



Engineering *Our* Future

Summer 2010

Texas Tech University - Edward E. Whitacre Jr. College of Engineering



The base of the Texas Tech display for the Tau Beta Pi bent (above) was built by Tau Beta Pi members and civil engineering alumnus Tom Zachman. Read about the building of the base on page 10.

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Dean's Report

Engineering Our Future

Summer 2010 Issue

MANAGING EDITOR
Jeff Sammons

EDITOR
Sharon Smith

CONTRIBUTING WRITERS

Jeff Sammons
Leslie Cranford
Sally Logue Post
Cory Chandler
Megan Robare
Allison Ralston
Laura Urquieta
Scott Self

PHOTOGRAPHY

Jeff Sammons
Artie Limmer
Joey Hernandez
James R. Evans

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Since I arrived approximately a year ago, there have been many exciting things that have taken place within the college, and there are many more to come. The college is currently seeking to fill six significant endowed chairs in energy-related fields. We are leading the way at Texas Tech to the attainment of Tier One status and we are broadening our expertise as we strive to become one of the nation's leading experts on energy and energy issues.

Through a generous gift from alumnus Allen Howard and his wife Linnie, the college has now begun neuroimaging research into autism (page 3).

The college's *U.S. News* graduate ranking has improved again this year (page 5). Our professors are garnering national attention for their research and expertise. Dr. Sindee Simon has been named a Horn Professor (page 4), two of our faculty members, Drs. Ranadip Pal and Shiren Wang, received National Science Foundation CAREER awards (page 5), and Dr. Michelle Pantoya has written a book that teaches young children about what engineers do (page 4).

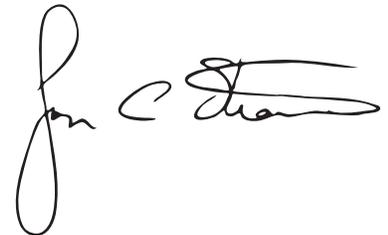
Our students are as strong as ever. Two students recently received highly-prestigious grants from the U. S. Department of Defense (page 6), a Lubbock-area robotics team advanced to nationals in May (page 7), and one of our recent alumni received a Fulbright Student Grant (page 6).

We recently named five new Distinguished Engineers (page 12). These five individuals are representative of the long tradition of talented alumni that studied at Texas Tech.

We hope you enjoy reading about all of the exciting stories and events on the following pages. Send us your updated information or stories at www.TTUalum.com. The alumni updates section that will begin in a future issue.



**Interim Dean,
Whitacre College of Engineering
Jon C. Strauss, Ph.D.**



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Texas Tech Engineering on the Cutting Edge of Autism Research and Identification

With a \$500,000 gift that enables the use of emerging technology in neuroimaging, Texas Tech will be on the cutting edge of autism research.

The Whitacre College of Engineering and its Department of Electrical and Computer Engineering accepted the gift in April from Allen Howard, a 1978 electrical and computer engineering graduate, and his wife Linnie. The gift is from Autumn's Foundation.

The research will be conducted within an existing electrical and computer engineering lab that will be renamed the Autumn's Dawn NeuroImaging, Cognition and Engineering (NICE) Laboratory. The NICE lab was formed in 2005 as a collaborative effort between the Whitacre College of Engineering and the College of Human Sciences.

The NICE lab is directed by Mary Baker, an associate professor in engineering, and Michael O'Boyle, a professor in human sciences, and will promote the importance of early identification of autism and Asperger's syndrome from a unique perspective by utilizing scientific and engineering methods.

"Both Mary and Michael want to help people with brain and cognitive disorders by revealing fundamental principles of brain development

function," said Jon C. Strauss, interim dean of the college. "We are truly honored to receive a gift for potentially transformative research on autism that will be conducted in this lab."

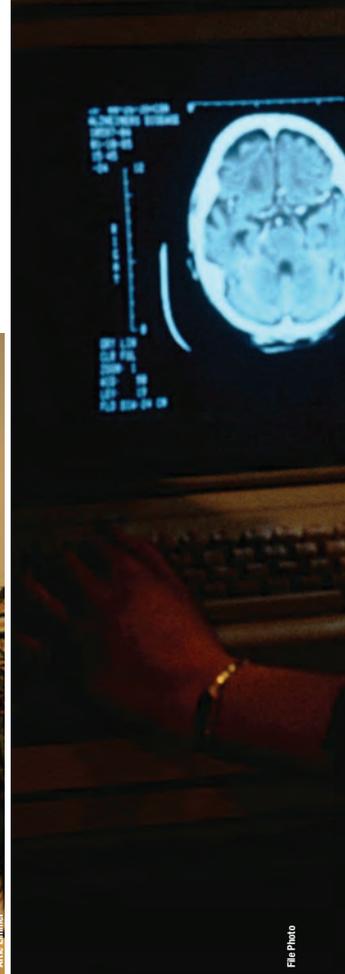
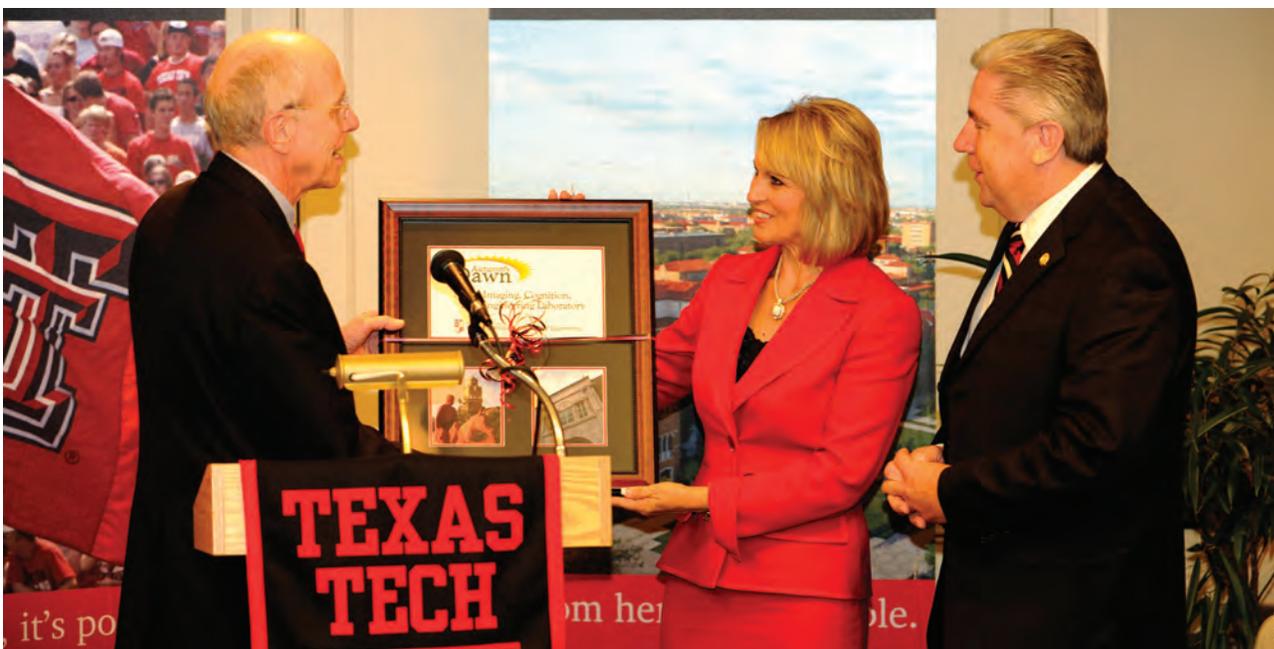
Researchers plan to explore problems and challenges in neuroscience and neuroimaging through an interdisciplinary team approach, incorporating the problem solving and computational capabilities of engineers and the clinical and diagnostic skills of cognitive scientists.

