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INSIDE THIS EDITION



3 Student Research
Driverless cars and pathogen detection



7 Summer Camp Reboot
Major-specific camps a big hit with students



9 Homecoming 2013
Eggs are fresh but the breakfast is 50 years old



18 Alumni
Where are they and what are they doing?

azengineering



SmithGroup/JJR

College Transformation—Architectural drawings of the new Engineering Innovation Building, the groundbreaking for which is slated for mid-2014. These views are the east-facing side of the building, which will be situated east of the aerospace and mechanical engineering building.

Engineering Excellence from the Ground up

Whichever way you look – to the past or the future – it is clear that deep, transformative change for the better is afoot in the College of Engineering.



Special commentary by Jeff Goldberg, Dean of the UA College of Engineering

When the next edition of this magazine is published, in May 2014, we will be well on our way to breaking ground

for the new Engineering Innovation Building, or EIB, which will transform engineering

teaching and research at the UA. Before we look ahead to our bright future, however, let's reflect on our equally bright recent past.

In August we welcomed more than 700 outstanding new freshmen and transfer undergraduate students. In September our research teams were awarded more than \$20 million in grants and contracts. In October we

continued on page 2

Engineering Excellence from the Ground up

continued from page 1

calculated that our first-year retention rate was more than 89 percent, our first year GPA was better than 3.0, and less than 10 percent of our freshmen were on academic probation at the end of their first year, versus 25 percent 10 years ago. Most recently, in November, we welcomed more than 500 guests to the 50th Engineers Breakfast, where we honored distinguished alumni and announced a \$3 million gift from the Thomas R. Brown Family Foundations towards the EIB. It has been a tremendous fall semester for the College!

The EIB planning and design is progressing well. We have a great team that includes students, staff, and faculty from the College, architects and engineers from SmithGroup/JJR and Diebold, and engineers and construction experts from Sundt Construction. The College website has many more architectural drawings than we can show here, plus a great video that describes the purpose and benefits of the project and gives you a feel for the type of facility we are building.



EIB: Aerial view looking northeast

The future is all about interdisciplinary team-based education, research and innovation, and the EIB will put us in a strong position to compete successfully for projects and students. The EIB student area has great work and social spaces that will house our club programs and all of our competition teams.

The UA is moving forward on the “Never Settle” strategic plan. Much of the plan is similar to the College’s strategic plan to focus on building student support and quality, building our faculty and staff team to compete for research and top students, and building our personnel and facilities infrastructures to support our students and faculty. I am extremely pleased with the position of the College relative to UA research and student strategies, and it is clear that we are a valued partner on the campus and in the community. We invite you to visit the campus and to share the excitement about our bright future.

Bear Down!

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EIB: Student Innovation Center

Learn more about the Engineering Innovation Building at enr.arizona.edu/engineering-innovation-building

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Many stories in this print edition have been edited for length, and it is not feasible to include related multimedia material such as photo galleries, video and audio files, and links to related websites. Please visit Arizona Engineer online at news.engr.arizona.edu for full stories, news archive, people profiles, and photo and video galleries.

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UA College of Engineering/Pete Brown

Wild CAT Vehicle Operators—Joanna De Los Santos, left, from New York Institute of Technology, and Duc Lam, from the University of Utah, track the driverless CAT vehicle's progress around the ECE parking lot while at the NSF-funded REU summer program.

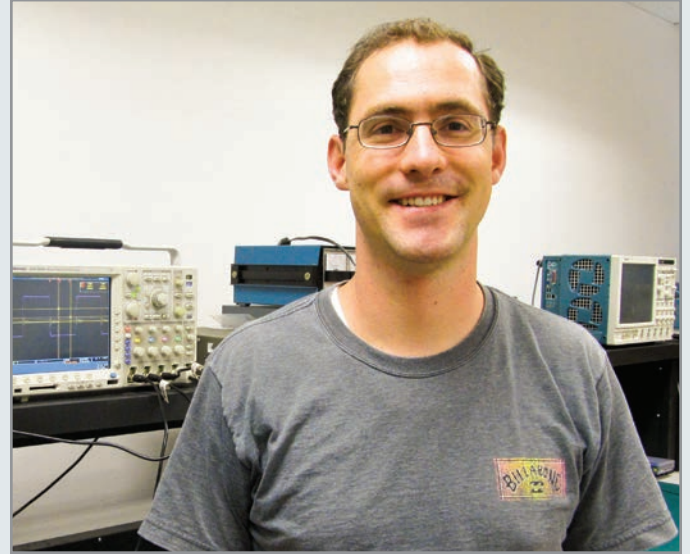
UA Hosts Undergraduate Program on Cognitive Autonomous Vehicles

Google's experimental driverless cars already are zipping around California's Silicon Valley. Automakers like Audi, Toyota, Mercedes-Benz, Volvo and BMW are debuting prototypes of self-driving cars. And undergraduates from across the country came to UA this summer to do their part to make autonomous vehicles safe and reliable.

Ten students from Alabama, Ohio, Utah, New York, Arizona, Massachusetts, West Virginia, Virginia and even as far away as Puerto Rico took part in a 10-week College of Engineering summer program focused on advancing the UA's Cognitive and Autonomous Test vehicle, or CAT vehicle.

The program, Research Experiences for Undergraduates, was funded by the National Science Foundation and provided opportunities for undergraduates to work with faculty mentors and graduate students at universities throughout the United States. REU programs, which are geared largely toward students who otherwise might not have opportunities to do research, are among the most prestigious summer programs for undergraduates.

"The goal of the REU program is to broaden the participation and research much further than it traditionally has been," said electrical and computer engineering assistant professor Jonathan Sprinkle, a recent NSF Career Award winner who led the 2013 UA REU program. "When the students leave here, they'll know what research is, and they'll know how interested they are in doing research. It's an exploration."



Kayla Samoy

Determined Scholar—Graduate student Jerrie Fairbanks, here shown in his lab in ECE, made numerous unsuccessful applications for ARCS scholarship funding before finally getting the award in 2013.

Grad Student Gets Scholarship for Fluorescence Research

Jerrie Fairbanks didn't let rejection stop him. Fairbanks, a fifth-year electrical and computer engineering graduate student, applied for the Achievement Rewards for College Scientists program in previous years but never received it.

This year, Fairbanks was one of the 16 UA graduate students to be named an ARCS scholar. Scholars were selected from the colleges of science, engineering, optical sciences and medicine; he was the only one from the College of Engineering.

Each ARCS scholar receives \$7,000 annually for up to three years, though they must reapply every year. The Graduate College awarded Fairbanks \$2,000 in addition to the ARCS scholarship. "I couldn't believe it," Fairbanks said of his surprise when he received the award.

Fairbanks is doing research in fluorescence spectroscopy, and was inspired to work in this area by his thesis advisor, Linda Powers, Thomas R. Brown Distinguished Chair in Bioengineering and electrical and computer engineering professor. Fairbanks designs and builds fluorescence spectroscopy instrumentation, including that used by Powers in her research and defense contracts (see page 8).

"I'm an engineer at heart; I like to build stuff," said Fairbanks. "Once you've got a working system, there's a large sense of accomplishment, especially if it's going to be valuable in saving lives and disease detection."

