



Engineering Our Future

Winter 2012-2013

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



Terry Fuller
(B.S.P.E. 1977)
and the Texas Tech
Formula SAE Team

Why I Give...

Engineering Alumni and Donors Discuss Why They Give Back to Their Alma Mater

Inside

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- 4 Students Place in International Contests



Engineering Our Future

Winter 2012-2013 Issue

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Dean's Report

I would like to wish you a happy new year and a prosperous 2013. Many exciting things happened in the Whitacre College of Engineering during 2012, and there are many more to come this year.

I am pleased to announce that ground was broken on the new Petroleum Engineering Building in October (page 3). Since that time, construction crews have been working and we are seeing great progress. As a key component of that building, we are grateful to Apache Corporation for their recent gift of \$2 million to create the Apache Upstream Research Center (page 3). Several naming opportunities still exist for the building. This building will truly usher in a new era of petroleum engineering production and operations education.

There have also been some recent changes in leadership within the college. **Dr. Sindee Simon**, P.W. Horn Professor of chemical engineering, is now the Whitacre Department Chair of Chemical Engineering. As I talked to many of our colleagues around the country, it became obvious to me it would be impossible to find a better combination of integrity, teaching, and research excellence. **Dr. Marshall Watson** has been named the new chair of the Bob L. Herd Department of Petroleum Engineering. His leadership and his years of practical experience in the oil field will be essential to the department as they make the transition into the new building. Additionally, **Dr. Stephen Ekwaro-Osire** is the new associate dean of research and graduate programs. He will be responsible for the quality and development of the college's faculty, master's, and doctoral research programs. **Dr. John Kobza** has been serving well as senior associate dean of the college for the last four years. He is stepping down and will serve as professor of industrial engineering. **Dr. Ekwaro-Osire** will serve as interim chair for the Department of Industrial Engineering. Nationwide searches are now underway for a new senior associate dean and the chair of the Department of Industrial Engineering.

We also welcome several new faculty members this semester. **Dr. Venkatesh "Venki" Uddameri** is professor of civil and environmental engineering and interim director of the Water Resources Center. He was previously an associate professor at Texas A&M University-Kingsville. **Dr. Carla Lacerda** is an assistant professor of chemical engineering. She received her Ph.D. from Colorado State University in the area of bioengineering. Her research deals with the role of serotonin in heart valve pathology. **Dr. Hoyoung Seo** is an assistant professor of civil and environmental engineering. He received his Ph.D. from Purdue University. **Dr. Beibei Ren** is an assistant professor of mechanical engineering. She was recently a postdoctoral scholar at the University of California, San Diego. **Dr. Jungkyu Kim** is an assistant professor of mechanical engineering. He was recently a postdoctoral scholar at the University of California, Berkeley.

Our students have received several significant external awards and have placed well in international contests. Three of our students received SMART scholarships from the Department of Defense (page 4), Texas Tech won second place for a highly innovative wheelchair design in the Old Guard Oral Presentation Contest at the ASME 2012 International Mechanical Engineering Congress & Exposition (page 4), electrical and computer engineering doctoral student **George Laity** was named the recipient of the Tom R. Burkes Award at the 2012 IEEE International Power Modulator and High Voltage Conference (page 4), and three undergraduate students won first place in Region 5 and sixth place in the U.S. in the IEEE International Xtreme Programming Competition (page 4).

The excellence of our faculty members has not gone unnoticed by prominent national and international societies. **Dr. Jingyu Lin**, Linda F. Whitacre Chair and professor of electrical and computer engineering, has been elected as a fellow of APS (page 5). **Dr. Tanja Karp**, an associate professor of electrical and computer engineering, recently received the Hewlett-Packard/Harriett B. Rigas Award from the IEEE Education Society (page 5). **Dr. John Kobza** has been named a fellow of IIE (page 5). **Dr. Sindee Simon** has been awarded 2012 NATAS Outstanding Service Award (page 5). **Dr. Marshall Watson** has been named the recipient of a SPE Teaching Fellow Award (page 5). **Dr. James Yang**, an assistant professor of mechanical engineering, has been named a recipient of the 2012 SAE Ralph R. Teetor Educational Award from SAE International (page 5).

Research in the college is flourishing and breaking new ground in many areas. **Dr. Harvinder Gill**, assistant professor of chemical engineering, was awarded a five-year, \$2.2M grant from the National Institutes of Health to study pollen grains as a novel system for oral vaccination (page 6). **Dr. Hongxing Jiang**, Edward E. Whitacre Jr. and professor of electrical and computer engineering, and **Dr. Jingyu Lin** received a \$2 million grant to develop the next generation of solid-state high-energy lasers with intended military defense uses.

This issue of the magazine features profiles of a few of our alumni and donors (page 8). These stories, called "Why I Give...", detail what motivates our alumni and donors to give back to the college in time and money, as well as the various ways that they can make an impact on the college. Our alumni news section features updates from graduates of the college (page 14) and some recent successes of our alumni. Send us your updated information or stories at www.TTUalum.com.

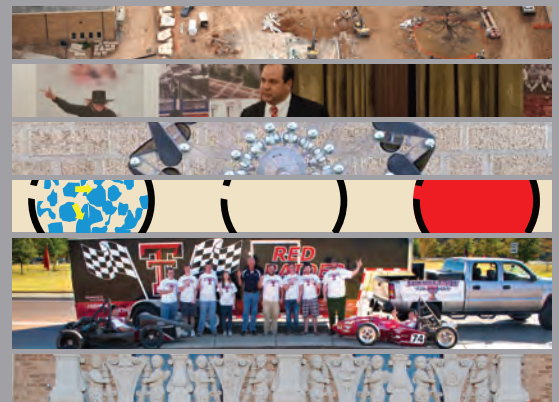
I hope you enjoy reading about the accomplishments of our students and faculty and the activities and events of the college.