NICE lab personnel will conduct a three-year clinical study that will impact autism research through a focused neuroimaging study on mildly autistic children and children with Asperger's, utilizing a Near Infrared Imaging system, a revolutionary emerging technology in the neuroimaging field.

The funds provided by the Howards and Autumn's Foundation will supply financial support for lab personnel, provide the opportunity to utilize fMRI equipment through a partnership at Grace Clinic, fund travel and attendance at meetings and autism conferences while also seeking out collaborative research opportunities.

In addition to the NICE lab, Texas Tech is dedicated to autism research through the Burkhart Center for Autism Education and Research in the College of Education. The center provides services for individuals with autism spectrum disorders, their families, and the professionals who work with them to improve their quality of life. **E**

Chancellor Kent Hance (Left) presents Linnie and Allen Howard with a plaque that recognizes their gift to create the Autumn's Dawn NeuroImaging, Cognition and Engineering (NICE) Laboratory





News

Sindee Simon Named a Paul Whitfield Horn Professor

Dr. Sindee Simon, professor and associate chair in the Department of Chemical Engineering, has been named a Paul Whitfield Horn Professor.

“Horn Professors represent the very best among our faculty,” said President Guy Bailey. “These individuals are recognized for their attainment of national and international distinction and for their research or other scholarly or creative achievements. We value these men and women for their scholarship and their many contributions to Texas Tech. They are a true testament to the quality of our academics.”

The Horn Professorship was established in 1966 to recognize scholarly achievement and outstanding service to Texas Tech. The honor is named for Texas Tech’s first president, Paul Whitfield Horn. Since its inception, 76 members of the faculty have been



Dr. Sindee Simon

appointed Horn Professors and 35 remain on faculty. Simon joined Texas Tech in 1999. She was named a fellow of the Society of Plastics Engineers in 2005 and of the North American Thermal Analysis Society in 2003. She has received the Barnie E. Rushing Jr. Faculty Distinguished Research Award. She has lectured internationally and is a widely published author. Simon has written more than 60 refereed journal articles and has six book chapters to her credit. She has received more than \$4 million in research funding over her career. She earned her bachelor’s degree from Yale University and her doctorate from Princeton University.

Other active Horn Professors from the Whitacre College of Engineering include:

- Dr. Daniel Cooke,**
computer science
- Dr. Magne Kristiansen,**
electrical and computer engineering
- Dr. Greg McKenna,**
chemical engineering
- Dr. Kishor C. Mehta,**
civil and environmental engineering
- Dr. Sunanda Mitra,**
electrical and computer engineering **E**

Engineering Professor Authors Children’s Engineering Book

Engineers make elephants with long, swinging trunks. Wait a minute... do engineers really make elephants? No, but they do make roller coasters!

Thus starts the journey through “Engineering Elephants,” a children’s book coauthored by Michelle Pantoya, a professor of mechanical engineering at Texas Tech University, and Emily Hunt, an assistant professor of mechanical engineering at West Texas A&M University.

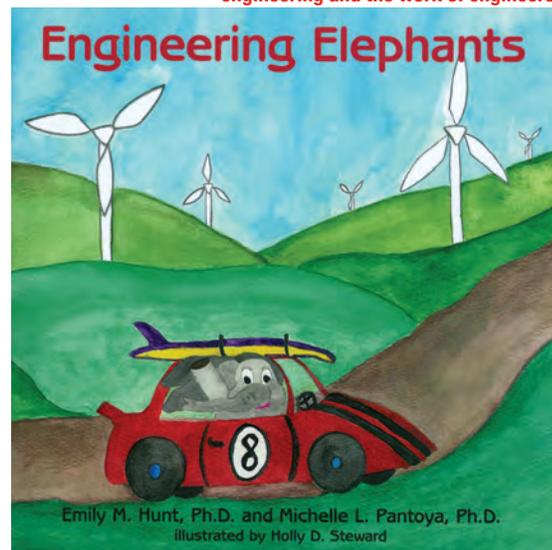
“Children know doctors and teachers and police and firemen and soldiers, but not engineers,” Pantoya said. “This is a way of introducing young children to engineering. Our goal is to inspire some of these young people to think about being an engineer when they grow up.”