ASME Names Vande Geest Best Young Researcher in Bioengineering

The American Society of Mechanical Engineering recently honored the UA College of Engineering's Jonathan Vande Geest with its Y.C. Fung Young Investigator Award, which recognizes significant research in bioengineering. Vande Geest received the award in June at the 2013 ASME Bioengineering Conference in Sunriver, Ore.

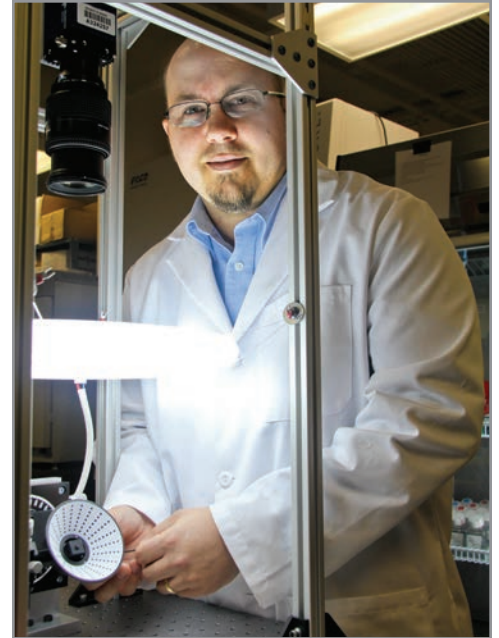
Vande Geest holds appointments in biomedical engineering, aerospace and mechanical engineering, the BIO5 Institute, and the applied mathematics program. He credits a collaborative multidisciplinary environment – which draws together engineering, biology and medicine – with his success in the field.

"I have had the opportunity to work with incredibly intelligent faculty and students. More so than anything else,

that is why I have been successful," he said. "We tackle broad health-care problems, look at the challenges from many viewpoints, and devise solutions that significantly affect people's lives."

Vande Geest heads the College of Engineering's Soft Tissue Biomechanics Laboratory, where researchers study the structure-function relationship in soft tissues and use that knowledge to help develop new technologies for the treatment of disease.

Among the projects in Vande Geest's lab are development of a tissue-engineered vascular graft for coronary artery bypass surgery, and a patient-specific device to treat abdominal aortic aneurysms. "My dad was a plumber, and my grandpa was a plumber," Vande Geest said. "I think subconsciously I decided I was



Jonathan Vande Geest

going to study the aorta because it is the largest pipe in our body." Vande Geest is also working on research projects involving the diagnosis of unilateral vocal fold paralysis and glaucoma.

Sanfelice Wins Global Award for Control Systems Modeling

Ricardo Sanfelice recently won an award that puts him among the best in the world when it comes to the highly analytical and mathematical design of control systems, which bring together disparate aspects of a system and make them work together.

Sanfelice, an assistant professor in the aerospace and mechanical engineering department, received the Society for Industrial and Applied Mathematics award for his contributions to the design of hybrid dynamical feedback controllers. His research is centered on smart grids and renewable energy, and unmanned aircraft and vehicles.

The SIAM Activity Group on Control and Systems Theory prize is awarded internationally every two years to a



Ricardo Sanfelice

junior researcher. Sanfelice received the award in July 2013 in San Diego during the biennial SIAM Conference on Control Theory. "I am very honored to be recognized by my peers with this award," he said.

Hybrid feedback controllers, grounded in mathematical theory and modeling, help predict what hybrid systems – for example, temperature control, car cruise control, aircraft navigation, communication systems, and flow levels in water pumps – will do in

various circumstances, then determine corrections for the influences. "Without feedback control many of the systems we have these days would be extremely difficult to operate," said Sanfelice. "Feedback control is everywhere."

Sanfelice and his research team are modeling ways to improve resiliency to changes in energy sources, conversion, load, and usage, thereby increasing reliability of electric power supply. Similarly, they are establishing ways to detect and avoid threats of hacking in unmanned aerial vehicles.

"I was always intrigued by automation and excited about getting the systems to do what I wanted them to do rather than what they wanted to do," said Sanfelice, who coauthored the 2012 book, *Hybrid Dynamical Systems: Modeling, Stability and Robustness*.

ASEE Names Eduardo Sáez ‘Outstanding’

University of Arizona Distinguished Professor Eduardo Sáez’s former students – engineers, doctors, environmentalists, and oceanographers – are testament to his exceptional teaching career, which recently earned him the Pacific Southwest American Society for Engineering Education’s 2013 outstanding teaching award.



Eduardo Sáez

In his 15 years at the UA, Sáez has inspired hundreds of students to pursue degrees and careers in chemical and environmental engineering. They report back year after year that Sáez was one of the best professors they ever had and that they use what he taught them in their work every day.

The basis of Sáez’s teaching philosophy is synthesis – connecting chemical and environmental engineering fundamentals to everyday experiences within the realm of students’ understanding, like using basic cooking concepts to help students understand heat transfer mechanisms. “I lay out the basics and show students how they can get to engineering applications using those fundamentals,” said Sáez.

UA Recognizes Young-Jun Son for Mentoring

Young-Jun Son, a professor in the systems and industrial engineering department, received the 2013 award for Outstanding Mentor of Graduate/Professional Students, from the UA Graduate and Professional Student Council.



Young-Jun Son

One of the things that draws students to Son is his wide range of research projects, which are funded by the National Science Foundation, Air Force Office of Scientific Research, National Institute of Standards and Technology, U.S. Department of Transportation, U.S. Department of Agriculture, Boeing, and Science Foundation of Arizona. His research focuses on the development of advanced computer simulation technologies for large-scale systems, such as manufacturing enterprises, transportation, distributed energy networks, mining logistics, social networks, and unmanned vehicle coordination.

“These research accomplishments would not have been possible without significant contributions and all the hard work of my former and current graduate students,” said Son. “All of my group members understand how to work as a team and are willing to help each other, creating a truly healthy academic environment.”



Networkers—From left: SIE PhD student Matt Dabkowski, SIE master’s student Ben Reidy, and SIE professor Ricardo Valerdi.

Student Researchers Win International Best Paper Honors

Three UA Engineering students won the best student paper award at the 11th Annual Conference on Systems Engineering Research held at Georgia Tech in Atlanta. The award is given for the paper that makes the most outstanding research contribution to the field of systems engineering.

Systems and industrial engineering students Matthew Dabkowski, Jose Estrada and Ben Reidy won the award for their paper, Network Science Enabled Cost Estimation in Support of Model-Based Systems Engineering. This is a research area of Ricardo Valerdi, associate professor in the department of systems and industrial engineering, who nominated the students for the award.

The award-winning paper proposed a method to quantify how changes in system design affect costs, which requires a deep understanding of both systems engineering and cost modeling. As systems become larger, more expensive, and more complex, it becomes increasingly difficult to calculate how design changes affect the overall cost of the project, and engineers need ever more sophisticated tools to track system costs, schedules and performance.

This is where Valerdi’s research, and the students’ innovative paper, comes in. “We are applying social network analysis techniques to the design process,” Valerdi said. “It’s a beautiful merger of social science and engineering.” Valerdi also noted: “This research project also demonstrates how students at all levels – bachelor’s, master’s and doctoral – can contribute to a research project to produce world-class research results.”