Dean Al Sacco Jr., Ph.D.

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Construction Started on New Petroleum Engineering Building

Texas Tech broke ground in October on a new facility to house the Bob L. Herd Department of Petroleum Engineering. The \$20 million project will house 40,000 square feet of formal teaching environments with hands-on applications and modern research facilities. Funding was provided entirely through generous donor support during the Texas Tech University System's \$1 billion campaign, Vision and Tradition: The Campaign for Texas Tech.

"We are excited about the opportunities the new petroleum engineering building will offer," said Kent Hance, chancellor of the Texas Tech University System. "The building will allow not only for increased enrollment, but improved teaching and research endeavors. I am confident this facility will set the bar for petroleum education facilities nationwide."

The new building will sit in the northeast corner of the engineering key and feature the characteristic arches that surround the current engineering buildings.

"The existing building cannot properly accommodate modern technologies and production techniques," said Al Sacco, dean of the Whitacre College of Engineering. "The new facility will be critical for Texas Tech to attain its goals of advancing the petroleum engineering department and graduating the finest industry-ready petroleum engineers."

Construction is expected to be completed in time to offer courses and instruction in fall 2013. **E**

Texas Tech University System officials and donors break ground to mark the start of construction of the new building.



John Christmann, vice president of the Permian region for Apache announces the \$2M research gift at a news conference.

Apache Corporation Donates \$2 Million for Research

Texas Tech and Apache Corp. have announced a \$2 million gift to the Whitacre College of Engineering that will establish the Apache Upstream Research Center in the new Petroleum Engineering Research Building.

This center will be an important aspect of the new Petroleum Engineering Research Building's laboratories, focused on the latest environmentally responsible fracturing techniques including horizontal well drilling, rock mechanics, the energy-water nexus, wellbore integrity, and well cementing. Research will be conducted in the center by faculty members from multiple engineering disciplines and will advance the leading edge of fracturing procedures and environmentally responsible practices.

"Apache and the entire industry rely on cutting-edge technology such as horizontal drilling in tight shale and it is vital that the next generation of petroleum engineers come prepared to use the most advanced levels of technology and innovation," said John Christmann, vice president of the Permian region for Apache. "We hope this donation plays a role in helping the center to develop these bright young engineers at Texas Tech to their fullest."

Apache's gift is eligible for an additional \$2 million of matching funds from the Texas Research Incentive Program, created by the state of Texas. Once matching funds are received, the funding will support equipment purchases and research projects in the fracturing techniques center. **E**





Student News

Three Engineering Students Receive SMART Scholarships

Sterling Beeson, a doctoral electrical engineering student, Jenna Johnson, an industrial engineering student, and Patrick Kahl, a doctoral computer science student, have been awarded scholarships from the Department of Defense Science, Mathematics And Research for Transformation (SMART) Scholarship for Service Program.

Participants in the SMART Scholarship for Service Program receive a scholarship that pays for full tuition and education related fees, a cash award paid at a rate of \$25,000 - \$41,000, paid summer internships, health insurance reimbursement, book allowance, mentoring, and employment placement. **E**



Beeson



Johnson



Kahl

Laity Receives Outstanding Student Award, Named Directed Energy Scholar

George Laity, a doctoral student in the Department of Electrical and Computer Engineering, was named the recipient of the Tom R. Burkes Award at the 2012 IEEE International Power Modulator and High Voltage Conference in San Diego, Calif. This award was established to recognize contributions by a graduate student in engineering, science, or technology associated with power modulation, power electronics, or repetitive pulsed power.

He was also selected as a 2012-2013 Graduate Directed Energy Scholar by the Directed Energy Professional Society. This award offers partial scholarships of \$10,000 for the school year. Laity was the first student from Texas Tech to receive this scholarship when he received it previously in 2010. **E**



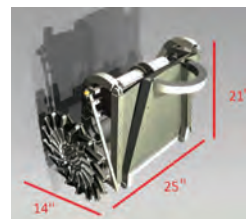
Laity

ASME Students Win Second Place in International Old Guard Contest

Texas Tech won second place in the Old Guard Oral Presentation Contest at the ASME 2012 International Mechanical Engineering Congress & Exposition.



Expanded Chair



Fully Collapsed Chair

The presentation detailed the design of a radially collapsing wheel for a wheelchair. Using creative techniques, the wheels of the full-size wheelchair, along with the components of the chair, fold and fit in an area that is 25" wide, by 14" deep, and 21" high, 58% of its original size. The team previously won first place in the regional District E competition of ASME's Student Professional Development Conference. The winning student presenter was Pejmon Arbrapour. **E**

Team Wins Region 5, Places Sixth in U.S., in IEEE Xtreme Competition

Teo Hall and Thomas Bernens, senior ECE majors; and Taylor Denison, a junior CS major; competed in the IEEE International Xtreme Programming Competition and won first place in Region 5 and sixth place in the U.S. Dr. Richard Gale, professor of electrical and computer engineering, advised and proctored the team. Competitors have 24 hours to solve a set of programming problems, while competing with other IEEE students around the world. **E**

Teo Hall, Thomas Bernens, Taylor Denison, and Dr. Richard Gale



Faculty News



Lin Elected Fellow of the American Physical Society

Dr. Jingyu Lin, Linda F. Whitacre Chair and professor of electrical and computer engineering, has been elected as a fellow of the American Physical Society (APS). She was elected “for her seminal contributions to our fundamental understanding of the electronic and optical properties of the group III-nitride semiconductors and her significant impact on the use of these materials for nanophotonic devices.” Election to APS fellowship is limited to no more than one half of one percent of the membership.