The women discovered that there is a lack of children’s books on engineering geared toward young children ages four through eight and began work on the book about two years ago.

“Engineering education is a growing issue in our nation, and all research points toward engaging children in engineering concepts when they are at these young, impressionable ages,” Pantoya said. “When we ask kids what an engineer does, the answer is either ‘I don’t know’ or ‘he drives a train.’ So, Emily and I decided something needed to be done.”

The book is available at amazon.com. **E**

This new book introduces elementary-age students to engineering and the work of engineers.





U.S. News Graduate Engineering Ranking Improves

The Whitacre College of Engineering's overall graduate program and two individual degree programs have joined the elite ranks of *U.S. News & World Report's* top graduate engineering programs.

The overall graduate engineering program moved up to a ranking of 99th among 198 programs nationwide.

The Department of Industrial Engineering ranked 29th in the Industrial/Manufacturing category and the Department of Electrical and Computer Engineering ranked 66th in the Electrical/Electronic/Communications category.

"We are pleased to have our programs listed among the best programs in the nation," said Jon C. Strauss,

Two Engineering Professors Receive NSF CAREER Awards

Two engineering professors have been awarded National Science Foundation CAREER grants. Ranadip Pal and Shiren Wang are collectively receiving about \$800,000 to further their research.

The Faculty Early Career Development (CAREER) Program is the National Science Foundation's most prestigious in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations.

An assistant professor of electrical and computer engineering, Pal received \$404,000 to advance his research on genomic signal processing and control of genetic regulatory networks.

Pal's theory addresses cancer treatment with a consideration of a patient's individual genetic makeup, or their genetic regulatory network, instead of treatment which is often in the form of a one-size-fits-all approach.

"These drugs target only the



Dr. Ranadip Pal

interim dean of the Whitacre College of Engineering. "As Texas Tech University advances toward attaining tier one status, these rankings affirm the hard work our faculty are putting into both classroom instruction and their innovative research."

The graduate rankings, available in the 2011 edition of *U.S. News & World Report's* "America's Best Graduate Schools," were calculated based on two types of data: expert opinions about program quality and statistical indicators that measure the quality of a school's faculty, research and students. The data come from surveys of more than 1,200 programs and some 12,400 academics and professionals in the fall of 2009. The graduate rankings can be found at the *U.S. News & World Report* Web site, <http://www.usnews.com>.

Last fall, the college's undergraduate engineering program was tied for 76, up from ranking of 78 for 2009, and ranking of 85 for 2008. **E**

cancerous cells, and they do not damage the healthy cells," Pal said. "In chemotherapy, there are numerous side effects including hair loss and general nausea that are related to destruction of healthy cells. We want to understand each patient's genetic makeup so that we can administer the drugs that will work the best for them and their form of cancer."



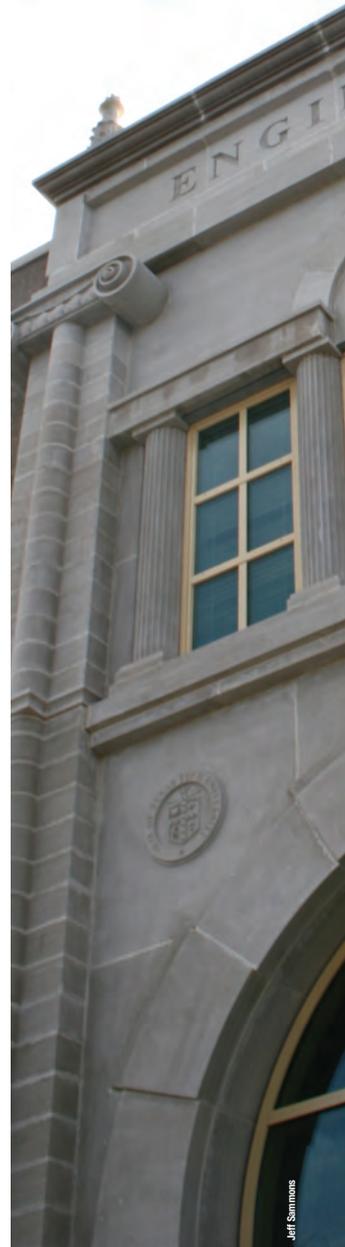
Dr. Shiren Wang

Wang is an assistant professor of industrial engineering. His \$400,000 award recognizes his research which focuses on organic thermoelectric composites.

Recovering heat from a material or device through thermoelectric conversion involves the conversion of thermal energy to electrical energy or electrical energy to thermal energy. The heat generated from the sun's rays on the roof of an electric vehicle can be used to charge that same car's battery. In computers, the heat from the processor could be recycled to recharge the battery as the computer is in operation.

Wang is working to find new organic materials that could revolutionize the thermoelectric conversion industry.

"Organic materials hold promise for these applications because they are lightweight, abundant, easy to process and environmentally benign," Wang said. **E**





Student Accomplishments

Mechanical Engineering Alumnus Wins Fulbright Award

A Whitacre College of Engineering alumnus was awarded a Fulbright Student Grant from the U.S. Student Fulbright program to further satellite communications technology.

Sean Hannon, a mechanical engineering graduate from Midland, will venture to Germany for one academic year. He will study aerospace engineering at the Technische Universität München (TUM), focusing on a project titled, "Computerized Model of a Telepresence Enabling Satellite Communication System."

"I am constantly impressed by the redundancy and robustness space-bound systems must feature if they are to survive the harshness of space," Hannon said. "I hope to further this technology by aiding in the development of a next-generation satellite communications computer."

Hannon said the Fulbright Student Grant will enable him to work on a space technology project in collaboration with the German Space Agency.

Two Graduate Students Receive Prestigious Defense Fellowships

The Whitacre College of Engineering announced two of its graduate students have been awarded National Defense Science and Engineering Graduate Fellowships.

