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Fall 2007

## Tennessee Engineer fall 2007

College of Engineering

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## DuPont CEO and COE Alumnus Visits Tennessee

Chad Holliday Jr. (BS/IE '70), chairman of the board and chief executive officer of DuPont, was recently in Tennessee to attend two special events.



Chad Holliday addresses guests and media representatives at the new DuPont Tate & Lyle Bio Products processing plant in Loudon, Tenn.

Holliday was honored at the Institute of Industrial Engineers (IIE) annual conference in Nashville, Tenn., with a Captains of Industry Award. This acknowledgment honors influential leaders in business, industry and government such as presidents and CEOs. COE Dean Way Kuo, who is an IIE Fellow, nominated Holliday for the award.

Holliday delivered the keynote speech at the conference. University of Tennessee officials who were on hand for the event included UT President John Petersen and Interim Vice Chancellor for Research Lee Riedinger. Kuo and Alberto Garcia, COE Associate Dean for Academic Affairs, represented the college.

IIE has approximately 15,000 members worldwide and is the world's largest professional society primarily dedicated to the support of the industrial engineering profession.

Holliday, a native of Nashville, has been with DuPont for more than 30 years. He began his career at the corporation's Old Hickory plant in his hometown after graduating from UT. He then worked a range of manufacturing, marketing and business assignments prior to becoming

*Continued on page 2*

## Ground Broken on \$37.5 Million Kao EECS Building

On Monday, May 14th, a beautiful, sunny late-spring day, the University of Tennessee College of Engineering (COE) broke ground on the new Min H. Kao Electrical Engineering and Computer Science Building. The building is named for Dr. Min H. Kao, UT alumnus and co-founder and CEO of Garmin Ltd., a world leader in Global Positioning System (GPS) technology. Originally from Taiwan, Kao received a bachelor's degree in electrical engineering from the National Taiwan University and a master's and doctorate degree in electrical engineering from UT.

Prior to the groundbreaking ceremony, COE Dean Way Kuo and his wife, Suzanne, hosted a luncheon at the Cumberland House Hotel for Dr. Kao and his wife, Fan, who traveled from Olathe, Kan., to attend the groundbreaking, and several of Kao's former UT classmates from Knoxville's Taiwanese community.

The groundbreaking ceremony took place under a tent in the courtyard between Perkins and Ferris Halls. Guests at the ceremony included Dr. and Mrs. Kao, several members of the Garmin administrative team, UT and COE faculty, staff and administrators and local, state and regional political leaders. Also attending were President Emeritus Joe Johnson and his wife Pat; Vice Chair of UT Board of Trustees, Andrea Loughry, and her husband Ed; and UT Board of Trustees members Jim Haslam and his wife Natalie; Don Stansberry;

Bill Stokely; Jim Murphy; Charles Wharton; and Spruell Driver. David Leaverton, field director for Sen. Bob Corker, also was present at the ceremony.

UT-Knoxville Chancellor Loren Crabtree welcomed guests from the podium and spoke in glowing terms about the facility and its promise.

"We think this new building will bring new heights to the university and set the College of Engineering even farther ahead," said Crabtree.

Dr. John Petersen, president of UT system, was also enthusiastic about the prospect of another new facility on campus and mentioned other current capital projects.

"These are exciting times for the University of Tennessee," Petersen said. "As of today, along with the Min H. Kao Building, we have over nine capital projects on the Knoxville campus currently being constructed. The Howard Baker Center for Public Policy, the Student Aquatic Center, Glocker Hall, the Pratt Basketball Practice Facility, the Regal Cinema Soccer Stadium, the remodeling of Neyland Stadium and Thompson-Boling Arena, the Joint Institute for Advanced Materials building and the rebuilding of Estabrook Hall all offer us unprecedented opportunities to dramatically improve our educational, research and athletic programs and to enhance the profile of the University of Tennessee around the world."

*Continued on page 2*



The groundbreaking crew for the new Min Kao Electrical Engineering and Computer Science Building (left to right): Way Kuo, Dean of Engineering; Bill Haslam, City of Knoxville Mayor; Loren Crabtree, Chancellor, UT-Knoxville; Dr. Min Kao; Mrs. Fan Kao; John Petersen, President of the UT System; Kim McMillan, Senior Advisor to Governor Phil Bredesen; Jim Porter, Vice President of Engineering, DuPont Corporation/Chair, College of Engineering Board of Advisors; and Mike Arms, Chief of Staff, Knox County Mayor Mike Ragsdale.

# COLLEGE *information*

## **Kao Building Groundbreaking** *continued from page 1*

Kim McMillan, Senior Advisor in the governor's office, who represented Governor Bredesen at the event, said the new facility was an affirmation of the state's support of education.

"This building represents a public-private partnership to say to our students, 'We believe in you, we believe in education,'" said McMillan.

City of Knoxville Mayor Bill Haslam and Mike Arms, Chief of Staff for Knox County Mayor Mike Ragsdale, both read formal proclamations honoring Kao and his contribution to the university and the Knoxville area.



**Dr. Min Kao acknowledges his former advisor, Dr. Jim Hung, who was instrumental in encouraging Dr. Kao to donate \$17.5 million to the College of Engineering.**

Kuo introduced Kao, who was characteristically modest in his remarks.

"I'm grateful to UT for accepting me as a student and allowing me to start a new life in the U.S.," Kao said.

Kao also saluted his former faculty advisor in the electrical and computer engineering department, Dr. Jim Hung, who was present at the ceremony. Kao's initial contact regarding the gift proposal was made in February of 2004 through Hung. He also praised his wife, Fan, for encouraging him to "give back" to the university where he studied as a graduate student.

After Kao's comments, Crabtree presented a framed architect's rendering of the new building to the Kaos.

Kao, Fan Kao, Petersen, Crabtree, Haslam, Arms, McMillan, Kuo and COE Board of Advisors Chair Jim Porter then donned hard hats and took up orange-bow bedecked spades to break ground.

A reception took place after the event, where guests mingled and enjoyed orange punch, hors d'oeuvres and desserts. Attendees were also given orange souvenir miniature tape measures with the groundbreaking date stamped on them.

Kao's gift of \$12.5 million, out of a total donation of \$17.5 million, to the construction of the new building for the College of Engineering remains the largest single gift toward one building in the university's history and serves as the cornerstone of a public-private partnership in funding the building. The remaining \$5 million of Kao's donation was used in a dollar-for-dollar match with other private donations to create a \$10 million endowment for the Min H. Kao Department of Electrical Engineering and Computer Science (EECS).

The 150,000-square-foot building is being built at a total cost of \$37.5 million, with the additional \$25 million coming in state funds. The building will house classrooms, laboratories, a state-of-the-art clean room facility and a 2,500-square-foot auditorium and is projected to be completed in mid-to-late 2009.

The building will be the first on UT's campus built for LEED certification, which requires using environmentally sound materials, positioning the building to make the best use of natural lighting and using indoor lighting that is both cost- and energy-efficient.

The facility will be home to EECS, created through a merger in July between the Department of Electrical and Computer Engineering and the Department of Computer Science.

"It has truly been a perfect day," Kuo commented. The smiling faces around him seemed to agree.

*—Story by Kim Cowart*

## **UT to Host NSF Conference**

The University of Tennessee College of Engineering will host the National Science Foundation (NSF) Division of Civil, Mechanical and Manufacturing Innovation (CMMI) 2008 Research and Innovation Conference, January 7-10 in Knoxville. For more information visit the conference web site at <http://www.cmmigranteconference.org>.



## **Holliday** *continued from page 1*

CEO in 1998. The 205-year-old global science company is headquartered in Wilmington, Del.