New Research Center Will Shape Future of Wireless

The new multi-university Broadband Wireless Access & Applications Center, or BWAC, is forging the way for next-generation wireless. The center is backed by \$1.6 million in National Science Foundation funding



Tamal Bose

over the next five years and industry support of about \$4 million.

“NSF support is a great boost and gives us a

green light to many 5G-level projects under consideration within this multi-university, multi-industry consortium,” said Tamal Bose, head of the electrical and computer engineering department and the director of BWAC.

As an NSF Industry & University Cooperative Research Center, BWAC is dedicated to partnering with industry and government in development of long-term solutions to far-reaching technological problems. In addition to the UA, BWAC’s founding members include Auburn University, Virginia Tech, the University of Virginia, Notre Dame, and about 20 industry partners.

“With several billion mobile users around the world expected to tap into unprecedented broadband speeds and increasingly massive bandwidth by the end of 2013, managing the ensuing data onslaught and securing the airwaves will be chief among the challenges BWAC tackles,” said Bose.

Energy Department Awards UA-Led Team \$8M to Research Algae Biofuel

Can algae farming really supplant oil and gas drilling over time? That’s the big question Kimberly Ogden, chemical and environmental engineering professor, has been asking of simple algae, the green stuff with the right stuff to potentially fuel the future.



Kim Ogden

New Mexico State University and Texas A&M AgriLife are optimizing algal growth systems to yield more biomass and lipids, developing methods of

recycling and reusing water, and experimenting with methodologies for growing various algae strains.

The UA is the lead institution for the Regional Algal Feedstock Testbed, or RAFT, partnership, which was recently awarded \$8 million over four years by the Department of Energy to research how algae can be grown year-round outdoors in open ponds in different climates. In addition, other researchers and companies will collaborate with the research team to develop harvesting and conversion processes to produce biofuels and bioproducts.

“Our job is to figure out how we take algae and turn it into biofuels, bioproducts and feed in an economically sustainable way. We want to make a biofuels industry in America,” said Ogden, UA’s primary investigator on the RAFT project.

Ogden and RAFT researchers from Pacific Northwest National Laboratory,

The majority of the research will be done using UA’s Algal Raceway Integrated Design, or ARID, system, which was designed and patented by Ogden’s research partners Randy Ryan, of the Arizona Agricultural Experiment Station, part of the College of Agriculture and Life Sciences; Pete Waller and Murat Kacira, of the department of agricultural and biosystems engineering; and Perry Li, of the department of mechanical and aerospace engineering. The research team also includes Judy Brown, a professor in the UA School of Plant Sciences.

UA to Lead \$7.5M Air Force Peridynamics Project

UA aerospace and mechanical engineering professor

Erdogan Madenci, working with assistant professor of materials science and engineering Robert Erdmann, will head a new \$7.5 million multidisciplinary university research initiative to predict damage and failure of materials used in applications ranging from microchips to spaceships.



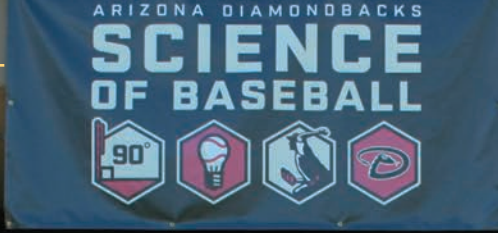
Erdogan Madenci



Robert Erdmann

The project will be funded by the Air Force Office of Scientific Research and based on the emerging theory of peridynamics, which involves modeling of material fracture

and failure. “Peridynamic theory enables engineers to better understand how materials and structures fail,” Madenci said. “Existing computational methods are inadequate because the underlying mathematics breaks down when defects or flaws emerge in materials.”



D-backs Put Their Stamp on UA Science of Baseball Camp



Arizona Diamondbacks

Ricardo Valerdi, associate professor in systems and industrial engineering, is already seeing his Science of Baseball program hit the big leagues. Thanks to a partnership with the Arizona Diamondbacks, Valerdi and his team of student and alumni volunteers have taken the show on the road. The middle school program, which Valerdi started in

2012, uses America's favorite pastime to encourage kids to follow education and careers in the STEM subjects – science, technology, engineering and math. The program has grown from one school in Tucson, Ariz., to dozens of schools throughout the state, and Valerdi is in talks with other Major League Baseball teams to implement similar programs.

“The motivation for the Diamondbacks Science of Baseball program is to promote real-world applications of numeracy – the ability to reason and apply simple numerical concepts,” Valerdi said. “Baseball provides a rich laboratory to apply fundamental math skills like measurement, geometry, probability and statistics.”

Mining Starts New Major-Specific Series of Engineering Camps

Future engineers from across the country headed home from the 2013 UA mining engineering camp in late June with big ideas about the world of mining and one step closer to pursuing careers in the industry, a field in which the current population of engineers is aging toward retirement.

Eighteen juniors and seniors, eight young women and 10 young men, spent a week above and below ground learning about mineral exploration and processing, mine operations and the sustainability of mining, safety procedures and blasting. Using actual mine data, teams also competed in a Design a Mine contest at the Sierrita copper mine, about 20 miles southwest of Tucson. The winners got to keep their hard hats.

The mining engineering camp was the first in a series of four weeklong, major-specific engineering camps added this year to the College of Engineering's already robust summer camp lineup. Three other major-focused camps were held



UA College of Engineering/Pete Brown

Mine of Information—Students, parents, and counselors join Freeport-McMoRan engineers for an insider's look at the Sierrita mine.

throughout July in addition to the regular Summer Engineering Academy interdisciplinary sessions. The three other camps covered the following majors: (1) biomedical engineering, chemical engineering and materials science and engineering; (2) electrical and computer engineering, systems and industrial engineering, and optical sciences and engineering; (3) civil engineering and aerospace and mechanical engineering.

DOD Contracts Go to Powers' Firm

Professor Linda Powers is developing fast, disposable blood tests for pathogens that cause diseases such as HIV and hepatitis. The novel technology for rapid pathogen detection in blood relies on the capture of the pathogens with specially designed binding mechanisms and the intrinsic fluorescent signatures of the live captured pathogens.

"This will save time, work and expense when detection of blood-borne disease organisms is needed and other facilities are not available," said Powers. "It quickly tells you the information you must know."

Powers' company, MicroBioSystems of Arizona, was recently awarded two Department of Defense contracts – one for developing a disposable blood test to detect any pathogens present; the other to distinguish the specific pathogens, including viruses that causes HIV and some forms of hepatitis, prions that can lead to mad cow disease, and malaria-inducing parasites.

The military has plans to use the technology in the field: for example, in remote locations to test for infectious agents in blood to be used for transfusions. However, disposable blood tests for diseases such as HIV and hepatitis could also save countless lives in developing nations and even in remote areas of the United States.



Linda Powers

Hi-Tech Detective—Linda Powers, shown here in the Arctic with one of her instruments, is taking her portable technology to a new level: diagnosing blood-borne disease.

Powers had the technology but credits College Dean Jeff Goldberg with making the DOD contracts a reality and enabling her team to expand on their work.

"He really made this happen," said Powers. "What an incredible extension of a hand of friendship to small businesses in the Valley. He is very supportive of entrepreneurs and farsighted enough to realize the opportunity with a new, small company in southern Arizona."