Jonathan Foster, a graduate student from Big Spring; and Cameron Hettler, a graduate student from Lubbock, were awarded the fellowship by the U.S. Department of Defense. Foster and Hettler's applications were selected by the U.S. Navy and the U.S. Air Force, respectively, from more than 2,600 applicants. Their fellowships will cover full tuition and fees and a stipend every year for three years.

"This prestigious award is an acknowledgement of the quality of our graduate students and is a recognition of the significant research activities in the Center for Pulsed Power and Power Electronics," interim dean Jon Strauss said.



Hannon will study aerospace engineering at Technische Universität München with his Fulbright Student Grant

Tanja Karp, a professor in the Department of Electrical and Computer Engineering, guided Hannon through the rigorous application process.

Karp said although the program is very competitive, the best applicants each year are successful in securing the fellowship to spend a year abroad in the country and university of their choice.

Hannon will leave for Germany in late August and begin the program in September. **E**

Foster will continue his research at the Center for Pulsed Power and Power Electronics at Texas Tech before completing his doctorate. His focus is in the area of high-power microwave breakdown, which is a phenomenon similar to lightning, except it is induced by an electric field that changes directions rapidly. After finishing at Texas Tech, he hopes to work for the U.S. Department of Defense or the U.S. Department of Energy.

"Receiving this fellowship means a great deal to me," Foster said. "In terms of conducting scientific research, I think this shows that Texas Tech can compete with anyone in the nation."

Hettler will continue his research and complete his doctorate at Texas Tech. His research is in the area of high-power silicon carbide switching. He will attempt to push the limits of semiconductors in high-voltage and high-power applications.

"At Texas Tech, we are fortunate to have some of the best faculty and facilities in the world in the area of pulsed power research," Hettler said. **E**



Lubbers Named McAuley Distinguished Engineering Student for 2010

The Whitacre College of Engineering named Amber Lubbers the recipient of the McAuley Distinguished Engineering Student Award for 2010.

Lubbers competed for this honor and was selected because of her outstanding academic achievements, honors, activities, interests and aspirations. Academically, she has been on the Texas Tech President's List with a 4.0 GPA each semester that she has been at the university. She graduated Summa Cum Laude in May 2010 with a bachelor's degree in mechanical engineering and a mathematics minor with honors. She recently began her career with Lockheed Martin in Palmdale, California.



Amber Lubbers

She was the recipient of the Abell-Hanger Education

Continuance Scholarship for her service in the community, the Students in Philanthropy Scholarship, and the Student Government Association Scholarship. Lubbers was also named a ConocoPhillips Spirit Scholar and was among the Who's Who Among Students in American Universities for 2009.

Lubbers served in various student leadership positions at the university, including American Society of Mechanical Engineers president, Engineering Ambassador, Phi Theta Kappa co-president and student government secretary. She participated in Tau Beta Pi Engineering Honors Society, Pi Tau Sigma Mechanical Engineering Honors Society, Society of Petroleum Engineers and others.

While in Lubbock, she worked with Big Brothers Big Sisters, Habitat for Humanity and the Lubbock State School. She has helped in relief efforts for Hurricane Katrina and mission trips to Costa Rica, British Columbia and Mexico.

This award, provided by members of the college's Dean's Council, is named in memory of James A. McAuley, an active member of the Dean's Council and a Texas Tech Distinguished Engineer. **E**

Lubbock Area Robotics Team Advances to National Competition

With the help of engineering student mentors, the Llano Estacado RoboRaiders traveled to the For Inspiration and Recognition of Science and Technology (FIRST) Championship in Atlanta and competed against 255 teams from 40 states as well as Brazil, Canada, Mexico and Australia.

The team advanced after a win at the 2010 J.C. Penney Dallas FIRST Robotics regional competition held in March at Southern Methodist University.

The competition challenged 57 teams from seven states and Mexico to build a robot that could compete in a unique robotics game called Breakaway. The game included aspects of soccer in which the robots were required to kick, shoot or throw soccer balls into a net while battling other competition robots.

The RoboRaiders are a team of 21 South Plains-area high school students from Lubbock High School, Estacado High School, Kingdom Preparatory

Academy, Levelland High School and J.T. Hutchinson Middle School paired with nine Texas Tech mentors.

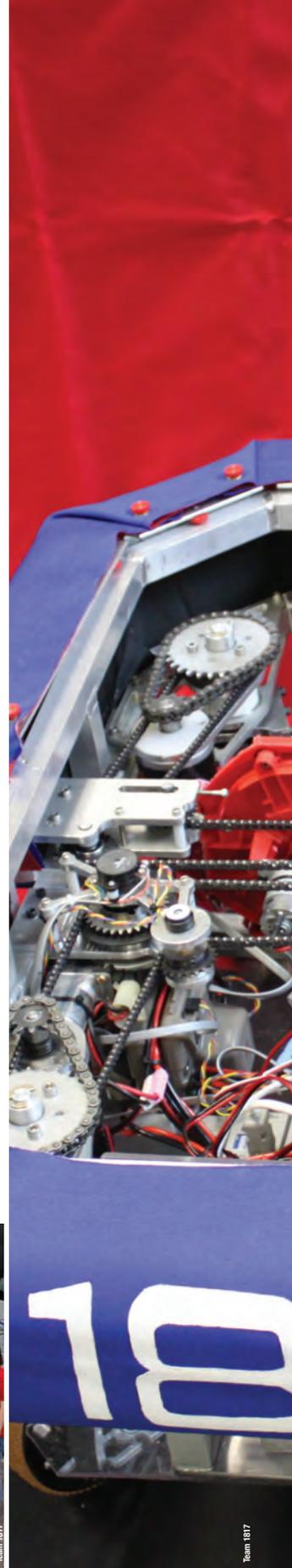
Texas Tech mentors, particularly those with a background in engineering, are able to help younger participants by teaching them the design aspects of building a robot, computer science programming, mechanical and electrical engineering, and how to work in a team.