Holliday was also in Loudon, Tenn., June 8 for the opening of the DuPont Tate and Lyle Bio Products Bio-PDO™ facility, one of the largest biomaterials processing facilities in the world and the only one of its kind.

In 2000, DuPont, in association with Genencor, developed a patented process to create 1,3 propanediol (PDO) using corn as the raw material in place of petroleum. DuPont partnered with Tate & Lyle, a leading manufacturer of renewable food and industrial ingredients, to form the DuPont Tate & Lyle Bio Products joint venture. As Tate & Lyle had already established a flourishing manufacturing facility in Loudon, building an adjacent plant for the bioproducts manufacturing facility was the logical choice.

The new product, Bio-PDO™, consumes 40 percent less energy than petroleum-based PDO, and reduces greenhouse gas emissions by 20 percent. The product is already adaptable for the manufacturing of many products, including residential carpeting, textiles, airport runway de-icing fluids, liquid detergents and personal care products such as lotions.

Dr. Bruce Bursten, dean of UT's College of Arts and Sciences and president-elect of the American Chemical Society presented the members of the DuPont Tate & Lyle and Genencor Bio-PDO™ research team with the American Chemical Society's "Heroes of Chemistry" 2007 Award.

*—Story by Kim Cowart*

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### **Editor**

Kim Cowart

### **Associate Editor and Graphic Design**

Craig Cook

### **Contributing Writer**

Amanda Womac

### **Contributing Photographers**

Nick Myers, UT Creative Services  
Rip Noel, Rip Noel Studios

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## From the Dean's Desk

Welcome to the Fall 2007 edition of *Tennessee Engineer*.

In place of the regular dean's column in this issue, we have asked two of our outstanding faculty members to write guest articles for this issue.



Dr. John Prados

**Dr. John Prados** is an emeritus professor in the Department of Chemical Engineering and the former UT vice president for academic affairs. Prados was recently named the recipient of the Lifetime Achievement in Chemical

Engineering Pedagogical Scholarship Award from the American Society of Engineering Education (ASEE). The award is recognized as the society's highest honor in chemical engineering (please see page 11 for more details). Additionally, Prados was the treasurer for the American Institute of Chemical Engineers from 1996-2001 and received the L.E. Grinter Award for Service to Engineering Education from the American Board of Engineering and Technology (ABET) in 1993. He was also a University of Tennessee Faculty Macebearer. Prados has a unique perspective on the college, since he has been with the university for over 51 years, and he highlights COE history in his column.

**Dr. Thomas Zacharia**, a professor in the Department of Electrical Engineering and Computer Science, joined the COE last year. Zacharia is also the associate laboratory director, Computing and Computational Sciences at Oak



Dr. Thomas Zacharia

Ridge National Laboratory (ORNL). Zacharia leads the laboratory's agenda in advanced high-performance computing for national leadership and scientific objectives in priority areas such as climate change, fusion energy, nanotechnology and biotechnology at the UT-ORNL Joint Institute for Computational Sciences (JICS), a state-of-the-art facility for computer science and computational sciences research.

In his article, Zacharia discusses the future of supercomputing and its importance to joint research between the college and ORNL.

I hope you enjoy these informative guest articles. In the future, we will feature more columns from exceptional faculty members in other departments.

Dr. Kuo will return to writing his regular column in the next issue and will provide updates on the college's activities and events.

—Kim Cowart, Editor

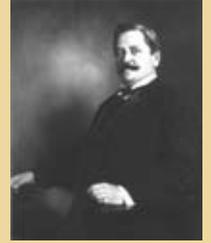
## UT Engineering Beginnings: Two Presidents and a Dean

by Dr. John W. Prados, Special Guest Columnist

Capturing the history of the College of Engineering in a brief column is manifestly impossible, but we can gather a bit of the flavor from three pioneers who laid its foundations.

In 1834, Joseph Estabrook, a Dartmouth graduate with scientific interest and training, became president of a small, poor institution in Knoxville—East Tennessee College. Able and energetic, Estabrook taught chemistry and mineralogy, expanded the college's offerings, including courses in surveying in 1838 and civil engineering in 1840 and had the college name changed to East Tennessee University.

Almost fifty years later following severe disruption during the Civil War, little had changed. East Tennessee University had been designated the state's land grant institution in 1869, with a mandate to offer instruction in "agriculture and the mechanic arts," and its name was changed to the University of Tennessee in 1979, but the curriculum was still predominantly classical. Change arrived in 1887 with president Charles W. Dabney, state chemist of North Carolina and the first UT faculty member with a Ph.D. Within a year, Dabney had reorganized



Dr. Charles W. Dabney

*Continued on page 4*

## Today's Science Relies Heavily on Supercomputing

by Dr. Thomas Zacharia, Special Guest Columnist

Steady advances in high performance computing (HPC) technologies have enabled researchers to push the boundaries of human knowledge in many scientific domains for over three decades. Leading-edge computational science is in transition from "small science" that can be conducted on infrastructure operated by single universities and individual agencies to "large science" that requires the combined expertise and infrastructure as exemplified by the UT-ORNL Joint Institute for Computational Sciences. Simulations performed on modern supercomputers have become indispensable to science, and they promise to become ever more important in the future.

These simulations provide information that cannot be obtained by any other means. At the Oak Ridge National Laboratory (ORNL), internationally-recognized researchers use leadership computing systems to unlock mysteries across the spectrum of science, from the motions of entire galaxies to the dance of subatomic particles. Dr. Ray Orbach, the Department of Energy's undersecretary for science, put it well when he said, "Simulation is really proving itself as the third pillar of scientific discovery, fully on a par with theory and experimentation."

ORNL's Jaguar supercomputer is at the forefront of a knowledge explosion provided by these scientific instruments. Jaguar is the world's second most powerful supercomputer and the single most powerful system for open scientific research, able to perform up to 119 trillion calculations a second. By comparison, if you were able to do one calculation every 15 seconds using pencil and paper, it would take you more than 50 million years to do 119 trillion calculations.

Climate scientists are using Jaguar to understand the journey of carbon dioxide and other greenhouse gases from smokestack to ocean, forest and atmosphere. Their work will give us the knowledge we need to be responsible stewards of our planet. Astrophysicists are using Jaguar to explain the universe's most perplexing mysteries. These researchers help us to understand exploding stars, dark matter and gravity waves. Fusion researchers are simulating various aspects of the multinational ITER reactor, with the goal eventually of heating an ionized gas to ten times the temperature of the sun in order to provide relatively clean, virtually unlimited energy.



ORNL's Jaguar is the world's second most powerful supercomputer.

Similar revolutions are taking place in a variety of fields, including biology, chemistry, materials and high-energy physics.

The progress provided by Jaguar and other supercomputers will not slow anytime soon. Upgrades this year will more than double Jaguar's capability, and by early 2009 ORNL be home to a supercomputer capable of 1,000 trillion calculations a second.

## Dr. Joshua Fu—Using Computer Simulations to Improve Olympic Air Quality

In 2008, all eyes will be on China for the summer Olympic Games in Beijing. Athletes will test their strength; countries will compete for gold medals; and people from across the globe will travel to China for the excitement. However, Dr. Joshua Fu, a research assistant professor in civil and environmental engineering, will be one of the few with his eyes not on the games, but on the skies.

For years, Fu has been working with a team of researchers from Argonne National Laboratory, the U.S. Environmental Protection Agency (EPA), Tsing-Hua University, Peking University and the Chinese Academy of Sciences to develop a strategic plan for China to improve its air quality for the 2008 Summer Olympic Games by using powerful computer clusters.