Lin

APS fellows in the Whitacre College of Engineering include Drs. Hongxing Jiang, Magne Kristiansen, Jingyu Lin, Greg McKenna, and Sindee Simon. **E**

Kobza Named Fellow of IIE

Dr. John Kobza, professor and interim department chair of industrial engineering, has been named a fellow of the Institute of Industrial Engineers (IIE). Founded in 1948, IIE is an international, nonprofit association that provides leadership for the application, education, training, research, and development of industrial engineering. A fellow is the highest classification of IIE membership. **E**



Kobza

Watson Receives SPE Teaching Fellow Award

Dr. Marshall Watson, assistant professor of petroleum engineering, has been named the recipient of a Society of Petroleum Engineers (SPE) Teaching Fellow Award for 2012. The Teaching Fellow Award recognizes petroleum engineering faculty who have demonstrated innovative teaching techniques. **E**



Watson

Karp Receives IEEE Rigas Award

Dr. Tanja Karp, an associate professor of electrical and computer engineering, recently received the Hewlett-Packard/Harriett B. Rigas Award from the Institute of Electrical and Electronics Engineers (IEEE) Education Society.



Karp

The award recognizes outstanding female faculty members who have made significant contributions to electrical and computer engineering education through excellence in teaching, encouraging and supporting increased participation of women in electrical and computer engineering, demonstrated scholarship and research, development of educational technology which enhances student learning, and/or service to the engineering profession. **E**

Simon Receives NATAS Outstanding Service Award

Dr. Sindee Simon, Horn Professor and Whitacre Department Chair of Chemical Engineering, has been awarded the 2012 North American Thermal Analysis Society (NATAS) Outstanding Service Award.



Simon

The award recognizes an accumulation of significant contributions to the society that have accrued from dedicated service to the organization. **E**

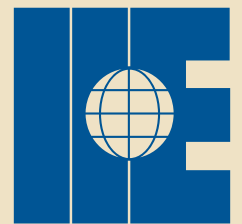
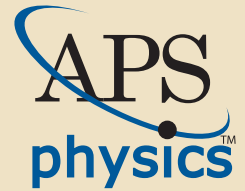
Yang Receives SAE Teetor Educational Award

Dr. James Yang, an assistant professor of mechanical engineering, has been named a recipient of the 2012 SAE Ralph R. Teetor Educational Award from SAE International.



Yang

The award is in recognition of his outstanding contributions to SAE's engineering education initiatives. **E**

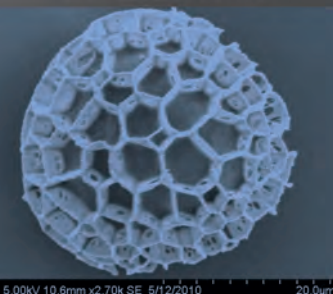




Faculty News

Scanning Electron Micrographs of Plant Pollens and Spores

(Pseudo color added to images)



Lycopodium clavatum
(clubmoss) spores



Alnus glutinosa
(alder black)



Artemisia vulgaris
(mugwort)



Helianthus annuus
(sunflower)

Gill Awarded \$2.2M Grant from the National Institutes of Health

Dr. Harvinder Singh Gill, an assistant professor of chemical engineering, was awarded a five-year, \$2.2M grant from the National Institutes of Health for his proposal, "Pollen Grains as Trojan Horses for Oral Vaccination." The grant, known as the NIH Director's New Innovator Award, is given to support exceptionally creative new investigators who propose highly innovative projects that have the potential for unusually high impact.



Gill

Gill's research will develop pollen grains as a novel system for oral vaccination, which could lead to improved, painless, and edible vaccines in the future. Gill is one of fifty-one researchers that are receiving New Innovator awards to pursue visionary science that exhibits the potential to transform scientific fields and speed the translation of research into improved health, under the High Risk High Reward program supported by the National Institutes of Health Common Fund.

This NIH award is following a recent Defense Advanced Research Projects Agency (DARPA) Young Faculty Award (2012) to investigate pollens as a unique platform for oral vaccination. Together, the NIH New Innovator Award and the DARPA Young Faculty Award will enable Gill to understand, engineer and test the pollen grain-based oral vaccination platform. The NIH award will fund an array of experiments, including the testing of the vaccinations in a pre-clinical setting with animals.

Gill initially hypothesized that if he could remove offending and allergic reaction-causing proteins and fats present in pollen grains, he could reveal a natural empty shell and create a delivery method with very unique properties. He conducted several experiments with lycopodium clavatum spores, removing the spores' native proteins and fats, and filling them with ovalbumin as a model protein vaccine. Once consumed, the shells were able to withstand the

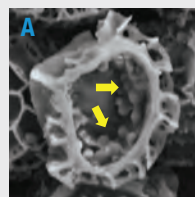
acidic and digestive environment of the stomach and traveled to the intestines. As he predicted, the grains helped produce excellent immune responses in mice against ovalbumin.

Through this award, Gill hopes to fully understand the mechanisms and concepts of how pollen grains help to induce a strong immune response.

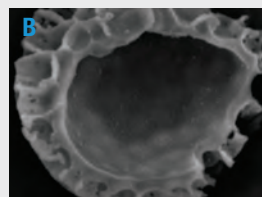
Beginning with lycopodium clavatum, he will attempt to gain a mechanistic understanding of how the grains are able to withstand the harsh environment of the stomach and intestines, and like the Trojan horse of history, pass through the body's defenses without much impediment. Eventually, he will expand the repertoire of pollen grains to include other species of pollen grains, perhaps identifying characteristics of certain species that may have better or different effects.

Pollen Grain Preparation and Processing

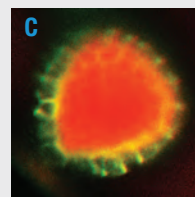
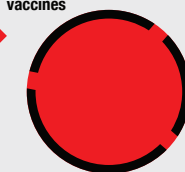
A. Unprocessed pollens contain plant proteins (shown by arrows) that are potentially allergenic.