For five years, the RoboRaiders have competed in FIRST competitions, this year being the first to qualify for the national competition. **E**

The RoboRaiders won the FIRST Robotics regional competition in Dallas to advance to the championship on April 15-17.



Team 1817





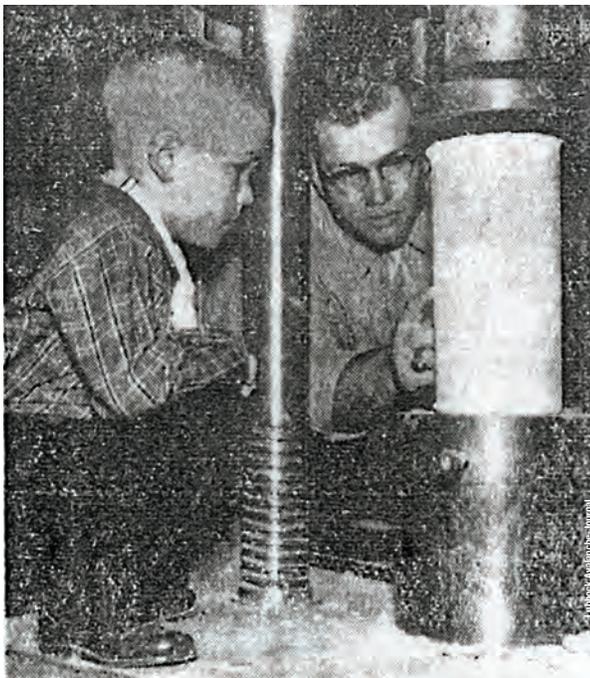
Alumni Profile

Forensic Engineering Experts: Ted and George Abrahamson

When you watch a television program such as “CSI” or “Law and Order,” do you ever catch yourself trying to help the main character make sense of an accident scene? R.T. “Ted” Abrahamson, ’57 civil engineering, and his son George Abrahamson, ’91 civil engineering, are real-life accident scene investigators. Before “CSI” or “Law and Order” were conceived, this father-son duo realized they could use their expertise and passion for engineering in a unique way.

Ted spent his childhood living in Chicago, but when his father was relocated to Amarillo, he knew West Texas was home. Ted graduated from Amarillo High School in 1948 and soon after he joined the U.S. Army and served in the Korean War as a chief X-ray technician. After his military service in Japan he enrolled at Texas Technological College in the School of Engineering. He soon discovered how much he

Photo from the April 12, 1957 issue of the “Lubbock Avalanche-Journal” of George in the Texas Tech civil engineering materials lab.



FUTURE ENGINEER. AT WORK—A swarm of youngsters, along with adults, Friday descended on the Texas Tech Engineering Division which opened its annual show of student projects and tools. One of the most curious onlookers was 5-year-old George Abrahamson, left, son of Mr. and Mrs. R. T. Abrahamson, 2118-B Emory. The tiny fellow was shown a 200,000-pound capacity concrete tester by Darwin Sanders, a senior Tech civil engineering student. Also being held is the annual Home Ec open house. (Staff Photo.)



Ted and George Abrahamson (L-R) at the banquet where Ted received the Boy Scouts 70-year Active Veteran Award.

enjoyed civil engineering and the career possibilities that existed.

Ted quickly realized that Texas Tech professors were interested in teaching more than the basic process for producing solutions to society’s problems, “The curriculum was full of active learning opportunities,” commented Ted. “These lessons supplemented my real-world experience and knowledge of actual projects to create a great learning environment.” After graduation, he returned to Amarillo with his wife and three children, where he took a traffic engineering job with the City of Amarillo.

During his 15 years as a city traffic engineer, Ted observed the need for accident reconstruction and analysis. In 1972, he founded Abrahamson & Associates, an Amarillo multi disciplined consulting civil engineering firm, specializing in accident reconstruction and structural and hydrological/hydraulic engineering.

George, Ted’s elder son, finished high school in 1970 and began working for the family business in 1973. It was during this time that his career in engineering and surveying officially began, although he attained his college degrees after 10 years on the job training and experience. During George’s time with the company, his father instructed him on many aspects of surveying and engineering. George knew he was a Red Raider at heart and followed his father’s example as he received his civil engineering degree from Texas Tech in 1991.



Since 1972, Ted and George have delivered professional opinions through forensic engineering and expert witness testimonies to resolve cases, accident inquiries, and litigation activities. The firm directs the investigation, analysis, writing and assembly of meticulous engineering reports and project design drawings and specifications. Structural engineering and surveying constitute a substantial portion of Abrahamson & Associates' project portfolio.

The firm has worked on more than 1,300 legal trial matters by providing resolutions that explain accidents, construction failures, and watershed influences in many court cases. Ted and George have reconstructed several hundred accidents in cases ranging from fender-benders to major fatal accidents involving multimillion dollar settlements. They have also analyzed and reconstructed extensive structural failures and water influenced related issues on multimillion dollar projects.

Their extensive experience, in-house research capabilities, and daily contact with other professionals and organizations combine to provide the latest techniques and innovative procedures for their clients' best interests.

One of Ted's most challenging cases occurred when a two-door sedan ran into a cotton module truck on a four-lane highway. The near 90-degree collision shaved the top of the car off at the top of the hood and trunk. It turns out that driver and passenger of the sedan had fallen asleep. Through his research and analysis, Ted concluded that the vehicle had left more than 90 feet of skid marks with all four tires and that the antilock brake system had locked in braking mode. This occurred because the driver had

awakened and applied extreme pressure to the brake pedal just before impact.

Another challenging case that George faced involved a building that had a broken concrete slab. This slab happened to be over a basement and was creating functional and cosmetic problems. The building was lacking sufficient structural steel reinforcement. Through non-destructive testing and use of photographs similar to X-rays, Abrahamson & Associates principals revealed the absence of sufficient steel in the slab. The engineering expert witness working at the request of the opposing counsel had claimed that sufficient structural steel existed. Abrahamson & Associates staff proved that the slab was incorrectly constructed.