“Through simulation modeling, we’re able to identify the local contributors of air quality in Beijing,” said Fu, whose background on environmental system analysis and computing led him to this project. “With development of new governmental control strategies, we’re able to improve energy use in order to improve air quality in 2008.”

Beijing’s northern border is surrounded by hills that restrict venting pollution during hot, humid summer days, much like Los Angeles and the Tennessee Valley. Southern winds from the East and Yellow Seas collide with northern winds, creating ground-level ozone and particulate matter accumulation. Pollutants from surrounding regions get trapped and build up over several days until they are dispersed by wind or washed away by rain. Because of this, researchers are looking at how to control not only Beijing’s air quality, but surrounding provinces as well.



Using powerful computer clusters, Dr. Fu has worked with a team of researchers to develop a strategic plan for China to improve its air quality for the 2008 Summer Olympic Games.

“We’re trying to find out the regional effects to Beijing City,” said Fu. “All policy makers need to implement a control strategy for Beijing and surrounding provinces.” Findings from the research are in the development stages, and some policy makers in China have been implementing strategies such as a one-week vacation to control vehicles, shutting down industry in the region and encouraging residents to take a trip out of the city to reduce emissions.

The Pearl River Delta region in China is a manufacturing hub with severe air pollutants and another region of focus for Fu, who hopes to provide research results to Hong Kong and the Guangdong Province for policy makers to implement their own pollution control strategies.

After excitement from the Olympic Games blows over, policy makers in China will take the next step to air quality improvements and focus on energy policies. The Chinese EPA (SEPA), with help from Fu and others, created a five-year plan to reduce and improve energy emissions.

“The project identified options for energy use in China,” said Fu. “The use of different types of coal or alternative energies such as wind and solar are all part of the policy plans.”

Climate change is another big project Fu works on with researchers from Harvard, California Institute of Technology, GISS/NASA and Argonne National Lab. Backed by the competitive USEPA’s Science to Achieve Research grant (STAR), Fu and others study the consequences of climate change in air quality, explore computational demand and how the next generation of supercomputers can be built to solve complex problems.

“Global warming is a hot topic in research right now,” said Fu. “People need to look further than carbon dioxide for answers. Controlling air pollution is a way to reduce climate change.”

Fu also works on air quality modeling for the state of Tennessee. Knox and six other surrounding counties are what the EPA considers “non-attainment” zones, meaning the air quality is more polluted than current EPA standards allow.

Fu and his research team are looking into developing a control strategy for state agencies in order for Knox County to get into the attainment zone.

Fu has studied environmental issues throughout his academic career. A Taiwan native, Fu studied environmental engineering in Taiwan before moving to Los Angeles for his graduate work at the University of California, Los Angeles. After completing his Ph.D. work at North Carolina State University, Fu worked for the USEPA supercomputing center prior to coming in UT.

“The focus was specifically air quality,” said Fu. “I helped develop the AIRNow web site in 1999 to provide the public with easy access to national air quality information. It is a public awareness site that offers daily air quality index forecasts for over 300 United States cities.”

When he is not focused on the climate, Fu spends time at home with his wife, Rachel, who is a UT faculty member in the Department of Retail, Hospitality and Tourism Management, and their 9-year-old girl, Katherine, who keeps him focused on the future.

“Through my research, I want to figure out how to fix environmental problems and implement solutions for future generations,” Fu said.

—Story by Amanda Womac

### Beginnings *continued from page 3*

the university and replaced eight of the ten faculty members! Degree programs in civil, mechanical, mining and electrical engineering followed quickly, along with significant faculty expansion. He obtained UT’s first state appropriation in 1903. In 1892 Dabney hired a gifted mechanical engineering professor, Charles E. Ferris, and in 1913 the College of Engineering was established with Ferris as its first dean.



Dean Charles E. Ferris

Dean Ferris oversaw development of the college into its present form. In 1926, he initiated the engineering co-op program, the second in the southeast and only the 17th in the nation. Engineering research began with establishment of the Engineering Experiment Station in 1922. Mining engineering disappeared because of low enrollment, but chemical engineering (including metallurgy) was moved to the college from chemistry in 1936, and upon his retirement in 1940, Ferris became UT’s first professor of industrial engineering.

Major developments since Ferris’ time include research ties with the Atomic Energy Commission facilities in Oak Ridge after the close of World War II, initiation of doctoral programs (in chemical engineering and metallurgy) in 1949, founding of the Department of Nuclear Engineering in 1957 and the Department of Materials Science and Engineering in 1984 and recent commitments by the university administration for significant College of Engineering enhancements. Many faculty members and administrators have led these developments, but all have stood on the shoulders of the pioneers Estabrook, Dabney and Ferris.

## Wilhelm Named Interim Head of EECS

**Dr. Luther Wilhelm**, the COE Associate Dean for Special Projects, has been appointed as the interim head of the Department of Electrical Engineering and Computer Science (EECS), effective July 1, 2007. The department was created through a merger of the Department of Electrical and Computer Engineering and the Department of Computer Science. A search is currently in place for a permanent department head for EECS.



Dr. Luther Wilhelm

Wilhelm received his Ph.D. from the UT Space Institute. He also served the college as Interim Dean for Administration, Research and Graduate Education from 2001-2005. A professor emeritus of biosystems engineering, Wilhelm is a Fellow in the American Society of Agricultural Engineers.

## Bloom New CMP Associate Director

The University of Tennessee's Center for Materials Processing (CMP) has named **Dr. Everett E. Bloom** as the center's new associate director.



Dr. Everett Bloom

Bloom, who was director of the Metals and Ceramics Division at Oak Ridge National Laboratory (ORNL) from 1999 to 2006, has both Ph.D. and M.S. degrees in metallurgical engineering from UT and received a B.S. degree in that same field from the South Dakota School of Mines.

Bloom will join CMP Director Carl McHargue and a multi-disciplinary group of faculty and students who conduct research under the auspices of the center, which was created as a Center of Excellence in 1985 by the State of Tennessee.

## Penumadu is CEE Interim Head

**Dr. Dayakar Penumadu** has been named the Interim Department Head for the Department of Civil and Environmental Engineering (CEE). Penumadu, who has a Ph.D. degree from Georgia Tech, has received the COE Research Fellow Award several times and is a recipient of the CEE Outstanding Teacher Award. Dr. Gregory Reed, who has been the CEE department head for over 20 years, has been named as the new Associate Vice-Chancellor for Research in the UT Office of Research. For more on Reed's transition, please see the article on page 6.



Dr. Dayakar Penumadu

## New Faculty Members Add Depth and Expertise in a Variety of Disciplines

**Dr. Eric T. Boder** has joined the Department of Chemical and Biomolecular Engineering (CBE). Boder received his Ph.D. from the University of Illinois in Urbana and was most recently an assistant professor in the Departments of Chemical and Biomolecular Engineering and Bioengineering at the University of Pennsylvania. **Dr. Stephen Paddison**, a former assistant professor in the Department of Chemistry, the University of Alabama-Huntsville, who received his Ph.D. from the University of Calgary, is also a new faculty member in the CBE department.



Dr. Eric Boder

The Department of Civil and Environmental Engineering has four new faculty members.

**Dr. Christopher Cherry** received his Ph.D. from the University of California, Berkeley, where he was a researcher/instructor in the UC Berkeley Center for Future Urban Transport.



Dr. Christopher Cherry

**Dr. Qiang He** is a Ph.D. graduate of the University of Illinois at Urbana-Champaign and was previously an assistant professor

in the Department of Civil and Environmental Engineering at Temple University. He is an environmental engineer with interdisciplinary expertise integrating engineering, microbiology and functional genomics.