B. Pollen processing removes native biomolecules producing, non-allergenic empty pollen shells.



C. Hollow pollen shells are resistant and durable, and provide protective capsules to fill their interior with vaccines



Scanning electron micrographs of sectioned lycopodium clavatum spores/pollens. (A) Before processing showing native material in its interior, (B) after processing showing a clean interior.

(C) Confocal micrograph showing ovalbumin, a test vaccine filled inside lycopodium spores.

The mechanistic analysis will include a biodistribution component and a histopathological component.

For the biodistribution analysis, Gill will initiate a study in mice using biofluorescence techniques and a confocal microscope. He will "follow" the vaccine-filled grains and the particles through the body and the intestines, keeping track of the timing and rates that the grains pass through the body. This will provide a system-wide inventory of the body's reaction to the grains, how quickly immune responses can be generated, and the fate of the grains.

In a histopathological analysis, he will identify the immunological cells that are exposed to the vaccine-filled pollen grains and how they are being activated.



The goal is also to fully understand the range of immune responses that can be produced.

Through initial testing, Gill knows that vaccine-filled pollen grains can produce a good systemic immune response in the body. However, because pollen grains are being given orally, the body has the potential to produce mucosal immunity. This could lead to the generation of antibodies in the intestines or in other mucosal regions such as saliva or reproductive areas, something that does not normally happen with traditional intramuscular vaccinations. He will test blood, saliva, and fecal droppings before and after the exposure to measure antibodies and, in some cases, the cytotoxic T-cell production. Mucosal immunity generates a first line of defense on the mucosal surfaces to prevent the entry of pathogens into the body.

In addition to helping the vaccines get into the body, the pollen grains may also hold the key to creating a stronger immune response in a way that is not currently possible through the oral route. The pollen grains' "Trojan Horse" properties may allow them to carry other components into the body. The grains could be used to transport a vaccine and an adjuvant into the body. Adjuvants are molecules or chemicals that stimulate the immune response. Adjuvants are often destroyed in the stomach when they are taken orally. Gill will test known, but safe, adjuvants that do not normally have a strong immune response when given orally. Through the grains' ability to infiltrate the body's defenses, these adjuvants could be successfully administered at the same time as the vaccine. This could lead to a synergistically improved immune response.

Overall, the potential for this vaccine delivery system is significant. Pollen grains may be a revolutionary way to provide a cheap, convenient, and painless path for vaccinations to be delivered into the body and provide excellent systemic immunity and a potent mucosal first line of defense.

Gill joined the Department of Chemical Engineering at Texas Tech in 2009. He received a Ph.D. in bioengineering from Georgia Institute of Technology and has completed post-doctoral work in microbiology and immunology at Emory University. Gill has also received numerous honors and awards including Sigma Xi Best Thesis Award for his thesis at Georgia Tech in 2008, the Best Doctoral Paper Award at the Science Applications International Cooperation (SAIC) in 2008, and the Dr. Charles Burford Faculty Award at Texas Tech University in 2011. **E**

Nanophotonics Center Receives \$2 Million Grant for High-Energy Lasers

Two Texas Tech University professors recently received a \$2 million grant to develop the next generation of solid-state high-energy lasers with intended military defense uses. The five-year grant was awarded to Dr. Hongxing Jiang, Edward E. Whitacre Jr. Chair and professor of electrical and computer engineering, and Dr. Jingyu Lin, Linda E. Whitacre Chair and professor of electrical and computer engineering. The grant is from the High Energy Laser Multidisciplinary Research Initiative program supported by the High Energy Lasers-Joint Technology Office and Army Research Office.



Jiang



Lin

The project aims to advance the development of nano-scale, chip-size materials that could lead to the creation of significantly more compact and more powerful lasers for use by the military in missile defense systems.

Jiang and Lin came to Texas Tech in 2008 to establish the Nanophotonics Center, and research solid-state lighting technology and devices that emit both visible and ultraviolet light. The solid-state lighting technologies under development at the Nanophotonics Center will lead to energy efficient lighting. Additionally, Jiang and Lin's research could aid the development of miniature displays in helmet-mounted or head-up display systems of aircraft pilots and on-deck air controllers.

Jiang and Lin's work has led to more than 20 patents on related (III-Nitride) semiconductor device technologies. The design and fabrication of these novel devices are among the most prominent technologies for energy-efficient solid-state lighting and have been adopted by the light-emitting diode (LED) industry worldwide. **E**



Why I Give... Alumni and Donor Profiles

Why I Give... Red Raiders Giving Back to Their Alma Mater

Since the beginning of Vision and Tradition: The Campaign for Texas Tech in September 2005, the Edward E. Whitacre Jr. College of Engineering has experienced significant growth in private giving. The college has seen the addition of endowed chairs and professorships, an influx of scholarships and fellowships for deserving students, and two major name changes — the naming of the college for Ed Whitacre ('64 IE) and the naming of the Bob L. Herd Department of Petroleum Engineering in honor of Bob Herd ('57 PE).

The next few pages share personal stories of six individuals and why they chose to give to the Whitacre College of Engineering. The purpose of these stories is to illustrate to Whitacre

College of Engineering alumni, parents of students, and friends that not all donors are multi-millionaires. The college certainly has been blessed with necessary transformational seven- and eight-figure gifts, but gifts can be impactful at a multitude of levels. The impact to the donor, when they make a philanthropic investment, is often impressive to witness.

In these profiles, you will see giving reflected as financial gifts, but you will also see the story of Brad Holly ('93 PE). He championed a \$1,000,000 gift from his company to name the Anadarko Unconventional Technology Center in the new Petroleum Engineering Research Building. This gift will also garner a \$500,000 match from the Texas Research Incentive Program as part of the Texas Tier One effort. The commitment gift of time and leadership from Brad speaks volumes and represents how important industry is to the advancement of engineering.

