation received—some sources of funds are more valuable for their training and experience than for their monetary return.

At the College of Engineering, opportunities for giving exist for both annual and endowed fellowships and assistantships. If you would like to learn more about how you can become a donor and participate in attracting the very best post-graduate students to the University of Tennessee's College of Engineering, please call the Engineering Development Office at (865) 974-2779, or e-mail us at engrdev@engr.utk.edu.

—Story by Patty Shea

FutureTruck

Continued from page 5

Once the final scores were tabulated, Team Tennessee's effort had earned them a seventh place in the overall competition. The team also garnered the Best Appearing Vehicle Award, the Most Innovative Use of Virtual Instrumentation Award presented by National Instruments, and the Innovative Use of Electronics Award sponsored by Visteon.

Now that the FutureTruck project is complete, another similar one is about to begin as UT was recently named as one of the 17 universities involved in the next Department of Energy automotive research and development program known as Challenge X. Again, the objective is to minimize a vehicle's energy consumption, emissions, and greenhouse gases while maintaining or exceeding original utility and performance.

The first year of Challenge X will have participants developing the vehicle's powertrain and its subsystems. The second and third years will require teams to integrate their design into a donated 2005 Chevrolet Equinox.

—Story by Craig Cook

Check out the College of Engineering's online newsletter

TENNESSEE
engineer
online

<http://TNengineer.engr.utk.edu>

HONORS

& awards

OCEPP Receives Excellence Award

The staff of the Office of Cooperative Engineering and Professional Practice (OCEPP) recently received the Team Excellence Award from Chancellor Loren Crabtree at a breakfast in their honor on June 28. The award was presented in recognition of the group's outstanding efforts in offering a quality program and superior student service.



◀ Administrators (left to right): Dr. Way Kuo, Dean of Engineering; Dr. Loren Crabtree, UT Chancellor; Walter Odom, OCEPP Director; Dr. Luther Wilhelm, Associate Dean for Academic Affairs

◀ OCEPP Staff (left to right): Joyce Calloway, Senior Secretary; Freda Johnson, Administrative Services Assistant; Valeria Clark, Program Resource Specialist; Mary Jo Fairbanks, Assistant Director

Not pictured: Joyce Reed, Assistant Director

Hodgson Honored for AFV Leadership



Professor Emeritus Jeff Hodgson (left) receives his silver cup trophy from former UT President Joe Johnson.

A celebration of 15 years of UT student team participation in nationwide alternative fuel vehicle (AFV) competitions was held on Friday, May 21, at UT's 11th Street Parking Garage.

Since 1989, UT student teams have scored several first-place wins against the nation's top engineering colleges in vehicle design events sponsored by the Department of Energy and the U.S. auto industry. UT has received nearly \$2.7 million

in contracts and resources as a result of participation in these competitions, and nearly 400 UT students have been members of "future vehicle" teams over the last 15 years.

Mechanical Engineering Professor Emeritus Jeff Hodgson, who was faculty advisor to most of the student teams and initiated UT's involvement in the advanced vehicle design competitions, was honored by COE faculty, staff and students at the event. Former UT President Joe Johnson presented a special trophy to Hodgson in recognition of his service to the university and his work with the alternative fuel vehicle teams.

UT Alumnus Named White House Fellow

Jerry Johnson (BS/ChE '94) has been named as one of 12 outstanding individuals from across the country to serve as White House Fellows. The White House Fellows Program, one of the nation's most prestigious programs for leadership and public service, was established in 1964 by President Lyndon B. Johnson. It offers exceptional young men and women first-hand experience working at the highest levels of the federal government. These individuals spend one year working as full-time, paid special assistant to senior White House Staff, the Vice President, Cabinet secretaries and other top-ranking government officials. Past participants in the program include Secretary of State Colin Powell, retired General Wesley Clark and Secretary of Labor Elaine Chao.



Jerry Johnson

Johnson is currently Vice President of Wachovia Securities in Charlotte, NC. He has also served as national president of the Tau Beta Pi Engineering Honor Society. Johnson was a participant in the Minority Engineering Scholarship Program during his years at UT.

COE and UT Athletics Team Up to Support Local Troops



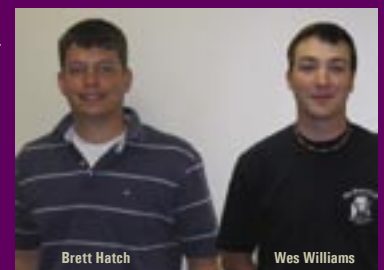
Colonel Dennis Adams (left) and Command Sergeant Major James Pippin (right) proudly display the signed Vols football helmet that will accompany their regiment to Iraq.