**Dr. Jack Parker** received his Ph.D. from Virginia Polytechnic Institute and State University and is a joint faculty member with UT and the Geosciences and Environmental Engineering Group at ORNL, where he is a Distinguished Scientist. Parker was previously the president of Environmental Systems and Technologies in Oak Ridge.

**Dr. Xuedong Yan** has a Ph.D. from the University of Central Florida in Orlando and specializes in the transportation field. Yan was previously a research associate in the Center for Advanced Transportation Systems Simulation at UCF.

The Department of Electrical Engineering and Computer Science welcomes **Dr. Husheng Li**. Li received his Ph.D. from Princeton University, and was formerly senior system engineering in corporate research and development at Qualcomm Inc., in San Diego, Calif.

**Dr. Yuanshan Dai** is the new faculty member in the Department of Industrial and Information Engineering. Dai received his Ph.D. from the National University of Singapore, and his research in grid computing, reliability and network security was highlighted in the December 2004

edition of *Industrial Engineer Magazine*.

New faculty members in the Department of Materials Science and Engineering include: **Dr. Wei He**, recently a Senior Fellow at the University of Washington, who received her Ph.D. from the University of Connecticut, and **Dr. Shanfeng Wang**, a former Research Fellow at the Mayo Clinic in Rochester, Minn., who received his Ph.D. from the University of Akron.

The Department of Mechanical, Aerospace and Biomedical Engineering welcomes **Dr. Xiaopeng Zhao**, who received his Ph.D. from Virginia Tech. Zhao's research areas include cardiovascular dynamics and micro-electro-mechanical systems.



Dr. Wei He

**Dr. Ivan Maldonado** has joined the Department of Nuclear Engineering. Maldonado was previously an associate professor in the Department of Mechanical, Industrial and Nuclear Engineering at the University of Cincinnati. He received his Ph.D. from North Carolina State University in Raleigh, N.C.



Dr. Shanfeng Wang



Dr. Qiang He



Dr. Jack Parker



Dr. Xuedong Yan



Dr. Husheng Li



Dr. Yuanshan Dai



Dr. Xiaopeng Zhao



Dr. Ivan Maldonado

## Changes Needed for Research to Make a Significant Impact

by Dr. Gregory D. Reed, Special Guest Columnist

After 26 years in the College of Engineering (20 years of that as department head of civil and environmental engineering), I have moved to the Associate Vice Chancellor for Research position here at the University of Tennessee. In addition, a new Vice Chancellor for Research,



Dr. Gregory Reed

Brad Fenwick, arrived September 1 from Virginia Tech. New people in both campus research administration positions open the door to changes in priorities, methods, perspectives, etc. The university administration wants funded research to increase at a rate faster than in recent years. Why? It supports recruiting highly qualified graduate students to work with innovative faculty to produce high impact research results that can be used to increase the quality of life and foster economic development. The university and the College of Engineering want to have a more significant positive impact in this world we live in. Therefore, something needs to change.

In many ways, research was simpler 26 years ago. It was common for research problems to be narrowly focused and conducted by a single faculty researcher working with a small group of his or her own students. When I first came to UT, the prevailing expectation of a young faculty member was that one should conduct research to prove his or her abilities. As life gets more complex, research problems get more complex. The expectation is changing. Today, significant research topics require multi-disciplinary, and even multi-institutional, approaches to produce the best results. Each member of the research team brings their expertise and the combination is a stronger research result.

More multi-disciplinary research has brought more researchers to the research enterprise, and the competition for the same sources of funding has increased considerably. Organizing for success is a necessary element of a process to be more competitive. Recent developments and resource commitments have created expanding opportunities in biological-, computational-, materials- and nuclear-related sciences and engineering, as well as all things energy related. Today's research climate is an incubator for these kinds of initiatives, others currently in place and others yet to be created that need institutional commitment and processes to sustain them for long-term success.

Significant improvement in funded research will not be easy. It will take a lot of work. It will not only take expanding federal and state research agency partners, but also involving more industry and business research partners. The results will be worth the effort because the outcome will be a better future. These are exciting times, and I am glad to be a part of a UT team seeking excellence in research.

## Engineers Without Borders Completes Two South American Water Conservation Projects

When Tom Zimmerman came to UT to study civil engineering, he thought he would eventually go into the Peace Corps. However, after graduating in May, Zimmerman's legacy was Engineers Without Borders (EWB).

"I started EWB in 2004 because it was the direction I wanted to go," Zimmerman said. "It is important because it accomplishes a lot of different things. We help people in underdeveloped countries with their infrastructure needs. EWB also helps people here to see how their profession fits in and what kind of good they can do with their education."

EWB is a non-profit humanitarian organization established to partner with developing countries in order to improve their quality of life. The UT chapter of EWB is one of many university chapters across the world involved in implementing environmentally and economically sustainable engineering projects.



Seth Frank (left), senior in civil engineering, and Adam Teg, senior in aerospace engineering, pose for a picture with children from the village while Ryan Ragsdale, a graduate student in soil sciences, continues work on the water tank's concrete foundation.

"We're not just engineering," said Zimmerman. "Sometimes the name intimidates people, but EWB is open to all faculty, staff and students at UT, and we're always looking for people with different backgrounds."

Since its inception, EWB at UT has worked on two projects involving water conservation. In 2006, a group of students took two trips to the Dajabon region of the Dominican Republic with their academic advisor, Dr. John Schwartz. On the first trip in March, students assessed the basic water needs of two communities, Los Cerros de Aminilla and Barrigon, and found they shared one working well that did not produce enough water. The students completed

a detailed land survey and collected additional field information, which they used to design a water project prior to the December implementation trip. With the help of villagers and regional government officials, the students installed multiple pumps, storage tanks and 3,000 feet of pipeline to provide communities with the needed water supply.

A second project involved the village of La Fortuna in Guatemala, which had no potable water. Two professors from soil sciences, Dr. Neal Eash and Dr. Forbes Walker, presented their idea for a rainwater-harvesting water tank to EWB and the project took off.

"I wanted to get involved, so I volunteered," said Erin Byers, a senior in biosystems engineering and project lead for the Guatemala rainwater-harvesting project. "This was the most involved design team project I've ever worked on. We really tried to do everything we could to prove what we implemented in La Fortuna would be a success."

And it was, according to Adam Teg, a senior in aerospace engineering who traveled to Guatemala in 2007. "We completed the project in seven days," said Teg. "The villagers were very happy and high-spirited. They helped out with the project and were excited to see a water storage tank built for the monsoon season."

"We want to do things that are appropriate for the villages, something they can continue to build and own; this way it's not us owning the project, it's them," said Byers. "EWB's approach to helping developing countries is great because the solutions are supposed to be sustainable and simple. Solving resource issues is something we as engineers have a huge responsibility to learn how to do."



The wooden structure holds rebar, river rocks and mortar in place for it to dry on top of the concrete foundation. Once dried, the wooden forms were raised and the process continued three more times until the structure grew to about seven feet tall.

—Story by Amanda Womac

## Engineering Pioneer Nancy Cole Celebrated at 2007 COE Honors Banquet

The College of Engineering's annual Honors Banquet, which recognizes outstanding faculty, staff and students in the college, took place Tuesday, April 10, 2007, in the University Center Ballroom on the UT campus. This year's Honors Banquet made history when the college's most prestigious recognition, the Nathan W. Dougherty Award, was given to alumnus Nancy Cole, the first woman ever to receive the award.



Dougherty Award winner Nancy Cole and her husband Leon.