Ted and George are Eagle Scouts in the Boy Scouts of America.

Ted has a lifetime commitment to the Boy Scouts of America as he and his two sons, George and Steve, are all Eagle Scouts. All three are registered Boy Scouts and Life Members of the National Eagle Scout Association. One of Ted's proudest achievements was being honored for his 56 years of scouting leadership in 1995. He was the recipient of the Outstanding Scout award for his service and contributions to the Boy Scouts. Ted received his 70-year Active Veteran award in 2009.



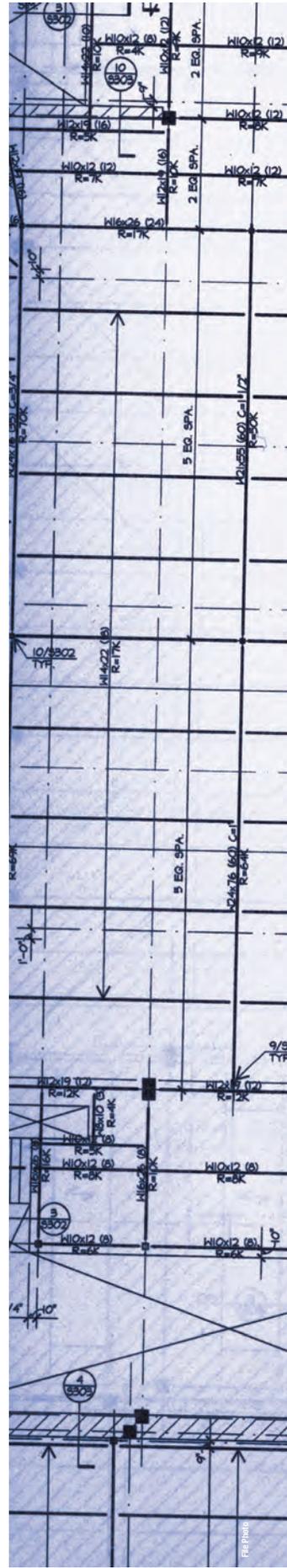
ABRAHAMSON & ASSOCIATES

Abrahamson & Associates, an Amarillo multi disciplined consulting civil engineering firm was founded in 1972.

to be some of the most interesting aspects of being an engineer. George added, "I hope my legacy, both professionally and personally, will be the contributions to the health, safety, and welfare of humanity." **E**

Ted adds, "Any legacy I would leave would be to help others understand the whole problem which needs a solution and not just producing an answer for the sake of an answer."

George has found that the application of engineering principles and personal judgment





Alumni Profile

Tom Zachman: 36 Years of Engineering with Fluor Corporation

Red Raider engineers are known for being able to “hit the ground running” right after graduation. Employers regularly choose Texas Tech graduates for the reliability and professionalism that they display on the first day of the job. Tom Zachman was certainly no exception to this rule.

Some people say that Texas Tech engineers begin their careers with a high level of preparation because of the hands-on projects that embody the engineering curriculum. While not a project directly related to civil engineering courses, in his senior year, Zachman and his fellow Tau Beta Pi members built and installed the Texas Tech display for the Tau Beta Pi bent (pictured on the cover and at left). “We had to haul the concrete one cubic foot at a time across the engineering key from the Civil Engineering lab,” he recalls. “There was a lot of hard work in that project. We bricked the base, poured the concrete, and placed the anodized aluminum frame in the courtyard outside the dean’s office.” The frame and the bent remain in place today, a testament to the precision and pride that exemplifies Zachman’s work, and the work of so many Texas Tech engineers.

A native of Wichita, Kansas, Zachman moved to Fort Worth, Texas where he graduated from high school. Immediately after graduating in 1974 with a bachelor’s degree in civil engineering from Texas



Tom stands in front the ruins of a castle in Heidelberg, Germany

Tech, Zachman joined Fluor Corporation in Houston, Texas as a civil/structural design engineer. Over the next 10 years, he worked on domestic and international projects in the oil and gas refining and chemical industries.

In 1985, Fluor promoted him to the power division, where he managed the engineering and construction of power projects. Most notably, he oversaw a 105MW diesel power project for Enron Corporation in the Philippines and the last waste-to-energy project built in the United States in Niagara Falls, New York, for American Ref-Fuel. Projects like these have provided Zachman with both professional and altruistic

Tom Zachman and his family gather on the Texas Tech campus at the University Seal after the Distinguished Engineer Award Luncheon. Zachman was named a Distinguished Engineer in 2008.



Laura Lopez

Zachman Family



opportunities. “I am most proud of participating in many projects around the United States and the world that have helped make people’s lives better,” he says. “Whether it is providing them with power for their homes, gasoline for their cars or plastics for their personal use.”

“Being an engineer has a certain connotation in society — most of which is true. I like getting to the point to be able to make decisions quickly — which is usually a good thing.” He also adds, “I think this helped me in my professional career and most times in my life in general.”

Zachman took over the power division of Fluor’s Houston office in 1997 and was promoted to vice president of the Houston office of Duke/Fluor Daniel three years later. Duke/Fluor Daniel was a partnership between Fluor and Duke Energy to engineer and construct power projects. From 1999 through 2003, the Houston office of Duke/Fluor Daniel completed 17 simple and combined cycle power plants throughout the United States with a total electrical output of over 11,000 MW.

Because of his leadership skills and expertise in the energy industry, Fluor appointed him in 2003 as the vice president of operations for Fluor’s energy and chemicals business in Houston. He maintained overall responsibility for domestic and international projects executed from the Houston office in the upstream, refining, and chemicals businesses. In 2008, he was promoted to senior vice president of Fluor with the responsibility for the project execution of more than \$25 billion of energy and chemicals projects and over 7,000 personnel in Houston; Calgary; southern California; Greenville, S.C.; and Mount Laurel, N.J.