Many donors to the college utilize their company's matching program, like Julie England ('78 ChE). She contributes annually to her endowment, the England Endowment for Women in Engineering, and receives a 1:1 match from Texas Instruments. This endowment is now valued at more than \$78,000 because Julie

personally contributes to it and maximizes the available Texas Instruments match. Julie also played an integral part in the establishment of the Pamela A. Eibeck Endowed Graduate Fellowship and along with fellow Texas Tech alumni, Keh Shew Lu ('73 ECE), C.S. Lee ('78 ECE), and Ming Chiang ('78 ECE), established the Keh-Shew Lu Endowed Regents Chair.

On the cover of the magazine, Terry Fuller ('77 PE) is pictured with student members of the Formula SAE Racing team, one of the higher profile student competition teams. Terry is very involved with the college, helps sponsor the team and their \$50,000+ operating budget, provides his vehicle trailer, and consults the team on systems engineering as they prepare the car for the 2013 racing season.

Vision & Tradition THE CAMPAIGN FOR TEXAS TECH

A very special gift came from Courtney Kastner ('12 ChE) in early 2012. Courtney worked as a student in Autumn's Dawn Neuroimaging and Cognition Engineering Laboratory, a lab named by Allen Howard ('78 ECE) and his wife Linnie. The research activity in this lab is investigating scientific methods that will lead to the earlier identification of autism. One day, Courtney dropped by the engineering development office inquiring about how to make a gift to the lab. She had some extra funds that she was willing to provide for neuroimaging research projects. She proceeded to make a \$3,000 gift.



Scott Self

These donors and multitudes of others who choose to invest in the Whitacre College of Engineering are helping prepare future Texas Tech engineers for meaningful careers, advancing the college's faculty through endowments to enhance their research, providing facilities to assist with the rapid growth of this ever-popular college, and building a fiscal foundation that will secure the college for years to come.

Scott Self

Senior Director of Development and Alumni Relations
Whitacre College of Engineering **E**



Julie S. England: Maximizing Corporate Matching Gifts

England Endowment for Women in Engineering, Pamela A. Eibeck Endowment, Keh-Shew Lu Endowed Regents Chair

Julie Spicer England knows exactly how it feels to receive a life-changing financial gift. Although she is a well-respected businesswoman who currently serves on the Board of Directors for corporations in Philadelphia, Penn. and Santa Clara, Calif., as well as the Georgia O'Keeffe Museum in Santa Fe, N.M., she was also once a student who benefited from someone else's generosity.

A scholarship offered by the Whitacre College of Engineering boosted her decision as a high school senior to attend Texas Tech. England was pleased with the small class sizes and the interaction she had with her professors.

Her first scholarship, along with other scholarships, part-time student work, and summer internships, allowed her to take heavy course loads each semester until she earned her bachelor of science in chemical engineering in just four years. "Also," she says, "the three summers of internships contributed greatly to my ability to pay for school and gave me a real taste of life as an engineer at work."

England is no stranger to hard work. Named one of the Top 15 Women Innovators in Business by PINK magazine in 2008, she has been honored with numerous awards, including the Distinguished Information Sciences Award by the Association of Information Technology Professionals in 2009. She is also a recipient of the 1999 Distinguished Engineer Award from Texas Tech and has been inducted into the Women in Technology International Hall of Fame.

Her relationship with Texas Instruments, Inc. (TI) began straight out of college when she was hired as a first line



England

"The most positive aspect of giving to the university that launched your career is the ability to take action and express gratitude for how the university experience changed my life."



engineer. Over the past 30 years, she has received appointments as vice president and general manager of two different business divisions.

Her partnership with TI has been incredibly successful in the world of business technology, and includes a partnership in educational financial giving. Along with fellow Texas Tech alumni and Texas Instrument co-workers Keh Shew Lu ('73 ECE), C.S. Lee ('78 ECE), and Ming Chiang ('78 ECE), she established the Keh-Shew Lu Endowed Regents Chair. England was able to give personally to the endowment and see her contribution grow exponentially, thanks to TI's corporate matching policy.

During her own time on campus, England not only studied hard, she also enjoyed being around her fellow students and the campus life with its cultural and sporting events. Her collegiate experiences inspire her current desire to give back and make an impact on future engineers.

"The most positive aspect of giving to the university that launched your career is the ability to take action and express gratitude for how the university experience changed my life," she explains. She and her husband, Robert, want to help others reach their full potential as well and give back to the engineering profession that has been so rewarding for her. **E**





Why I Give... Alumni and Donor Profiles

Dr. Sunanda Mitra: Honoring Her Son Through a Graduate Fellowship

The Dr. Atindra Mitra Graduate Fellowship in Electrical and Computer Engineering

The electrical engineering community at Texas Tech has long played an important role in the lives of both Dr. Sunanda Mitra and her son, Dr. Atindra Mitra. They shared a passion for electrical engineering. While Sunanda is still actively involved in the Whitacre College of Engineering as a Horn Professor in the Department of Electrical and Computer Engineering, Atindra passed away in June 2011. Atindra worked as a radio frequency systems engineer in the Air Force Research Laboratory at Wright-Patterson Air Force Base in Dayton, Ohio from 1999-2011.

After receiving degrees from Calcutta University in India and a doctor of science in physics from Marburg University in Germany, Sunanda moved to Lubbock with her husband, Dr. Arun Mitra, and their son and daughter, then five and two years old. Arun joined the faculty of the Texas Tech Department of Mathematics and Statistics and Sunanda joined the Department of Electrical and Computer Engineering.

Sunanda held many roles within the Texas Tech University System over the years, serving as a research associate in the Department of Electrical and Computer Engineering and the School of Medicine, and as a professor in both the Department of Electrical and Computer Engineering and the Department of Radiology at the Texas Tech Health Sciences Center. She is currently the director and founder of the Computer Vision and Image Analysis Laboratory at Texas Tech.