Cole was the first female graduate of UT with bachelor's and master's degrees in metallurgy engineering in 1963 and 1988, respectively. After graduating, Cole worked for Oak Ridge National Laboratory (ORNL), and then moved to Chattanooga where she had a career for 17 years with Combustion Engineering. She returned to ORNL in 1991 and has managed Department of Energy programs for national laboratories, industries and universities. Among her many achievements, Cole holds three patents and is a registered Professional Engineer in the state of Tennessee.

Cole has given back to the college that provided her with so much by establishing the Leon and Nancy Cole Outstanding Teacher Award with her husband, Leon Cole. This annual award has been presented to faculty in the COE for over 20 years, and at the 2007 Honors Banquet, Dr. Paul Frymier, professor of chemical and biomolecular engineering, received the award.

Other faculty and staff awards included the following:

- Outstanding Support Staff Award—**Kenneth Thomas**, Department of Civil and Environmental Engineering
- Outstanding Faculty Advisor—**Dr. Paul Crilly**, Department of Electrical Engineering and Computer Science
- Allen & Hoshall Engineering Faculty Award—**Dr. Belle Upadhyaya**, Department of Nuclear Engineering
- Moses E. and Mayme Brooks Distinguished Professor Award—**Dr. Benjamin Blalock**, Department of Electrical Engineering and Computer Science



The College of Engineering 2007 Research Fellows (left to right): Dr. Brian Edwards, Chemical and Biomolecular Engineering; Dr. Baoshan Huang, Civil and Environmental Engineering; Dr. Syed Islam, Electrical Engineering and Computer Science; Dr. Mohamed Mahfouz, Mechanical, Aerospace and Biomedical Engineering; Dr. Phillip Rack, Materials Science and Engineering; Dr. Leon Tolbert, Electrical Engineering and Computer Science; Dr. Lawrence Townsend, Nuclear Engineering; and Dr. Belle Upadhyaya, Nuclear Engineering.

- Charles Edward Ferris Faculty Award—**Dr. Lee Han**, Department of Civil and Environmental Engineering
- Ralph E. Powe Junior Faculty Enhancement Award—**Dr. Jie "Jayne" Wu**, Department of Electrical Engineering and Computer Science
- Joint Institute for Advanced Materials Chair of Excellence in Transportation Award—**Dr. Dayakar Penumadu**, Department of Civil and Environmental Engineering
- College of Engineering 2007 Teaching Fellow Award—**Dr. Lawrence Townsend**, Department of Nuclear Engineering

College-wide student awards included:

- Peter Barile Sr. Design Competition Award—**Ryan Bolt**, **Karen Genung** and **Kimberly Williams**, graduate students, MS-MBA program
- Eastman Chemical Company Chemical Engineering Scholar—**Jeffrey Clark II**, Department of Chemical and Biomolecular Engineering
- Tau Beta Pi Outstanding Junior—**Jared Johnson**, Department of Chemical and Biomolecular Engineering
- Tau Beta Pi Outstanding Senior—**Sarah Andrews**, Department of Mechanical, Aerospace and Biomedical Engineering

—Story by Amanda Womac

## UT Hosts Visitors from Thailand's Kasetsart University to Encourage Joint Graduate Research

Students and faculty in the College of Engineering (COE) are getting ready for the world through a memorandum of understanding between the college and faculty of engineering at Kasetsart University (KU) in Kamphaengsaen, Thailand.

"Our initial contacts with KU were in 1980," said Dr. Robert Orr, professor in UT's Institute of Agriculture (UTIA) and coordinator of the exchange. "At that time, UTIA had a faculty strengthening grant from the U.S. Agency for International Development. Our relationship with KU developed informally over the next decade, and in 1993 the program became active with a series of faculty exchanges."

In 2006, the Dean of Faculty of Engineering at KU, Dr. Somyot Chirnamksorn, who earned his Ph.D. in agricultural sciences from UT, traveled to the States with the intent of establishing a working relationship with the COE. Subsequently, Dr. Masood Parang represented the college in a planned tour of KU in fall 2006 to develop joint academic activities in engineering.



As part of their campus tour, KU faculty and students got a look at the UT ChallengeX hybrid vehicle.

The following spring, students and faculty from KU returned to UT. During their visit, Kasetsart students and faculty toured the COE and met with Dr. Parang and other administrators to discuss joint research programs between faculty and graduate students at each university. The KU students and faculty toured laboratories at the Department of Electrical Engineering and Computer Science and also visited the Department of Mechanical, Aerospace, and Biomedical Engineering's automotive engineering research facility. Following the visit, COE Dean Way Kuo and Dean Chirnamksorn prepared a memorandum of understanding in order to encourage the cooperation in education and academic activities between the universities.

"The MOU will help in building a program that will provide for the exchange of faculty and students and begin a process leading to joint research in the graduate programs," said Dr. Parang.

—Story by Amanda Womac

## Walker Skilled at Tackling Major Engineering Projects and NFL Quarterbacks

Whether he's sacking quarterbacks on the playing field or running a thriving multi-disciplined engineering and consulting firm, Darwin Walker remains committed to excellence in all aspects of his life.

Walker grew up in Walterboro, S.C., where his parents owned Walker Construction Company. Both were licensed contractors, and Walker became fascinated by the theoretical part of putting together projects. He was determined to get a degree in civil engineering.

Football was Walker's other passion. He began his college experience at North Carolina State, where his brother was also a player, but he transferred to UT as a defensive tackle after his freshman year.

"I came to the University of Tennessee because it had, in my opinion, premier programs in both engineering and football," Walker said.

Walker was a part of one of the most exciting eras in UT football, as the team racked up two Southeastern Conference Championships and went on to win the 1998 National Championship against the Florida State Seminoles. Walker's fourth quarter sack of FSU's quarterback was a turning point in the intense game, setting up the 23-16 victory.

"The national championship was a time in my life that I will never forget," Walker commented. "There is no feeling better than being a part of a group of people who come together with one common goal, one synergy, one dream and one opportunity to achieve greatness—and to actually do it."

Although there was concern Walker might leave the university early for a slot on an NFL team, he was determined to earn his degree in civil engineering. "The National Championship was one of the greatest accomplishments that I have ever had in my life," Walker said. "But when I walked across the stage to get my degree, that was the greatest achievement."

After graduating in 2000, Walker was drafted by the Arizona Cardinals, where he played for two games before joining up with the Philadelphia Eagles, where he was a highly successful and visible presence as the team won the 2004 NFC Championship. During the past five years, Walker has had 26.5 sacks, making him the fourth most productive defensive tackle during that span.



Darwin Walker's dedication to excellence has led to successful careers in the business world and on the football field.

In August of this year, Walker was traded to the Chicago Bears, the defending NFC champions.

"I'm looking forward to being a Chicago Bear," Walker added. "I'm excited to be here, this is a team that could be a Super Bowl contender."

Walker co-founded Progressive Engineering with fellow Tennessee grad Paul Tucker following his graduation. Beginning with just two offices, in Knoxville and Philadelphia, the partners developed the firm into a thriving, full-service, multi-disciplined engineering and consulting firm.

Progressive then formed a strategic alliance with Pennoni Associates Inc., a Philadelphia-based firm with several offices across the country. Walker became part-owner, Chief Development Officer and Vice-President of Pennoni.

Walker's wife, Danielle, took over leadership of Progressive until the birth of their son, Darwin Walker II. At that time, the couple decided to merge Progressive into Pennoni Associates. Today, the company has 925 employees with 22 offices.



Walker addresses the engineering graduates at the 2007 COE Commencement Ceremony.