App Unblocks Roads and Rewards Drivers

Civil engineering associate professor Yi-Chang Chiu wants us to rethink how we are all part of the urban traffic congestion problem, and how we could be part of the solution.

The concept is simple: If you have a flexible schedule for your next trip, you could choose to leave a bit earlier, or later, or take a less congested route, and get rewarded for doing so. Those who don't have a flexible schedule will also benefit from you removing yourself from rush hour traffic.

This concept is now coming to life through the mobile app Smartrek, which works differently than other traffic navigation apps by actually managing traffic demand by influencing driver



Yi-Chang Chiu

choice to spread demand over a longer period of time. Chiu said the secret is in actively managing traffic demand and diverting enough drivers away from congested routes during peak hours to make the entire system work smoother and more efficiently.

The app uses advanced traffic prediction and vehicle routing technology, combined with user rewards, to give drivers the best suggestions for avoiding

traffic while helping reduce traffic congestion. "This is more than about being the best navigation app, it's about revolutionizing how drivers and transportation agencies rethink traffic congestion and work together to solve the rising traffic congestion problem right now, and for the future," Chiu said.

Smartrek has secured critical key funding for its development, launch and operation, and is scheduled to be up and running in five cities by the end of 2013 and in 20 more cities in 2014. Chiu said the Smartrek mobile app is a great example of University officials getting behind a University-developed technology. As soon as a provisional patent was filed in early 2011, the UA Office of Technology Transfer and ATLAS center offered seed money to swiftly move Chiu's invention from idea to production.

50th Annual Engineers Breakfast Recognizes Distinguished Alumni

With a special nod to the class of 1963, the College of Engineering welcomed guests and saluted distinguished alumni at its 2013 Annual Engineers Breakfast on November 8.

Greg Boyce, Peabody Energy chairman and CEO, told more than 500 alumni, faculty, and students at the breakfast that when he arrived at the University in 1972 to pursue a BS in mining engineering he had no way of knowing how the College of Engineering would shape his life, including a career spanning four decades that sent him around the world and back to the UA for a 2013 Alumnus of the Year Award.

"The world-class education I received at the University laid the foundations for countless professional and personal milestones," said Boyce, who serves on the UA Mining and Geological Engineering Advisory Council.

Other honorees included Intel Corp. operations engineer Wendi Fusler Lane, a 2001 industrial engineering graduate and founding member of the Engineering Ambassadors, who won the Bear Down Award, and Jack McDuff, a 1951 metallurgical engineering



Alumnus of the year Greg Boyce

graduate, who won the Sidney S. Woods Alumni Service Award. Jerry Hunter, an industrial engineering alumnus (BS 1988, MS 1990) and head of the infrastructure team at Amazon.com, delivered the keynote address.

During the breakfast, College of Engineering Dean Jeff Goldberg thanked the Thomas R. Brown Family Foundations for a \$3 million donation to help seed the new Engineering Innovation Building, groundbreaking for which is slated for mid-2014.

During the Homecoming festivities College of Engineering faculty took part in a two presentations as part of the UA Alumni Association's Collegiate and Campus Showcase.

In her talk on critical mineral extraction, Mary Poulton, head of mining and geological engineering and director of the J. David Lowell Institute for Mineral Resources, described how we are nearing

a shortfall of rare earth minerals essential for our laptops, cell phones, wind turbines, and countless other technologies. The shortfall, she said, arises in part from our reliance on uncertain imports from other countries because we have



College Dean Jeff Goldberg and Bear Down Award recipient Wendi Fusler Lane



Sidney S. Woods Alumni Service Award winner Jack McDuff



Keynote speaker Jerry Hunter

not developed our own resources due to social, political and economic roadblocks.

The showcase also featured the 2012 Arizona Public Media video, "Seeking Water from the Sun," which chronicles the plight of the Navajo Nation to get access to fresh water.

Bob Arnold, a chemical and environmental engineering professor, is working on a solar-powered desalination plant to alleviate the problem, and sat on a panel that examined progress to date.



Class of 1963, from left: Henri Guyader, Ronald Weiss, Wayne Dawson.

2012–2013 Donor Honor Roll

Thank You!

These pages list the companies, organizations and individuals who have contributed to the College of Engineering during fiscal year July 1, 2012 to June 30, 2013.

Their support is vital in providing scholarships, funding programs and supporting research. Without this help, some students would not be able to complete their education.

Many other students would not have access to resources that give UA Engineering a margin of excellence for educating tomorrow's engineering leaders.

We want to take this opportunity to say "thank you" from the students and faculty who have benefited so much from this generous support.

We have made every effort to list all those who contributed to the College and sincerely apologize if we have missed anyone.

If you donated to the College of Engineering during 2012-2013 and are not on this list, please let us know, and we will include your name in the next issue of *Arizona Engineer*.

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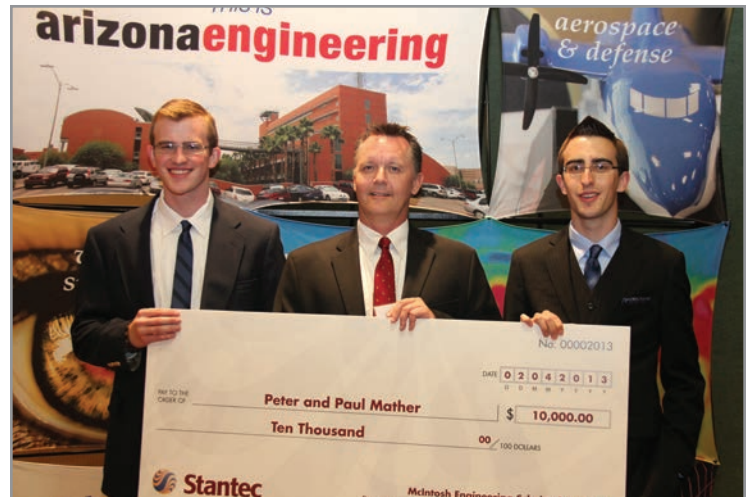
*Qualifies for the Old Main Society, which represents some of the UA's most generous and valued supporters, all of whom have made a commitment to the continued success of the College of Engineering through a charitable estate gift.

Brothers Share \$10K Scholarship

Mining engineering brothers Peter and Paul Mather won the 2013 \$10,000 McIntosh Engineering Scholarship in recognition of their passion for underground mining and exceptional scholastic potential. The scholarship was established by McIntosh Engineering, which was acquired in 2008 by Stantec.

“We feel Peter and Paul Mather hold great promise in the mining engineering field,” said Sandy Watson, Stantec US and International Mining vice president, at the presentation of the award, which was held during the annual College of Engineering scholarship reception.

“There is no one else I would rather split the scholarship with, and no one who has worked so hard to get it,” said Peter Mather, the older of the brothers by 16 months. “This scholarship will go a long way toward helping us both accomplish our goals.”



UA College of Engineering/Pete Brown

Fraternal Funding—Paul Mather, left, and Peter Mather, right, receive the McIntosh Engineering Scholarship from Sandy Watson, Stantec US and International Mining vice president.

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continued on page 12

Turning Uncertainty into Success

Leah Herlihy could have been a model. At 17, ink barely dry on her high school diploma, she went to Paris, France, to take part in modeling tryouts. The very next day she was offered a one-way ticket to Milan to begin her modeling career.