The University of Tennessee College of Engineering and the UT Athletic Department recently joined forces to show support for the 278th Armored Cavalry Regiment. The regiment, headquartered in Knoxville, has been called to active duty for a rotation in Iraq. Commander of the regiment is Colonel Dennis Adams, a UT graduate and former Vol football player from 1974 to 1977. Command Sergeant Major is James Pippin, Director of the COE's Engineering Diversity

Programs. The insignia of the 278th was attached to a UT football helmet, and all members of the current University of Tennessee Volunteer football team and coaching staff signed the helmet. It was then sent to Pippin and the 278th as they prepared for deployment at Camp Shelby in Mississippi. The UT football team will also wear small American flag insignias on their helmets during all 2004 season games in a show of support for U.S. troops.

UT Students Win National IEEE Design Contest

Wes Williams, Brett Hatch, and Joshua Taylor, seniors in the Department of Electrical and Computer Engineering, were awarded first prize in the national student competition of the Institute of Electrical and Electronics Engineers (IEEE) Electromagnetic Compatibility Society. Williams recently attended the 5-day annual symposium of the organization in Silicon Valley to give a presentation on the group's project and to claim the prize of \$3000 at the awards luncheon. The 2004 Student Electromagnetic Compatibility (EMC) Design Competition is the 5th annual student competition sponsored by the IEEE Electromagnetic Compatibility Society (EMCS), and the contest is conducted by the Education and Student Activities Committee (ESAC) and its Student Design Contest Subcommittee. The goal of the competition is to provide electrical and computer engineering students who are interested in the field of EMC an opportunity to apply their knowledge and gain hands-on experience. The contest is open to all undergraduate and first-year graduate students in an electrical and/or computer engineering curriculum.



Brett Hatch

Wes Williams

Calendar

2004

Engineers Day	Oct. 21
Thanksgiving	Nov. 25-26
Classes End	Nov. 30
Fall Commencement	Dec. 10

2005

Classes Begin	Jan. 12
King Holiday	Jan. 17
Spring Break	Mar. 21-24
Spring Recess Day	Mar. 25
Classes End	Apr. 27
Spring Commencement	May 7

Contact Information

Senior Administration

Dr. Way Kuo, Dean of Engineering and University Distinguished Professor

Dr. Luther Wilhelm, Associate Dean for Academic Affairs

Dr. Masood Parang, Associate Dean for Student Affairs

Dr. Wayne T. Davis, Associate Dean for Research & Technology

Administration & Programs

Academic Affairs	974-6092
Communications	974-0533
Co-op Engineering	974-5323
Dean's Office	974-5321
Development	974-2779
Engineering Diversity	974-2454
Engage	974-9810
Engineering Student Affairs	974-2454

Departments

Chemical	974-2421
Civil & Environmental	974-2503
Electrical & Computer	974-3461
Industrial & Information	974-3333
Materials Science	974-5336
Mechanical, Aerospace & Biomedical	974-5115
Nuclear	974-2525

Research Centers

Applied Visualization Center	974-9585
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Inaugural COE Commencement Ceremony Honors Grads



The inaugural College of Engineering Spring 2004 graduation ceremony took place on Saturday, May 8, with over 180 engineering graduates participating in the ceremony. A group of approximately 2,000 parents, friends and relatives attended the event, which took place in the Knoxville Convention Center, Exhibition Hall B, at 2:00 p.m.

Dr. Way Kuo, dean of engineering and a university distinguished professor, led the academic procession that signaled the beginning of the ceremony. The procession included the college's two associate deans, department heads and faculty representatives.



James B. Porter Jr., Vice President of Engineering and Operations for E.I. DuPont de Nemours, was the commencement speaker. A Knoxville native, Porter received his bachelor of science degree in engineering at the University of Tennessee. In his address, Porter outlined the challenges facing today's engineers, including transforming scientific "miracles" into useful realities and championing core societal values, such as promoting safety, continuing the protection of the environment, adhering to ethical behavior and valuing people.

The college's top students were also recognized for their outstanding academic achievement: Jared Henry, chemical engineering major; Will Curtis, Jason Markley, Michael Romer and Eric Taylor, electrical and computer engineering majors; and Stephen Sarles, mechanical engineering major.



A decision was made last year by UT officials to limit the university's spring commencement ceremony to a shorter format, and to allow the colleges to hold smaller, more individualized graduation events.

The Fall 2004 Commencement will be a university-wide event that will take place on Friday, December 10th at Thompson-Boling Arena. For more information, contact the Office of Undergraduate Academic Affairs at (865) 974-2454.



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