After growing up in Lubbock, Atindra decided to attend Texas Tech. As an electrical engineering student, he formed a close student-mentor relationship with engineering faculty members Dr. Michael Parten and Dr. Thomas Trost, focusing on studies in VLSI design and microwave research. He held research assistantships as a graduate student and eventually earned a bachelor of



Dr. Atindra Mitra earned a bachelor of science, a master of science, and a Ph.D. in electrical engineering from Texas Tech.

science, a master of science, and a Ph.D. in electrical engineering from Texas Tech.

Atindra's doctoral work led him to a career in radar sensor technology. He worked at Advanced Micro Devices, Inc. and held teaching positions at the University of Nevada at Reno and the University of Dayton in Ohio.

After Atindra passed away in 2011, Sunanda reflected on her son's life and his contributions to the field of electrical engineering. "Friends and family

remember his creative, unorthodox, and insightful opinions," Sunanda noted, "And his gentle and compassionate nature."



Dr. Sunanda Mitra

"My gift to Texas Tech comes with gratitude to the educational background and support provided to my son."

In February 2012, Sunanda established the Dr. Atindra Mitra Graduate Fellowship in Electrical and Computer Engineering with a \$100,000 gift. She hoped that while honoring her son's relationship with the department, she could also advance the higher education goals of deserving electrical engineering students.

"My gift to Texas Tech comes with gratitude to the educational background and support provided to my son," Sunanda says, "It also helps me to sustain Atindra's memory and his dedication to research by establishing a graduate fellowship in his name." **E**





Courtney Kastner: Supporting Autism Research as a Student

\$3,000 Student Gift to Support the Autumn's Dawn Neuroimaging, Cognition, and Engineering Laboratory

Courtney Kastner graduated in May 2012 with a bachelor of science in chemical engineering. She now works as a process engineer for OxyChem in Baton Rouge, La.

However, when Kastner began her studies at Texas Tech as a freshman chemical engineering student, she was not sure what she wanted to do with her degree. After a fortuitous seminar assignment interviewing a family friend, she became interested in the biological and medical applications of engineering. This led her to Dr. Mary Baker, professor of electrical and computer engineering and director of the Autumn's Dawn Neuroimaging, Cognition, and Engineering Laboratory (ADNICE Lab).

Autumn's Dawn is a non-profit organization founded by Whitacre College of Engineering alumnus Allen Howard '78 and his wife Linnie that is devoted to helping young adults with autism spectrum disorders. Through a generous gift from Allen and Linnie, the Neuroimaging, Cognition,

and Engineering Laboratory was named after the Autumn's Dawn organization.

The ADNICE Lab on the campus of Texas Tech is dedicated to developing various models relating to the structure and neural circuitry of the human brain. The lab also assesses neurologically impaired individuals to better understand the fundamental principles of brain development and neuro-cognitive functioning.

Because Kastner received scholarships during her time as a student, she was able to focus on her studies and worked in the ADNICE Lab as a student research assistant out of choice, not necessity.

The experience was immensely rewarding. "My eyes were opened to the need for scientific advances that can be achieved with neuroimaging," she says. This need remained in the forefront of her mind when she chose to gift some extra funds that she had to the ADNICE Lab while still an undergraduate student.

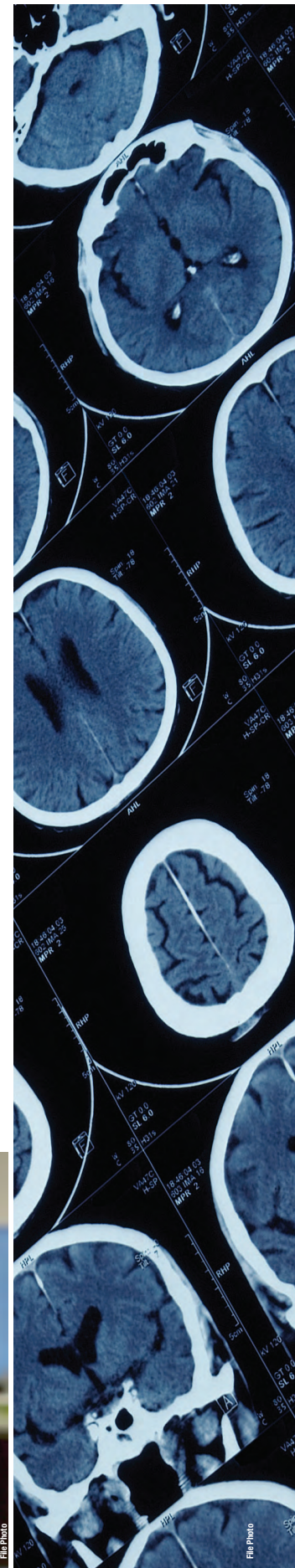
"I give to support the cutting edge research that will benefit the lives of many families, and I am thankful that I am able to do so."



Kastner

Kastner explains, "Many great things are being done through the research efforts in the Whitacre College of Engineering, and I am thankful to have this unique opportunity." **E**

The ADNICE Lab utilizes a multidisciplinary approach to study the human brain using electroencephalography (EEG) and event-related potential (ERP) measures, structural and functional magnetic resonance imaging (MRI), and Diffusion Tensor Imaging (DTI) techniques.





Why I Give... Alumni and Donor Profiles

Brad Holly: Corporate Champion with Anadarko Petroleum Corp.

**Championed \$1,500,000 Gift and
State Match to Name the Anadarko
Unconventional Technology Center**

Growing up in West Texas, it was almost inevitable that Brad Holly would attend Texas Tech. Several of his family members attended Texas Tech and he lived in Lubbock for ten years while he was a child.

Although he moved away from Lubbock to Abilene, he decided to visit the Texas Tech campus the spring before his senior year. While on campus, Holly met faculty members in petroleum engineering, an area in which he was keenly interested since his grandfather spent 34 years working in the oil and gas field.