It sounds like a dream come true, but Herlihy was torn. She had been accepted by the UA College of Engineering and orientation was just a week away. "I think you all know what decision I made," she said to the audience at a 2013 UA Engineering scholarship reception. "I made a promise to myself that day: You will graduate in four years with an engineering degree. You will change the world. And most importantly, you will pay mom and dad back for this trip."

Herlihy was addressing the audience at the 2013 UA College of Engineering scholarship reception held April 2 at the Tucson Marriott University Park. The annual reception is an opportunity for students and the College to thank donors, and to get scholarship donors together with the students who have benefited in so many different ways from their generosity.

Herlihy was born and raised in Tucson and went to Sahuaro High School, and she always knew she wanted to be a Wildcat. But money was tight at home. Neither of her parents went to college and her dad was unemployed when she started at UA. Even when her father did find a job, any spare money went to paying down debts.



Leah Herlihy

"This is where my donors came in to save the day," she said. "The scholarships I have received through the College have helped me in tremendous ways, and I am forever appreciative of my donors. You were the answer I needed in a rough time."

Herlihy is now a senior, majoring in materials science and engineering with

2012–2013 Donor Honor Roll

continued from page 11

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a minor in mathematics. She has had multiple jobs on campus, including being a math tutor for UA athletes and a student coordinator for Cubs to Wildcats, which encourages K-8 students to go to college. She has been involved in several clubs and societies and is an Engineering Ambassador. She has also done undergraduate research with Erica Corral in the materials science and engineering department.

She recently completed an internship at Honeywell Aerospace and hopes to join the company full-time when she graduates. "In the future," she told her benefactors and fellow students, "I would like to get a master's degree in engineering management from none other than the U of A."

Turning uncertainty into success is not just Herlihy's story. The UA College of Engineering awards about \$800,000

every year in private scholarships to approximately 350 students.

Another scholarship recipient, math and mechanical engineering double major Ina Kundu, told the audience how a scholarship frees students from the shackles of financial stress and allows them to develop fully. "I have loved almost every moment of my college days," she said. "Partly because I could take part in numerous activities without ever worrying about the cost of education."

Kundu said that community service and campus activities enriched her college experience. She was president of Tau Beta Pi, the engineering honor society, and president of the UA student chapter of ASME, the American Society of Mechanical Engineers. "While these are enjoyable activities," she said, "they do not pay for books or lab fees."



Ina Kundu

Kundu recently began her PhD at MIT. "I will continue my quest to help society by specializing in biomechanics," she said. "My fellow classmates will follow suit as they join graduate programs or get jobs or conduct research in pursuit of bettering society. All these opportunities remain possible by your generous scholarships."

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John Rodgers

University of Arizona Engineering alumnus John Rodgers recently established a perpetual scholarship in honor of Tom Morris, former head of the UA department of mining and metallurgy.

Rodgers graduated from UA in 1972 with a bachelor's in metallurgical engineering, and in 1974 with a master's in the same.

Rodgers describes his former professor and department head as "one of the greatest gentlemen I've ever met." Tom Morris died in 1994 at age 78, and the metallurgical engineering major no longer exists, but both made an indelible impression on Rodgers as a Prescott High School senior in 1967.

Rodgers said that in high school he was uncertain about his career direction but had an interest in metallurgy, so he visited Morris on senior day in the spring of 1967. "He sat me down and explained all the ways he could help me financially through the course of my undergraduate education," Rodgers said. "Tom cared a lot about his students."

"I had no money, and neither did my parents. I survived college on scholarships and summer work in mines that Tom helped me secure," Rodgers said. "Regardless of your background or where you came from, Tom was a very caring department head and teacher, and he did a lot for me and for many others. I'm establishing the scholarship to pass on the opportunity he gave me."

"We need to help young people stay in school and graduate without overly burdensome debt."

After graduating from Columbia University, Morris worked in mining and served in the Navy as an executive lieutenant first class from 1944 to 1946. He then taught at Missouri School of Mines and got his PhD in 1950, and in 1959 he was invited to become head of the department of mining and metallurgy at UA, where he stayed until his retirement in 1981.

Over the years, metallurgical engineering has morphed into materials science and engineering, or MSE, and

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Agnes (Cordis)
Kanal
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1955

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1941

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Donald Johnson
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John Marietti
Gilbert Saltzman
Robert Sigfridson
Tim Tomko
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1961

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Richard Carr
James Cashin
Edward Conway
John Edwards

Henry Frauenfelder
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James Ramos
John Scofield
Joseph Spittler
Douglas Sticht
Ronald Thompson
Harvey Voss

1968

Russell Alley

Craig Baldon
James Bly
Edward Bower
Franklin Broyles
Karen (Spaniol) Campbell
Eugene Cliff
Russell Davis
Newton Don
Gary Frere
Elmer Grubbs
Ernest Honig
J. Mercer Johnson
Michael Kleinrock
Paul Larmour
David Mooberry
Chimanbhai Patel
Jesse Saar
George Spindle
Charles Waitman
Gary Wonacott

1969

Richard Anderson
John Belt
John Bernal
Sandra Bidwell
Daniel Chilton
William Clarke
Paul Curto
James Erwin
Ronald Frobel
George Frondorf
Barbara (Norman) Longley-Cook
Alan Marshak
James Miletich
Jack Myers
Gregory Rasmussen

Edward Rovey
Roger Schoenherr
Paul Smith
Thomas Strong
Kristin (Larson) Teran
Humberto Teran
John Verdugo
Zavis Zavodni

1970

Scott Clemans
Richard Crowell
Reay Dick
John Flores
Jerry Gay
Lee Knuppel
John Macek
John Ward

1971

Raymond Allis
Stanley Beaver
Bruce Boyum
Zygmunt Cielak
Michael Cise
Eric Goldin
Gary Harper
John Johnson
William Johnson
Gregory Lorton
Michael McAnnis
Michael McCabe
James McGrath
William Mensch
Donald Newman
Mark Oksenhendler
P. Roger Pankey
Gale Perry
Paul Rihs

Rodgers has set up the Thomas M. Morris Memorial Scholarship to benefit underclassmen in the UA College of Engineering's MSE department.

Rodgers is president of Acoustic Emission Consulting Inc., based in Sacramento, Calif. He was introduced to acoustic emission while serving in the Air Force from 1974 to 1979, and refined his expertise working for Acoustic Emission Technology Corp. from 1979 to 1991. Rodgers said that when he started his own company in 1991, specializing in using acoustic emission to detect cracks and defects in power plant pipes, he did so "with a great deal of trepidation." He was 43 at the time with no job and a pregnant wife. "It's never too late to become an entrepreneur," he said.

After building up his business for 22 years, Rodgers said he has reached a

point of financial solvency that enables him to give back to the University in his professor's name. He also wants to convey a sense of obligation to current UA Engineering students. "You're the best and the brightest, and you've got people willing to help you get through life and your education," he said to the assembled students.

Rodgers hopes his scholarship will inspire others and is seeking additional donors to the Thomas M. Morris Memorial Scholarship. "As I near the end of my working career, thoughts about the plight of current and future students play on my conscience," he said.

"The need for skilled engineers in materials science and engineering is growing, and we need to help young people stay in school and graduate without overly burdensome debt."