"When I became an officer with Pennoni, we had 600 employees. We now have 925. I always say it was because of me," Walker joked. "Actually, Pennoni was established over 50 years ago."

Walker is also active in many charitable and community-based organizations, both through the work of his foundation and through participation with groups including the Boys and Girls Clubs of America.

Walker recently visited UT to serve as commencement speaker for the College of Engineering's

2007 Spring Commencement, where he outlined "Darwin's Rules for Success" to the new graduates.

In addition to their engineering interests, Darwin and Danielle Walker enjoy spending time with their son, who is six months old. "My son is a blessing," Walker said. "I still have to pinch myself when I look at him."

Walker added that he will let his son make his own decision about whether or not to attend his alma mater.

"I will let him decide, but of course, I'm biased," Walker said. "I have so many wonderful memories from my years at UT."

—Story by Kim Cowart

## Annual Alumni Homecoming Barbeque Set

You are cordially invited to the annual College of Engineering Alumni Homecoming Barbeque Saturday, November 3 prior to the UT vs. University of Louisiana-Lafayette football game. The event begins at noon and food service ends one hour before kick-off.

Cost for the meal is \$15 per person and includes barbeque, side dishes and tea and soft drinks. The barbeque will be in the courtyard between Perkins and Ferris Halls. Registration forms are in the summer *Torchbearer* magazine, or contact Peg Schneider in the Engineering Development Office at (865) 974-2779 or via email at mschnei1@utk.edu. Tickets for the football game must be purchased through the UT Alumni Office, (865) 974-3011.

## Alumnus Retires as Eastman Chemical Company Executive

Jerry Repass (BS/ChE '65, MS/EA '72), vice president and general manager of Eastman Chemical Company's Worldwide Manufacturing Support and a former member of the COE's Board of Advisors, retired from Eastman in April 2007. Repass began his career with Eastman in 1965 as a chemical engineer, and during his 42-year career, he served in almost all areas of manufacturing as department and division superintendent to vice president of the Tennessee Eastman Division. Eastman Chemical manufactures and markets chemicals, fibers and plastics worldwide. The company, founded in 1920 and headquartered in Kingsport, Tenn., had 2006 sales of \$7.5 billion and has approximately 11,000 employees.



Jerry Repass

# DEVELOPMENT notes

## Fundraising Key to Continued Excellence and Growth

As we continue the process of re-structuring the Development Office for the UT College of Engineering (COE), it is my pleasure to provide a brief update of development-related activity during this interim period.

First and foremost, I want to thank Patty Shea, who left the college in June 2007, for her important role in our development efforts over the past several years. Patty's efforts were key to development success in the COE, and we all wish her the very best as she explores new avenues, most importantly spending more time with her 4-year-old daughter. Peg Schneider, the COE advancement specialist, is doing an outstanding job of managing the flow of information in the office. She has a clear understanding of the development process and is able to direct inquiries appropriately and—more often than not—answer the questions herself.

We are conducting simultaneous searches for both a senior director of development and a director of development for the COE. This will be our first senior director position for the University of Tennessee development program and is a precedent setting hire. I want to thank Associate Dean Wayne Davis for serving as a member of this search committee. Recruiting the best possible candidate, who can maximize the multiple, often complex, opportunities for private giving at the COE is a welcome challenge and will be an exciting career opportunity for the qualified candidate.



Kay Whitman

As most of you are aware, at least three building projects are about to begin. These initiatives, combined with the superb work of the individual departments, innovative programs and Dean Kuo's vision for ensuring heightened standards for excellence, create a compelling environment for development activity.

Finally, the Campaign for Tennessee continues to underscore the confidence and commitment of our alumni and friends. Although final goals will not be set until the official campaign kick-off set for April 18, 2008, we know the UT College of Engineering will continue to be one of the leaders in the Knoxville campus effort and is a critical component of the ultimate campaign success.

The COE can be proud of having reached 45 percent of its preliminary goal of \$75 million (the campaign will conclude in December of 2011). As you are aware, we have a single extraordinary gift among those totals, so we must not assume the race is almost half over. Even though the State of Tennessee has been increasingly generous to the COE and to the Knoxville campus, Dean Kuo has an aggressive and exciting vision for the future, which can only be implemented with continued strong private funding.

We are deeply grateful to those of you who have participated in this initial phase of the campaign, and we look forward to the opportunity to engage others in this opportunity to transform the future for the COE. If I may be of assistance, please do not hesitate email me a [kwhitman@utk.edu](mailto:kwhitman@utk.edu). I may also be reached at (865) 974-2720.

Kay Whitman  
Vice Chancellor for Development  
The University of Tennessee

## Donation Strengthens the Future With Personal Items from the Past

Lloyd F. Smith (BS/ME '38) recently donated several gifts of historical merit to the College of Engineering's Department of Mechanical, Aerospace and Biomedical Engineering (MABE).

Included in the donation were Smith's 1938 UT class ring and graduation photo, and several historic text books including *American Electricians Handbook*, 1953; *Principles of Locomotive Operation*, 1925; *The Steam Locomotive*, 1944; *Mathematics Analysis Higher Course*, 1927; *Standard Handbook for Electrical Engineers*, 1969; *Theoretical Mechanics*, 1906; and *Thermodynamics of Steam Engines*, 1898.

Smith also donated a model of a commemorative locomotive manufactured by General Motors. He was a member of the design team that created the locomotive.

"We are very grateful to Mr. Smith for this wonderful historic donation," said Dr. Bill Hamel, MABE department head. "These gifts are an important link to our college's history."



Mechanical engineering alumnus Lloyd F. Smith's donation of several historical text books serves as a connection to a golden age of innovation and engineering history.

## College of Engineering • Board of Advisors

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

**Mrs. Karyl Bartlett**  
(BS/ME '84, MBA '00)  
Director, Composite Manufacturing  
Center, Boeing Fabrication  
The Boeing Company  
Seattle, Wash.

**Mr. Howard E. Chambers**  
(BS/ME '64)  
Vice-President and General Manager  
Boeing Company Foundation  
Seal Beach, Calif.

**Dr. Tom F. Cheek Jr.**  
(BS/EE '61, PhD/EE '69)  
Vice President of R & D  
Epic Systems, Inc.  
Dallas, Texas

**Mr. Joe C. Cook Jr.**  
(BS/IE '65)  
Founder and Principal  
Mountain Group Capital, LLC  
Nashville, Tenn.

**Dr. Mark E. Dean**  
(BS/EE '79)  
IBM Fellow and Vice President  
Almaden Research Center  
San Jose, Calif.

**Dr. R. G. Gilliland**  
(BS/ChE '58, MS/MetE '63)  
Retired  
Pittsburgh, Pa.

**Mr. Ron Green**  
(BS/EPh '70, MS/EPh '78)  
Chairman  
ADVATECH, LLC  
Charlotte, N.C.

**Dr. Michael W. Howard**  
(BS/EE '80, PhD/Engr '96)  
Senior Vice President for R & D  
Electric Power Research Institute  
Charlotte, N.C.

**Mr. Dwight N. Hutchins**  
(BS/ChE '86)  
Partner  
Accenture  
Washington, D.C.

**Dr. H. Lee Martin**  
(BS/ME '78 PhD/ME '86)  
Managing Member  
Clarity Resources, LLC  
Knoxville, Tenn.

**Mr. Edwin A. McDougale**  
(BS/CEE '69, MS/CEE '75)  
Principal  
Ross Bryan Associates, Inc.  
Engineers  
Nashville, Tenn.

**Mr. Mark A. Medley**  
(BS/ME '69, MBA/Ind. Mgmt., '70)  
President and CEO  
Control Technology, Inc.  
Knoxville, Tenn.