Because he was already interested in math and science, the offer of a petroleum engineering scholarship cemented his desire to attend Texas Tech. He graduated from Clyde High School the next year and was soon on his way to Lubbock.

Holly spent the next four years engaged in campus activities such as the Saddle Tramps, the Baptist Student Union, intramurals, and Mortar Board. He also received scholarships to supplement his part time work and summer internships, graduating in 1993 with a bachelor of science in petroleum engineering without any student loans. "Coming from a middle income family, [financial aid] made a huge difference for us," he noted.

Beginning his professional career as a petroleum engineer with Amoco, Holly gladly came back repeatedly to the campus from 1994-2005 as a recruiter.

In 1997, he joined Anadarko Petroleum Corporation. After serving in several capacities, including as general manager of the Greater Natural Buttes and the Maverick Basin, he was named the vice president of Southern and Appalachia Operations in July 2012.



Holly

In 2011, when he learned of the vision that Dean Al Sacco Jr. and Chancellor Kent Hance's had for the Whitacre College of Engineering and pathway to Tier One status, he was convinced that it was an obvious fit with Anadarko's corporate ideals. Dean Sacco's vision for the Whitacre College of Engineering, especially the construction of a new Petroleum Engineering Building with integrated classrooms and research laboratories, was particularly inspiring and compelling.

***"I believe in
the vision of
Texas Tech."***

***"I'm grateful for
the opportunities
that my education
at Texas Tech has
afforded me."***

Holly, who is passionate about the possibilities of both Anadarko and Texas Tech, is excited to be able to merge the two for their mutual benefit. "I believe in the vision of Texas Tech," he explained. Dean Sacco and Chancellor Hance's vision for a Tier One research institution and Anadarko's commitment to students and advancing the industry is an important aspect of their partnership.

Holly credits the Whitacre College of Engineering for giving him a great foundation for success in the business world. "I'm grateful for the opportunities that my education at Texas Tech has afforded me," he says.

In addition to his personal scholarship gift to the Whitacre College of Engineering, the Bradley J. and Jennifer L. Holly Endowed Scholarship in Petroleum Engineering, he also serves on the Industrial Advisory Board for the Bob L. Herd Department of Petroleum Engineering and is a member of the Society of Petroleum Engineers. **E**



Mike Stinson: Paying it Forward to Students of the Future

**\$1,000,000 Discretionary Research
Gift with \$750,000 Match
from the State**

Mike Stinson and his wife Pamela are long-time supporters of Texas Tech. With their latest gift to the Whitacre College of Engineering, the Stinsons continue to exemplify the spirit of philanthropy.

After two visits to Lubbock, Stinson first came to Texas Tech as a mechanical engineering student to follow in the footsteps of his father, who was a mechanical engineer. However, he switched to industrial engineering because of the intersection of engineering and business in that discipline. He enjoyed the interaction with other students, the coursework, and mentorship from outstanding professors in industrial engineering.

Although he graduated in 1966, he feels like he never really left. "Giving something back to Texas Tech, whether it is for needed facilities and equipment, funds to attract leading academics, or scholarships for top-flight students extends my experience forward to students of the future," he says.

Crediting the influences of the professors and staff on campus, he reflects that his time at Texas Tech provided an outstanding foundation for his later career.

Stinson went to work for Continental Oil Company, which later became Conoco, and finally ConocoPhillips. While working, he earned an M.B.A. from Arizona State University. Through all of Conoco's incarnations, Stinson served in a variety of capacities, including time overseas in the United Kingdom and Norway as a director, general manager, and president of various divisions.

After retiring in 2003, he continued to work in the oil industry by acting on behalf of the U.S. government as the Senior Advisor to the Iraqi Ministry of Oil between February and August 2004. He was recognized with the Secretary of Defense Exceptional Public Service Award for this work.



Mike Stinson and his wife Pamela continue to exemplify the spirit of philanthropy.

"Giving something back to one's university is a fitting recognition of the overall higher education experience in shaping our later lives."

Stinson's dedication to service is also clearly seen in his relationship with the Whitacre College of Engineering. He currently serves as a member of the Engineering Dean's Council, the Academy of Industrial Engineers, and the Chancellor's Council. He was also named a Distinguished Engineer in 1991.

Additionally, he serves on the Board of Directors for Harvest Natural Resources and spends time serving such organizations as the American Heart Association

and the United Way of the Gulf Coast.

"Giving something back to one's university is a fitting recognition of the importance of the overall higher education experience in shaping our later lives," Stinson admits, adding that he and his wife, an alumnus of Rice University in Houston, "derive a great deal of pleasure in being able to help these great institutions in modest ways to succeed in advancing man's understanding in many fields of research and to provide superb educations to thousands of young people." **E**



Alumni Updates

Whitacre College of Engineering Alumni Updates

1973

Louis D. Marks Jr., a 1973 graduate with a B.S.E.T., earned two master's degrees, is retired from the aerospace and defense industry, and lives in Hurst, Texas.

1974

Michael Slagle, a 1974 graduate with a B.S.M.E., recently took a position as a reliability engineer with Haldor Topsoe, a manufacturer of catalysts in Pasadena, Texas and lives in Houston, Texas.

Stephen Ford, a 1974 graduate with a B.S.E.E.T., works for OMEDtech, LLC and lives in Edmond, Okla.

1975

Larry Hertel, a 1975 graduate with a B.S.C.E.T., is retired and lives in Lubbock, Texas.

1977

Richard Gorskie, a 1977 graduate with a B.S.E.E.T., works for Emerson Process Management and lives in Round Rock, Texas.

1979

Hague Dunlap, a 1979 and 1982 graduate with a B.S.E.E. and M.S.E.E., works for American Electric Power and lives in Corpus Christi, Texas.

1980

Russell Pratt, a 1980 graduate with a B.S.M.E., is global services director and consulting lead of federal, aerospace, and defense for PTC and lives in Corinth, Texas.