UA College of Engineering/Pete Brown

Passing on Opportunity—John Rodgers addresses students at a College scholarship reception. "I got to the point where I can give back to the University, and I'd like to convey that sense of obligation to all of you," he told his audience.

Randolph Rogers
Nick Schott
Larry Sternaman
C. Gregory Strickler

1972

Chris Angleman
David Crawford
Mark Daniels
Robert Deppe
Daniel Donegan
Frederick Doten
Joseph Gates
Charles Lavarini
Honho Liu
Clifford Mansfield
Frank Martinjak
Robert Mitchell
David Neugate
Thomas O'Neil
Kenneth Renard
John Rodgers
William Sheldon
Steven Spease
Stephen Thomas
Belle Tom
Ronald Watts
John Whalen
Thomas Wozniak
Barry Zilin

1973

Barry Abbott
David Brown
Michael Butler
Salvatore Caccavale
John da Cunha
Janet Fertig
Gilbert Gonzales

Timothy Kasse
John Ketterl
Wayne King
Thomas McGovern
Bruce Moreton
Sean Murphy
J. Mark Richardson
Robert Simpson
Joseph Tylutki
Herbert Welhener
Farrell Wymore
Jonas Zukas

1974

Michael Bradley
William Champion
Arthur Charrow
David Clark
Robert Feugate
Donald Gin
Darrel Harriman
Michael Henningsen
Donald Koterwas
Tomas Owen
William Rankin
Alex Reynoso
Kenneth Simpson
Teddy Simpson
Robert Sogge
Gene Sonu
James Spinhirne
Anton Veirup
William Ward
Thomas Yang
Ziaullah Yazdani
Benny Young

1975

David Acklam

Michael Bartlett
Chappy Brown
John Derickson
Kenneth Dobbs
James Ekmann
Jerome Glass
Ronald Gorr
Glenn Harbour
Kenneth Heames
Theodore Moulin
David Naccarati
Joseph Pranulis
Diane Quinn
Larry Stoehr

1976

Wylie Bearup
Nicolas Cocavessis
Robert Cummings
Bryan Dalton
Steven Davis
Lesley (Coombs)
Gaudielle
Gregory Hill
Gary Lech
Addison Looney
David Marsh
James Nelson
Perry Powell
Lester Snow
David Soukup
John Stutz
Robin West

1977

Robert Best
Fred DePorter
Jeffrey Glover
Robert Green

Charles Henry
Gary Jones
Maura (Phillips)
Mackowski
Michael Mackowski
Michael Mackowski
Daniel McBride
Henry Morgen
William Moya
Espinal
Jeffrey Park
Babajan Sarkis
George Schuler
Gregg St. Clair
William Wilson

1978

Victor Bafaro
Mark Baker
Darlene (Crawford)
Barlow
Kathleen (Johnson)
Borhauer
Peter Brown
Lawrence Bruskin
Michael Bunch
Rodrigo Carneiro
John Dangremond
William Dixon
Barbara (Appelin)
Filas
David Gebauer
John Geyer
Robert Hammerstein
William Hirt
Judith (Botsford)
Hume
James Komadina
Victor Miller
Dennis Neumann

Richard Newell
Mary (Nugent) Obee
Ignacio Orozco-
Martinez
Rudolph Radau
Thomas Mahoney
Robert Roscoe
Robert Rutherford
William Smith
Anthony Verbout

1979

Dennis Angelo
David Clapp
Robert Davis
Peter De Mars
Christian Ellefson
Ali Fermawi
Stanley Harbour
Brian Kelly
Sally (Dunshee)
Kizer
Louis Meschede
Diana (Reckart)
Miles
Nina Ossanna
Larry Owsowitz
Monica (Kilcullen)
Pastor
Steven Regis
Wayne Seames
William Staples
Paul Stauffer
William Taft
Mark Woodson

1980

John Barberii
Michael Barclay
Michael Cease
Mark Chalmers

Liangruey Chang
Kathleen Chavez
Rinaldo DiCenzo
Robert Hamilton
Robert Hollyer
Robert Kondziolka
Dennis McLaughlin
Diane (Kusovska)
Osgood
Willis Sawyer
Robert Schafer
Michael Schurr
Shane Shovestull
Greg Sims
James Willingham

1981

Karl Allmendinger
Barry Brown
Scott Caldwell
Earl Cumming
Renee (Dudro)
Enders
Catherine (Levinson)
Freeman
David Irish
Matthew Mullen
Yong (McHenry)
Murphy
Timothy Nipper
Gonzalo Romero
Andrew Schaffer
Elliot Silverston
Wayne Stensrud
Prior Thwaites
Sarah Wolfe

1982

Marybeth (Manchenton)
Andree

Charles Botsford
Scott Bulau
Seth Chalmers
John Clymer
Richard Daniels
James Davis
Denise Doctor
Lewis Dove
Rand Drake
Martha (Daugherty)
Marek
Lori (Thornton)
Masucci
Donald McGough
Richard Milakovich
Coleman Miller
Carlos Navarrette
Roger Powell
Kyle Price
Manuel Rodriguez
Luis Rodriguez
Henry Seipt
Alan Tinseth
Nicholas Webb

1983

Dorothy Chavez-Dolan
Daniel Chen
Mark Cross
James Davidson
John Davis
Darcy (Wymore)
Dixon
Joseph Drozd
Mark Fleming
Kevin Gardner
Martin Gronberg
Kenneth Head
Robert Hoover

Laura Jacobsen
William Jensen
John Kalivoda
John Linert
James Lonergan
Floyd Marsh
Carolyn (Sutter)
McClure
Theodore Moon
Thomas Moore
Lynette (KenKnight)
Moughton
Charlotte (Gunrud)
Ort
Steven Pageau
Harry Patton
Marla Peterson
Steven Rothstein
Robert Schulte
Steven Short
Robert Stott
Kenneth Stumpe
Randall Thomas
Steven Tomkins
Robert Weyker

1984

Anne (Moses)
Bingham
Jeffrey Bool
Joseph Cannavino
Mark Casolara
Steven Den-Baars
David Dummeyer
Buu Duong
Dwayne Elliott
Irmgard Flaschka
Tony Freiman
Alireza
Gholiekhameh

Christopher Gypton
Raghavan Kalkunte
John LaBorde
Pamela Lemme
Robert Loftus
Anne McBride
Wellington Meier
Mark Phillips
Russell Pittman
Leslie (Arthur)
Porter
Mary (Makaus)
Poulton
Samuel Rhodes
Scott Rudin
Michael Runde
Eduardo Saavedra
Wayne Schwab
David Scott
Stanley Stachowiak
Kevin Talverdian
John Terrell
Ann Wilkey
Mel Wymore
Dave Zaleski
Roderick Zastrow

1985

Muhannad Abdulhamid
Kevin Abreu
Machelle (Foster)
Aseron
Brian Aviles
Laura (Fulton)
Bennett
David Blackburn
Frank Burstrom

continued on page 16

Pete Hushek

“Financial assistance is simply a vehicle to transport dreams to a place of fruition,” said Pete Hushek, president of Phoenix Heat Treating.