**Mr. Andrew K. Phelps**  
Associate Director, Los Alamos National  
Laboratory & Principal Vice President  
Bechtel National, Inc.  
Los Alamos, N.M.

**Mr. James B. Porter Jr.**  
(BS/ChE '65)  
Vice President of Engineering and  
Operations  
E.I. DuPont de Nemours and Co., Inc.  
Wilmington, Del.

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

## 1950s

**Robert Colbert** (BS/EE '50) has retired. He lives in Overland Park, Kan.

**James Papageorge** (BS/ChE '51) retired as chairman of the board of Mammography Reporting System. He lives in Seattle, Wash.

**Christopher Bolieau** (BS/ChE '54, MS/IE '58) retired as a design engineering manager from Thiokol Corp. He lives in Brigham City, Utah.

## 1960s

**Edward Ketchen** (BS/IE '63) retired after 32 years with the federal government. He lives in North Potomac, Md.

**Michael Cate** (BS/EE '66) joined Range Fuels as vice president of procurement and fabrication. He lives in Littleton, Colo.

**Dr. Walter Delashmit** (MS/EE '68) retired from Lockheed Martin Missiles and Fire Control after 25 years at Lockheed and 39 years in the aerospace industry. He lives in Justin, Texas.

## 1970s

**Terence Elmy** (BS/ME '70) is celebrating the 10th year of his consulting firm Pro Crane Services. He lives in Maryville, Tenn.

**Douglas Higgins** (BS/AE '74) received the FedEx Express CEO air safety flight crew award for 2006. He lives in Collierville, Tenn.

**Dr. Thomas Christian** (MS/Engr '76) was appointed to senior leader by the U.S. Air Force as the technical advisor for systems engineering for all aeronautical acquisition programs. He lives on the Wright-Patterson Air Force Base in Ohio.

**Karen Downer** (BS/ES/ME '76) has been the Director of Environment, Safety, Health and Quality at ORNL since 2005. She lives in Ooltewah, Tenn.

**Rodney Grubb** (BS/ES '79, MS/IE '90) is the 2007 national president of the American Society for Engineering Management. He lives in Knoxville, Tenn.

## 1980s

**William Bradford** (BS/ME '80) marked 20 years of service at Hanson Professional Services, Inc. He lives in Lake Mary, Fla.

**Brian Mahoney** (BS/CE '82, MA/CE '84) is vice president and manager of the Knoxville Facilities Group for Barge Waggoner Sumner & Cannon, Inc. Mahoney has been an associate with BWSC since 1985. He lives in Powell, Tenn.

**Patrick Murphy** (BS/CE '83) is a new stockholder for Thompson and Litton. He lives in Big Stone Gap, Va.

**Craig Stevens** (BS/IE '83, MS/IE '85) has released a new book titled *Geronimo Stone*. He lives in Nashville, Tenn.

**Lee Taylor II** (BS/CE '85) has been assigned to U.S. Army Combined Arms Center in Fort Leavenworth, Kan., as the CAC engineer responsible for directing the O&M and Military Construction Program. He lives in Kansas City, Mo.

**Garrett Skrobot** (BS/EE '88) is the launch services program and missile manager for NASA. He lives in Cocoa, Fla.

**Charles McNeil** (BS/AE '89) recently accepted a position as a senior specialist at Rolls Royce North America in Indianapolis, Ind. He lives in Monrovia, Ind.

## 1990s

**Jonathan Meadows** (BS/CE '92) joined Hart Freeland Roberts, Inc., as a transportation engineer. He lives in Brentwood, Tenn.

**Jerry Johnson** (BS/ChE '94) is the vice president of engineering for Westmar Consultants Corporation's Seattle office. He lives in Washington, D.C.

**Michael Melosh** (BS/ChE '94) received a Masters of Arts degree in elementary teacher education from the University of Phoenix. He lives in Westminster, Colo.

**Chad Bobrowski** (BS/CE '98) joined Hart Freeland Roberts, Inc., as a transportation project manager. He lives in Irmo, S.C.

## 2000s

**Courtney Woods** (BS/ChE '01) received her Ph.D. in environmental science and engineering at UNC Chapel Hill in May 2007. She lives in Durham, N.C.

**David Wilhite** (MS/CE '02) joined Barge Waggoner Sumner & Cannon as a project manager in the transportation group. He lives in Waldorf, Md.

**Irucka Embry** (BS/CE '04) is the project engineer for the EWRI Sustainable Water Pollution Engineering Task Force. He lives in Murfreesboro, Tenn.

## Memorials

**Charles Cornforth** (BS/EE '36) died April 28, 2007. He lived in Princeton, N.J.

**Howell Abele** (BS/EE '41) died February 25, 2007. He lived in Knoxville, Tenn.

**Robert Witt** (BS/EE '41) died March 30, 2007. He lived in Madisonville, Tenn.

**Charles Maskall** (BS/ChE '42) died July 22, 2006. He lived in Knoxville, Tenn.

**Willard Bedwell** (BS/EE '48) died November 8, 2006. He lived in Maryville, Tenn.

**William Altom** (BS/EE '49) died November 28, 2006. He lived in Cheapside, Texas.

**Arthur Bowling** (BS/ChE '49) died April 8, 2007. He lived in Baton Rouge, La.

**Richard Dunn** (BS/ME '50) died June 23, 2007. He lived in Knoxville, Tenn.

**Harry Claybrook** (BS/CE '56) died January 5, 2007. He lived in Nashville, Tenn.

**Dr. James Tillman, Jr.** (BS/EE '47, MS/EE '50) died June 21, 2007.

Tillman was a professor of electrical engineering at UT for 43 years and was elected to Phi Kappa Phi, Tau Beta Pi, Sigma Xi and Eta Kappa Nu. Tillman won numerous prizes for papers as a member of the AIEE and carried out several research projects for TVA, ORNL, the U.S. Navy and U.S. Air Force.

**Dr. William "Ken" Stair**, professor emeritus of mechanical engineering, died September 6, 2007. For more than 38 years, Stair served UT in the capacity of professor emeritus, associate dean and acting dean of the College of Engineering where he received many awards for his service and research. He was a member of several technical societies and a veteran of WWII serving as captain in the U.S. Army Air Force.

**Peter Fowler** (BS/CE '56) died February 9, 2007. He lived in Union City, Tenn.

**Donald Richardson** (BS/ME '59) died December 12, 2006. He lived in Knoxville, Tenn.

**Walter Crump** (BS/CE '62) died November 26, 2006. He lived in Jackson, Tenn.

**Harold Fell** (BS/ME '63, MS/IE '74) died October 18, 2006. He lived in Oak Ridge, Tenn.

**Jerry Moore Sr.** (BS/EE '63) died May 7, 2007. He lived in New Market, Tenn.

**Edgar Benton** (BS/Engr '65) died June 20, 2007. He lived in Knoxville, Tenn.

**Richard Hackney** (BS/EPh '66) died March 21, 2007. He lived in Bowling Green, Ky.

**Bobby Oxendine** (BS/ChE '68) died December 2, 2006. He lived in Maryville, Tenn.

**Donald White** (BS/CE '71) died December 11, 2006. He lived in Maryville, Tenn.

**Mike Howard** (BS/CE '72) died March 28, 2007. He lived in Soddy-Daisy, Tenn.

**Paul Hood** (BS/MetE '75) died July 15, 2007. He lived in Greer, S.C.

**Henry Noritake** (BS/Engr '76) died April 25, 2007. He lived in Oak Ridge, Tenn.

**Charles Jeffries** (BS/Engr '89) died June 20, 2007. He lived in Maryville, Tenn.

**James Logan** (MS/UTSI '90) died July 15, 2006. He lived in Manchester, Tenn.

## IE Alumnus Awarded for NASA Innovations

Fred Schramm (MS/IE '91) was presented with the Technical Innovation in Industrial Engineering award, which honors a single innovative technical contribution to the industrial engineering profession. Schramm is an administrator in the independent research and development program of Marshall Space Flight Center, NASA. Schramm and his team developed a handheld device able to read special types of coded symbols, even if they are covered by up to six layers of paint. This Data Matrix Family of Solutions was Marshall Space Flight Center's Invention of the Year in 2005 and includes nine patents, a NASA technical standard and handbook, an array of parts marking technologies and four different scanner technologies. Schramm lives in Winchester, Tenn.