Zachman and his wife of 26 years, Joyce, reside in Richmond, Texas, and have four children and one granddaughter. His youngest daughter, Christine, is currently attending Texas Tech.

An active member of his community, Zachman served on the board of directors for the Lamar Educational Awards Foundation in the Lamar Consolidated ISD in Richmond and Rosenberg, Texas. He also has served on the boards of directors of the Fort Bend Chamber of Commerce and the Texas Energy Center in Sugar Land. He is active in his church and has held various leadership positions. For six years, he was active as an adult leader with the Boy Scouts and most recently was the Chartered Organization Representative for a troop at his church. “My most enjoyable experience in scouting was as an adult leader when I participated



Tom and his daughter Christine, a Texas Tech student, at Engineer Pass in Colorado.

in a 55-mile backpacking trek with nine scouts and two other adult leaders at the Philmont Scout Ranch in northern New Mexico.”

Texas Tech is a special place for Zachman and his family. The memories that he made on the campus and with his classmates created a bond with the university that he maintains to this day. He has given back to his alma mater through six years of service as a member of the Civil Engineering Advisory Council and is currently serving on the Engineering Dean’s Council, as well as the board of the National Institute for Engineering Ethics. Because of his connection with Texas Tech, he was designated Fluor’s Texas Tech Executive Sponsor, responsible for maintaining a close relationship between Fluor and Texas Tech. Texas Tech is one of nine partner universities for Fluor.

He recently retired after 36 years with Fluor. After working on dozens of projects around the world, the driving force in his career has been the people with whom he has interacted, both at Fluor and in the communities where he worked. “I would like people to remember me as doing my best in an honest and ethical way in everything I did,” says Zachman, “I have always tried to live up to the message in Colossians 3:23 that my pastor gave me when I graduated from high school, ‘Whatever you do, work at it with all your heart, as working for the Lord, not for men.’”

As a new retiree, Zachman hopes to catch up on his coin collecting, researching genealogies, and woodworking. He plans to spend as much time as possible camping and snow skiing in Colorado. **E**

FLUOR®



Distinguished Engineers

Five New Distinguished Engineers Named at Annual Luncheon

The Edward E. Whitacre Jr. College of Engineering named Jeff Bayer, Mica Endsley, Thomas A. Harper, Allen D. Howard and Randy Howard as recipients of the 2010 Distinguished Engineer Award on April 9.

The Distinguished Engineer Award was established during the 1966-67 academic year to recognize the most outstanding alumni of the college. Since that time, 199 graduates have received this honor.

Recipients of the award must be distinguished in their profession, an inspiration to their peers and have demonstrated a continuing interest in areas outside the field of engineering.

“The Distinguished Engineer Award recognizes engineering alumni who combine exceptional career success with important contributions to society,” said Jon C. Strauss, interim dean of the college. “We

are privileged to have these successful individuals serving as ambassadors of the Whitacre College of Engineering and Texas Tech.”

Bayer, of Dallas, is owner of Curtain Wall Design and Consulting Inc. He earned his bachelor’s degree in civil engineering in 1979. Bayer is a registered professional engineer in 17 states and the District of Columbia and has served as engineer-of-record for the exterior veneer on hundreds of projects. Bayer recently completed six years as a Department of Civil and Environmental Engineering Advisory Council member at Texas Tech and is a



Jeff Bayer

2010 Distinguished Engineers (L-R) Allen D. Howard ('78 BSEE), Thomas A. Harper ('88 & '95 MSCS & Ph.D. CS), Mica Endsley ('82 BSIE), Jeff Bayer ('79 BSCE), and Randy Howard ('76 BSME).





past chair. He also is a member of the Texas Tech Civil Engineering Academy

Endsley, of Marietta, Ga. and Midway, Utah, is president of SA Technologies. She earned her bachelor's degree in industrial engineering Cum Laude in 1982. SA Technologies is a cognitive engineering firm specializing in the development of operator interfaces for advanced systems, including the next generation of systems for aviation, air traffic control, medical, power and military operations. From 1990 to 1997, Endsley was part of the industrial engineering faculty at Texas Tech. She serves on the editorial board for four major journals and is editor-in-chief of the "Journal of Cognitive Engineering and Decision Making." She is co-author of a book titled "Designing for Situation Awareness."



Mica Endsley

Harper, of Los Alamos, N.M., earned his master's and doctoral degrees in computer science in 1988 and 1995 respectively. He is the CIO of Los Alamos National Laboratory, a multidiscipline U.S. Department of Energy (DOE) National Laboratory focused on national security science. Los Alamos National Laboratory is known for its role at the center of the top-secret Manhattan project that developed the first atomic weapons during World War II.



Thomas A. Harper

Harper's career path has included several DOE laboratories including Pacific Northwest National Laboratory in Richland, Wash., and Idaho National Engineering Laboratory in Idaho Falls, Idaho. Harper has been recognized for his contribution in the information technology and security arenas by the cabinet-level Secretary of Energy Administrator of the National Nuclear Security Administration. In 2009, he received the Charlene

Douglas award, the highest honor bestowed by the Department of Energy for lifetime contribution to the field of cyber security. Harper is a former member of Whitacre College of Engineering Dean's Council.

Allen D. Howard, of Humble, earned his bachelor of science in electrical engineering in 1978. He is president and CEO of NuTech Energy Alliance Ltd., which provides advanced petrophysical, geological and engineering solutions to oil and gas companies worldwide. After graduation from Texas Tech, Howard signed on as a field engineer with Schlumberger. Howard started NuTech Energy Alliance Ltd. in 1998. Today, NuTech employs nearly one hundred people in applying technical models to domestic exploration and production operations. Howard is a member of the Whitacre College of Engineering Dean's Council.



Allen D. Howard

Randy Howard, of The Woodlands, Texas, graduated with honors in 1976 with a bachelor of science in mechanical engineering. He is a project executive for ExxonMobil Development Company in Houston, where he has worked for 33 years. Howard went to work for ExxonMobil immediately after graduation, and has held a variety of engineering and supervisory assignments focused on U.S. business including acquisitions, divestments, operations, planning and management. Howard is a registered professional engineer in Texas and a member of the Petroleum Industrial Advisory Board at Texas Tech.