Hushek recently established the Charles J. Hushek Scholarship in memory of his father, Charles “Chuck” Hushek, who founded Phoenix Heat Treating in 1963. The younger Hushek’s major – metallurgical engineering – no longer exists at UA, and the endowed scholarship will support undergraduate students in the materials science and engineering department.

Longtime Phoenix resident Pete Hushek was born in Phoenix less than a year after his parents moved from Milwaukee, Wis., and comes from a family that has been in the metals

business for almost a century. His own involvement in the industry goes back nearly 40 years to long before his graduation from the UA.

“My UA education has benefited me greatly,” Hushek said. “On any given day I use the breadth of experience that my education in the classroom established, and which my practical plant floor expanded upon, to help me solve processing problems for a wide range of industrial markets.” These two streams of knowledge – theoretical and practical – work hand in hand, Hushek said, to help him make prudent decisions.

During a two-year hiatus between his sophomore and junior years at UA, Hushek worked on the shop floor at his father’s company, where he saw first-hand the need for theoretical knowledge to supplement his practical

“Financial assistance is simply a vehicle to transport dreams to a place of fruition.”

experience. “Working the floor at PHT enriched my vision of how, where, when and why my studies would be of benefit,” he said.

Hushek said he established the scholarship because his experiences following graduation made him realize that engineering was crucial to society, and that it should have a more prominent position in the economy. “We can’t have full employment in financial services alone,” he noted.

“The economy needs manufacturing,” Hushek said. “If students have a desire

2012–2013 Alumni Donors by Class

continued from page 15

John Coggins	1986	1987	Peggy Christenson	Thomas Long	Wilhoite	Trang Van Camp	Cherie (McKay) Lewis	Alfonso Rodriguez	Kevin Harris
Peter Davidson	Ricardo Arenas	Joseph Alfieri	Chitong Chuang	Praful Madhani	James Wurth	Christopher Whitehead	David Maher	Teng-I Wang	Craig Laux
Kelly Davis	Dale Atkinson	Garcia	Thomas Cole	Mark McKinstry		David Wittwer	Nirav Merchant	Dong Wang	Joaquin Magallanez
Richard Dobes	Brian Benard	Kelly Au	David Cooper	Larry Milner	1991	Todd Zuercher	William Molina	Michael Weinstein	Keshaw Mallick
Kenneth Eme	Amalia (Lopez) Black	Kelly Au	David Dratler	George Richard	Mark Albertson		Christine Peters	Matthew Wilson	Michael Massaro
Gustavo Escobar	Stephen Boerigter	James Cannon	Randall Fink	Thomas Rohrer	Anthony Bowler	1993	Matthew Ploor		Greta Orris
Thomas Fagan	Christine (Barlow) Carbajal	Jaime Carbajal	Truco Fuhst	Kevin Ross	Kirk Damron	Jose Arce	William Rasmussen	1996	Jeffrey Patterson
William Geary	Christine (Barlow) Carbajal	Donohue	John Goedert	Maher Salah	Qiping Dong	Bruce Armitage	Susan Schima	Dawn Collins	Andrea Ursillo
Beth Gottschall	Gustavo Castillo	William Dowling	Randall Harris	Ronald Semel	William Easton	Shayne Aytes	Vicki Seppala	Craig Fischer	
Richard Gray	George Davenport	Prasad Erabelli	Craig Henden	Howard Sobelman	Karen (Robinson) Goodkin	Edward Bukoski	Lisa (Tank) Severnak	Glenn Gannon	1998
Pirooz Hojabri	Roland Downs	Donald Gee	Laura (Schlegel) Kagle	Robert Stone	Brian Hewitt	Grant Cameron	Mark Smiley	Erika Hanson	Janet Brelin-Fornari
Nancy (Hudon) Hudon	William Grizzell	Maribeth (Engelhardt) Greenslade	Rebecca (Shannon) Kirby	Ronald Semel	Kathryn Hughes	Jiurong Cheng	Lee Sousley	Jessica Hogan	Carl Buetter
Rebecca (Oniell) Jackson	David Gubbels	Andrew Harris	Cynthia (Tang) Klingberg	William Vanarsdell	Stavros Kalafatis	Kristen Curry	Richard Te	Caprice Krachmer	Anne Cooper
Scott Johnsen	Robert Haines	Charles Johnson	Susan Knittel	Paul Woolard	Abhijit Kudrimoti	Henry Knoepfle	Joseph Trinh	Sasko Kurciski	Todd Ellermann
Steven Komerska	David Heisley	Mark Kozik	Miguel Lukau		Janet (Loriz) Mayer	Susan (Couillard) Nativi	William Wilkening	Ingrid (Nelson) McNeil	Esteban Flores
Bruce Langone	Matthew Hinkley	Stuart Longgood	Timothy Mann	1990	Susan (Couillard) Nativi	David Paullin	Xingqiang Wu	Wei Yang	Dongshan Guo
Paul Lomayesva	Keith Jackson	Emeline (Germain) Maddern	Anthony Mulligan	Bridget (Dudek) Barr	David Paullin	Susan Sparrold	Henry Knoepfle	Michael Ronayne	Leslie Henson-Grochocki
Kenneth Lyle	John Keffer	Hadi Mohammady	Leslie (Wymore) Owen	Brent Blevins	Dhananjay Mahajan		Lomayesva	Mina (Stafford) Stafford	Rita Martinez
George Maseeh	Kanth Krishnan	David LaRoche	Carol Romero	Thomas Cantrell	Guillermo Orrantia Hernandez		Dhananjay Mahajan	Ernesto Cholo	Travis McCarthy
H. Erik McNair	David LaRoche	Michael Malvick	David Paredes	Lee Cheung	Paul Englehart	1995	Guillermo Orrantia Hernandez	Paul Englehart	Mary Pierce
John Michaud	Michael Malvick	Frank Manning	Charles Parkes	Tracy (Hunter) Cracchiolo	Bruce Rechichar	Gregory Boner	Guillermo Orrantia Hernandez	Otis Gorley	Carter Romero
Jason Nolander	Frank Manning	Donna (Simek) McCarthy	Derek Reaban	Ren Egawa	Ronald Seager	Monica (Chacon) Gamez	Guillermo Orrantia Hernandez	Jason Hinman	Emil Rudolph
Claire (Wheatley) Place	Donna (Simek) McCarthy	Ruth (Pullen) Soklow	Michael Sandford	Lisa Firestone	Jim Su	George Gritt	Guillermo Orrantia Hernandez	James Kasner	Brian Sichter
Robert Prescott	Marc Orman	Antoinette Theriault-Faucette	Eric Stouffer	Jennifer (Kersey) Furrer	Mark Sullivan	Eric Hoyt	Guillermo Orrantia Hernandez	Rockwell King	Jennifer Sinchak
Christine (Coffer) Raasch	Lindsey Philpott	Scott Prost-Domasky	1989	Ilya Glinsky	Francis Taglianetti	Teri (Breault) Kowalski	Guillermo Orrantia Hernandez	Michael Koerner	
David Rhoades	Scott Prost-Domasky	Sandra Reel	Joanna Autino	Cecil Honnas	Kurz	Mark Levine	Guillermo Orrantia Hernandez	Mary (Lynch) Kurz	1997
Allen Sehloff	Sandra Reel	David Robinson	Jianming Chen	Rachel (Jordan) Huppenthal	Thomas Schmitt	Douglas Merrill	Guillermo Orrantia Hernandez	Scott Leska	Shih Chieh Huang
John Sternitzke	David Robinson	William Russum	John Cox	Eric Jackson	Daniel Sherwood	Thomas Schmitt	Guillermo Orrantia Hernandez	Francisco Leyva	Quatfa Chuffe-Moscoso
William Stevens	William Russum	David Stacy	David Crouthamel	Paul John	Todd Smith	Daniel Sherwood	Guillermo Orrantia Hernandez	Keith Nelson	Dov Citron
Janet (Struck) Tvedt	David Stacy	Christopher Warner	Joshua Goldowitz	Thomas McGuire	William Stephens	Todd Smith	Guillermo Orrantia Hernandez	Paul Ocansey	Gregory Ewing
Gordon Zaft	Christopher Warner	Jeffrey Boner	Gerald Jalkanen	Jennifer (Chang) Ng	William Stewart	James Dancho	Guillermo Orrantia Hernandez	Boyd Pendleton	Marianne Fernandez
Gregory Zeihen	Wayne Wisdom	Lizzie Cheung	Imad Karam	Robert Perry	Gregory Strimbu	Gary Degeronimo	Guillermo Orrantia Hernandez	Lance Peterson	Michael Garrabrants
			Jennifer (Kares) Klein	Marie Shepherd	Aamer Syed	Emily (Dearhamer) Kubovchik	Guillermo Orrantia Hernandez	Guy Potucek	Mary Garrity
				Benjamin White	David Trager		Guillermo Orrantia Hernandez	Claudia Rawan	Rene Gonzales
				Branda (Baker)			Guillermo Orrantia Hernandez		Charles Gajda
							Guillermo Orrantia Hernandez		Ryan Goebel
							Guillermo Orrantia Hernandez		Edward Gomez
							Guillermo Orrantia Hernandez		Marc Greenberg
							Guillermo Orrantia Hernandez		Ziyu Huang