Fred Schramm

## & awards

### Kuo Receives American Statistical Association Honor

Dr. Way Kuo, dean of engineering and a University Distinguished Professor, has been appointed to serve for a three year term as co-Chair for the Advisory Council of the Chinese Academy of Sciences' Institute for Quality Science. This honor recognizes Kuo's world-wide reputation as an authority in the areas of quality and reliability. The institute's affiliates include numerous outstanding quality and reliability experts from the international academic community.



Dean Way Kuo

### IIE Establishes Relationship with Korean University



IIE Interim Department Head Dr. Alberto Garcia (left) signs the international agreement with Dr. Chang W. Kang of Hanyang University.

The Department of Industrial and Information Engineering (IIE) has established a memorandum of understanding with the Department of Information and Industrial Engineering at Hanyang University (HU), one of the most distinguished educational institutes in the field of engineering in Korea, with campuses in Seoul and Ansan City. The two departments will develop academic interchange in the areas of industrial engineering education, research and other activities and will also participate in

exchanges and short-term visits between faculty, graduate and undergraduate students. A group from HU visited the COE June 28, 2007, to sign the official agreement and tour the IIE facilities.

### COE Student Receives National Tau Beta Pi Scholarship

John D. Hunt, an engineering physics major, was named as a Leroy Record General Scholarship recipient by Tau Beta Pi, the national engineering honor society. Hunt is currently interning at the Center for Nanophase Materials Science at Oak Ridge National Laboratory.



John D. Hunt



**A Puzzling Project** – Several UT engineering students volunteered to help restore the world's largest Rubik's Cube to help commemorate the 25th anniversary of the Knoxville World's Fair. COE alumnus and former Board of Advisors member Dwight Kessel (center) led the team. The cube, which was originally a gift from Hungary for the 1982 World's Fair, now permanently resides on the top floor of the Knoxville Convention and Exhibition Center.

### Prados Wins Lifetime Engineering Education Award

Dr. John Prados, an emeritus professor in the Department of Chemical Engineering and the former UT vice president for academic affairs is the recipient of the Lifetime Achievement in Chemical Engineering Pedagogical Scholarship Award from the American Society of Engineering Education (ASEE). The award is recognized as the society's highest honor for a chemical engineering. Prados received the award at the ASEE conference in Honolulu in June 2007.



Dr. John Prados

Although Prados officially retired in 2001, he continues to be active as a faculty member at UT as well as a consultant with other colleges and universities in the United States and abroad on the improvement of engineering education.

### Inaugural Freshmen Open House a Great Success



The UT College of Engineering hosted its inaugural Open House for Incoming Freshmen Sunday, August 19. Nearly 200 students stopped by during the two-hour period to talk with representatives from each department and learn about the various engineering disciplines in an informal setting. Dean Way Kuo welcomed the attendees and answered questions throughout the day. The event also featured music, refreshments and door prizes including College of Engineering shirts, gift cards to local eateries and an iPod.

### EECS Staff Member is UT's Longest Serving Employee



Frances Byrne (right), an Accounting Specialist with the Department of Electrical Engineering and Computer Science, is the university's longest serving staff member. Byrne began working at UT in 1952 as a secretary with accounting duties for the Institute of Agriculture. The EECS department celebrated Byrne's 55 years with a reception, where Dr. Luther Wilhelm, interim department head, presented her with an elegant mantel clock in honor of her long service.

Check out the College of Engineering's online newsletter

TENNESSEE  
**engineer**  
online

<http://www.engr.utk.edu/TNengr>

## Calendar

### 2007

Fall Break .....	Oct. 11-12
Engineers Day .....	Oct. 18
Homecoming .....	Nov. 3
Thanksgiving .....	Nov. 22-23
Classes End .....	Dec. 4
Fall Commencement .....	Dec. 15

### 2008

Classes Begin .....	Jan. 9
MLK Holiday .....	Jan. 21
Spring Break .....	Mar. 14-20
Spring Recess .....	Mar. 21
Classes End .....	Apr. 25
Commencement .....	May 9

## Contact Information

### Senior Administration

Dr. Way Kuo, Dean of Engineering and University Distinguished Professor  
 Dr. Alberto Garcia, Associate Dean for Academic Affairs  
 Dr. Masood Parang, Associate Dean for Student Affairs  
 Dr. Wayne T. Davis, Associate Dean for Research & Technology

### Departments

Chemical and Biomolecular ..... 974-2421  
 Civil & Environmental..... 974-2503  
 Electrical & Computer ..... 974-3461  
 Industrial & Information..... 974-3333  
 Materials Science ..... 974-5336  
 Mechanical, Aerospace &  
 Biomedical..... 974-5117  
 Nuclear ..... 974-2525

### Administration & Programs

Communications ..... 974-0533  
 Dean's Office ..... 974-5321  
 Development ..... 974-2779  
 Engineering Academic Affairs ..... 974-6092  
 Engineering Advising Services..... 974-4008  
 Engineering Diversity Programs ... 974-1956  
 Engineering Fundamentals ..... 974-9810  
 Engineering Research..... 974-8360  
 Engineering Student Affairs ..... 974-2454  
 Finance & Admin. Affairs ..... 974-5279  
 Office of Professional Practice .... 974-5323

### Research Centers

Materials Processing ..... 974-0816  
 Maintenance & Reliability ..... 974-9625  
 Scintillation Materials..... 974-0267  
 Transportation Research..... 974-5255

The University of Tennessee does not discriminate on the basis of race, sex, color, religion, national origin, age, disability or veteran status in provision of educational programs and services or employment opportunities and benefits. This policy extends to both employment by and admission to the University.

The University does not discriminate on the basis of race, sex or disability in its education programs and activities pursuant to the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) of 1990.

Inquiries and charges of violation concerning Title VI, Title IX, Section 504, ADA or the Age Discrimination in Employment Act (ADEA) or any of the other above referenced policies should be directed to the Office of Equity and Diversity (OED), 1840 Melrose Avenue, Knoxville, TN 37996-3560, telephone (865) 974-2498 (V/TTY available) or 974-2440. Requests for accommodation of a disability should be directed to the ADA Coordinator at the UTK Office of Human Resources, 600 Henley Street, Knoxville, TN 37996-4125.

## Commencement Ceremony Honors Grads

The 2007 College of Engineering Commencement Ceremony took place Thursday, May 10 at the Knoxville Convention Center with over 200 graduates, accompanied by their families and friends, in attendance. The event featured former Volunteer and current National Football League standout Darwin Walker (BS/CE '98) as the special guest speaker. Longtime CEE professor Dr. Edwin Burdette (*below, right*) was also a special guest speaker. For more information about Walker, see the "Alumni Profile" on page 8.



The University of Tennessee  
 College of Engineering  
 124 Perkins Hall  
 Knoxville, TN 37996-2000

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