Randy Howard

Full citations for each of the 2010 Distinguished Engineers can be found on the Distinguished Engineers site at: www.coe.ttu.edu/alumni/de **E**



More News

Texas Tech To Host ExxonMobil Bernard Harris Summer Science Camp

The Texas Tech T-STEM Center has received an \$80,000 grant to host an ExxonMobil Bernard Harris Summer Science Camp in 2010.

The two-week camp will offer 48-54 underserved middle school students within a 50-mile radius of Lubbock opportunities to engage in learning about sciences, technology, engineering and mathematics. Activities include classroom study, experiments, individual and team projects, field excursions and guest speakers.

Texas Tech will be one of 30 universities to host the camp that provides hands-on activities with a focus on space science, including learning physics with rocketry as well as the science of space. Also, the camp will focus on forensic science and biomedical and biomedical engineering topics.

The ExxonMobil Bernard Harris Summer Science Camp is a program by the Harris Foundation,



founded by Harris in 1998 to support community growth by focusing on the education, health and wealth of community members. The Harris Foundation inspires children to dare to dream through its educational programs.

Bernard Harris Jr. is the first African-American to walk in space and a Texas Tech University Health Sciences Center graduate. **E**

Engineering Alumnus Serving as Commander of USS Abraham Lincoln

A Texas Tech alumnus is now the captain of a U.S. Navy aircraft carrier that is roughly half the size of his hometown.

Capt. John D. Alexander, a native of Port Neches, Texas, took over in January as commanding officer of the USS Abraham Lincoln during a ceremony on board the ship.

"I am very humbled and excited to be on board the Lincoln," said Alexander. "The ship looks great, and the crew is highly motivated. I'm proud to take command of this extraordinary warship."

Alexander's mechanical engineering degree and time at Texas Tech was crucial to his Navy career. He initially used it during his aviation indoctrination courses, when he studied engines and flight dynamics. Also, he found his degree useful during his flight training to understand operating and weapons systems on the aircraft, and during nuclear propulsion training.

Before taking command of the USS Abraham Lincoln, Alexander served as executive officer of USS Dwight D. Eisenhower and as head of aviation commander assignments at Navy Personnel Command. Alexander said he is ready to lead the crew of the Abraham Lincoln and follow in the former captain's footsteps. **E**

Before taking command of the USS Abraham Lincoln, Alexander served as executive officer of USS Dwight D. Eisenhower





Making an Impact on the Nation and in the Lives of Students

The Whitacre College of Engineering has been fortunate to receive several multi million dollar gifts over the past few years. Transformational philanthropic investments such as these assist with the shaping and direction of the college. But, what if you are not in a financial position to endow a scholarship or some sort of faculty enhancement package?

A high alumni giving participation rate for Texas Tech carries weight in the *U.S. News & World Report's* America's Best Colleges ranking. For example, when the magazine publishes its annual rankings of colleges and universities, *U.S. News & World Report* uses the alumni giving participation rate as its only indicator of alumni satisfaction. A high alumni participation rate can be indicative of our strength as a college and represents the confidence that our alumni have in the direction of the institution. Increasing our alumni participation rate is one way Texas Tech can move up in this important industry ranking.

If Texas Tech and the Whitacre College of Engineering can continue to move up in the national rankings, we will be able to attract even more high-quality students, continue to recruit outstanding faculty, and improve key programs. These national rankings also increase financial support from foundations, corporations, alumni and other donors.

One way to get involved through alumni participation is to join the recently established **Society for Red Raider Engineering**. This society recognizes alumni and friends who:

- Have made an annual gift of \$1,000 or more to ANY area of the Whitacre College of Engineering,
- Have a planned gift to the college, or
- Have established an endowment within the college

Members will be notified annually of their membership within the **Society for Red Raider Engineering** and will receive correspondence from the college, an invitation to the Distinguished Engineers Award Luncheon, and an invitation to the annual **Society for Red Raider Engineering** breakfast during homecoming weekend.

Any gift to the college will be counted so you can designate your gift to a particular department, the general scholarship fund, to the college's greatest needs, or even to a student organization. There are a variety of giving opportunities within the Whitacre College of Engineering that can match your philanthropic desires. **E**

Matching Gift Opportunity

Adolph R. Hanslik Matching Scholarship Fund

The Opportunity:

The estate of Adolph R. Hanslik has supplied Texas Tech and the Whitacre College of Engineering with an impactful scholarship matching opportunity up to \$100,000. The Hanslik match is a great way to leverage your philanthropic investment while making a difference in Texas Tech's aspiring engineer's academic pursuits.

Purpose:

Provide matching scholarship funds.

Match:

50% match
(Example, donor gives \$100K and match is \$50K.)

Maximum Amount of Match:

\$100,000

In order to be eligible for scholarship match, donor's scholarship gift must be at least \$25,000.

Pledges must be paid within three years.

Scholarship Criteria Must Include:

- 1 Student must demonstrate financial need.
- 2 Student must have completed a minimum of 30 hours (sophomore level).
- 3 Student must have minimum of 2.75 cumulative GPA.
- 4 Donor can add additional restrictions such as designating scholarship for a particular major.
- 5 Scholarship to be named as such:
Donor Name - Adolph R. Hanslik Scholarship Endowment.

For more information about the Hanslik match or other giving opportunities, please contact the Whitacre College of Engineering Development Office at 806-742-3451.





TEXAS TECH UNIVERSITY
**Edward E. Whitacre Jr.
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Summer 2010



Shelli Crockett, director of the Engineering Opportunities Center in the college, throws a pie at Senior Associate Dean John Kobza and Associate Dean Walt Oler. The "PI-in-the-Face" contest was a fund raiser for Tau Beta Pi