1982

Timothy Miller, a 1982 graduate with a B.S.M.E., is general director of Tengizchevroil LLP, and lives in Amarillo, Texas.

1984

Bret McDougal, a 1984 graduate with a B.S.E.E.T., is senior manager for North America in quality and engineering support for Sagemcom and lives in Lewisville, Texas.

1986

Carl Williams, a 1986 graduate with a B.S.C.E., managed the steel scope for an integrated project delivery building for Bosworth Steel Erectors and lives in Leonard, Texas.

1989

Brian Akins, a 1989 graduate with a B.S.P.E., is managing director and head of U.S. oil and gas investment banking for Royal Bank of Canada, and lives in Carmel, Ind.

1991

Mark Roberson, a 1991 graduate with a B.S.M.E., leads the subsea operations team for BP's North Sea and lives in Maryculter, United Kingdom.

1992

Ayse Turhan, a 1992 graduate with a Ph.D. C.E., works for Karadeniz Technical University, and lives in Trabzon, Turkey.

1993

Terry Johnson, a 1993 graduate with a B.S.M.E., is a Lieutenant Colonel for the U.S.M.C. and lives in San Clemente, Calif.

1997

Patricia Seeley, a 1997 graduate with a M.S.I.E., retired after serving as principal investigator for two electric power research institute ergonomics handbooks for electric utilities and lives in Sedona, Ariz.

1998

Charles Valentine, a 1998 graduate with a B.S.E.E., is vice president of technology services for Indeed.com and lives in Austin, Texas.

1999

Andy Peng, a 1999 graduate with a B.S.E.E./C.S., was elevated to an IEEE senior member, is a systems engineer staff at Lockheed Martin, and lives in Apple Valley, Minn.

Cagatay Guler, a 1999 graduate with a M.S.M.E., was country manager for Ingersoll Rand Climate Technologies in Turkey, is now central Eastern Europe business manager for 3M, and lives in Cankaya, Turkey.

2001

Bikram Baruah, a 2001 graduate with a M.S.P.E., is a senior reservoir engineer for the petroleum management unit for Petronas and lives in Kuala Lumpur, Malaysia.



2002

Steve Myles, a 2002 and 2004 graduate with a B.S.I.E. and M.S.I.E., earned an M.B.A. from the University of Texas at Dallas in May 2012, works for Hewlett-Packard, and lives in Houston, Texas.

2004

Kyle Jones, a 2004 graduate with a B.S.PE., is an F/A-18 instructor pilot with VFA-106 for the U.S. Navy and lives in Virginia Beach, Va.

W. Shane Walker, a 2004 graduate with a B.S.C.E., was awarded the Young Civil Engineer of the Year Award by the El Paso Branch of the American Society of Civil Engineers (ASCE). He is an assistant professor of civil engineering at The University of Texas at El Paso, where he teaches and researches water treatment and desalination.

2005

Jonathan Blanford, a 2005 graduate with a B.S.M.E., is a product design engineer for subsea systems and a campus recruiting manager for Texas Tech students. He works for Cameron and lives in Houston, Texas.

Justin Swaim, a 2005 graduate with a B.S.C.E.T., has been promoted to project manager for Cadence McShane Construction and lives in Prosper, Texas.

2007

Deepankar Vaidya, a 2007 graduate with a M.S.C.E., works for Gannett Fleming and lives in Houston, Texas.

Caleb Peterson, a 2007 graduate with a B.S.E.E./C.S., works for BNSF Railway and lives in Fort Worth, Texas.

2008

Jeremiah Sturgeon, a 2008 graduate with a B.S.M.E., is a risk engineer for Occidental Petroleum and lives in Katy, Texas.

Adinath Godse, a 2008 graduate with a M.S.C.E., works for Systra MVA Consulting India Pvt. Ltd. and lives in Belapur, India.

Rowdy Stilwell, a 2008 graduate with a B.S.PE., recently accepted a new position as operations engineer for Reliance Energy Inc. and lives in Midland, Texas.

2009

Sukanta Ganguly, a 2009 graduate with a Ph.D. M.E., is CTO for TakingPoint.com and lives in San Jose, Calif.

Angel Villalobos, a 2009 graduate with a B.S.E.E.T., is director of biomedical engineering for Reeves County Hospital and lives in Pecos, Texas.

Robert Nixon, a 2009 graduate with a B.S.PE., is a petroleum engineer and energy loss adjuster for York Risk Services (BCJohnson Associates) and lives in Richmond, Texas.

2010

Kartik Venkataraman, a 2010 graduate with a B.S.C.E., is an assistant professor of engineering and physics for Tarleton State University and lives in Stephenville, Texas.

2011

Iroj Ghimire, a 2011 graduate with a B.S.PE., works for Peak Completions Technologies and lives in Odessa, Texas.

Jacob Floyd, a 2011 graduate with a B.S.C.E., works for AECOM and lives in Houston, Texas.

2012


Beverly Wertz, a 2012 graduate with a B.S.C.S., is an embedded software engineer for Texas Instruments and lives in Mill Creek, Wash.

Luke Williams, a 2012 graduate with a B.S.C.E., works for Jones & Carter, Inc. and lives in Houston, Texas.

Harpal Singh, a 2012 graduate with a B.S.I.E., works for Halliburton and lives in Alice, Texas.

Joshua Willson, a 2012 graduate with a B.S.Ch.E., is an EIT certified process engineer for ASARCO and lives in Amarillo, Texas.

William Luper, a 2012 graduate with a B.S.C.E., is pursuing a master's degree in structural engineering from Purdue University and lives in West Lafayette, Ind.

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In October, 23 high school students from the Houston area who were interested in engineering at Texas Tech travelled to Lubbock to visit the campus and attend the Homecoming football game. The trip was sponsored by the ASME-International Petroleum Technology Institute in Houston.

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