to understand at a core level more about how things work, they should be able to pursue an education without accumulating debt.”

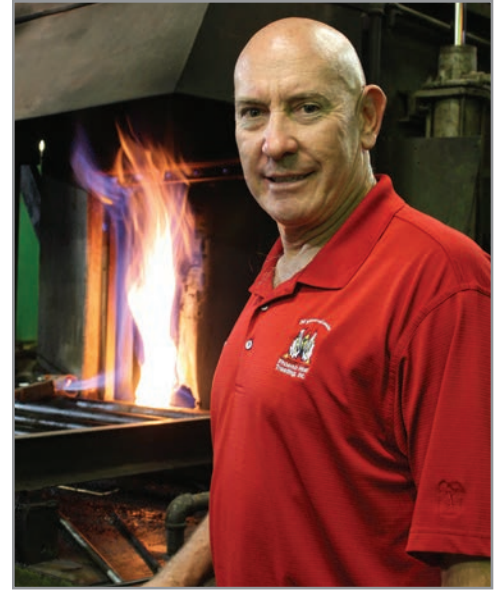
Echoing his own time on the shop floor as a student, Hushek also provides engineering undergraduates with practical experience through an intern program at Phoenix Heat Treating. “They do fantastic work, and I am very lucky to work with them,” he said. “These students get to see the wonderful world of manufacturing, where their basic learning can provide them a path to a satisfying career limited only by their dreams and desires.”

Hushek described his father as “a third-generation heat-treater and promoter of all things possible in people.” Chuck Hushek used to say that as an employer all he could do was provide employees

with a piece of rope each day. The rope was his metaphor for an opportunity to do something good or to simply waste it through inaction.

“I am glad that I have been able to fashion my scraps of rope into a bridge to a better place for our employees and my family,” Hushek said, adding that it is now time for him to extend the piece of rope outside the confines of his business in Phoenix. “I am hopeful that the scholarship committee will find worthy candidates who will use this financial rope to haul in a great UA Engineering education. This scholarship will provide someone assistance, as my parents did for me many years ago.”

Hushek will supplement his generous initial gift of \$40,000 with \$5,000 annually during the first two years while the endowment grows.



Pete Hushek

A Century of Mettle—Pete Hushek (BS/Metallurgical Engineering 1982) stands in his shop at Phoenix Heat Treating. He has established an endowed scholarship in memory of his father, Chuck Hushek.

Bennett Irwin	Lindy Cote	Joseph Chase	Brian McMorrow	2006	Eduardo Lee-Eng	Rachel Popp	Andrew Friedman	Erica Hoang	Ryan Tatro
Philip Joggerst	Galen Jokipii	John Germain	Eric Miller	Debora Anjos	Adrian Leon	Tremaine Powell	Jesus Garcia	Brian Hochheim	Austin Urton
Brent Knezacek	Jingquan Li	Jason Godinez	Brett Miller	Eric Bette	Dominic Leone	Adam Ritter	Leonard Klastow	Blake Koomar	Louis Woofenden
Pingzhong Li	Amber Morris	David Hazelman	Andrew Osbrink	Karthik Chandrasekharan	Lonnie Lucas	Rhiannon Scott	Samuel Larson	Ryan Larsen	Jonathan Yeh
Tingyang Liu	Christopher Pfeiff	Mahesh Indran	Federico Pennacchini	James Gifford	Bharani Malladi	Sunil Seepuri	Phuong Le	Chase Parker	
Patrick Marcus	Sara Seuberling	Wende Kong	Alberto Ramos	Seth Ginter	Kyle Marr	Patrick Spencer	Hunter Mcanally	Sergio Pesqueira	2012
Carrol Rosado	Somnath Shahapurkar	Balamurugan Krishnan	Zachary Smith	Stephen Guzzo	Alastair Rasquinha	Andrew Stevens	Kris Milster	Ravi Raghavendra	Puneet Bhardwaj
Paul Seppala	Jennifer (Brady) Smith	Gilbert Lucero	Arsen Tonoyan	Laura Hernandez	Jose Rodriguez-leal	Geoffrey Steward	Michael Moore	Austin Scheidemantel	Erik Christenson
Idith Suarez-Castro	Ricardo Solis	Heath MacDowell	Kevin Zingale	Jacob Holmstrom	William Salus	Bradley Stilley	Desiree (Polson) Schaub	Eric Stratton	Christopher Dunlop
Manuel Teran	Scott Sundahl	Joshua Martin		Albert Jordan	Adam Sandiffer	Hamdawah Sulemana	Andrew Shroads	Michael Sunday	Jordan Landwerlen
Chia Torgeson	Luis Tapia	Nathan Palmer	2005	Dominic Maes	Walter Schumacher	Christopher Swanson	Kevin Spencer	Agendia Taku	Erin Lauterbach
Hua Zhu	Jessa Wright	Karunakar Pedagani	Brian Alden	Kerry (Ruiz) Magariel	Ian Tifford	Bradley Stilley	Phillip Toussaint	Cynthia Tay	Michael Lesnewski
Jeffrey Zubel	Yuka Yoshioka	Aswin Ramakrishnam	Joseph Augustine	Colin Mckenzie	David Todd	David Todd	Kyle Van Renterghem		Joseph Levy
2000		Henry Sarmiento	Willis Begay	Kyle Nath	Spencer Tucker	Manuel Vasquez	James Williams	2011	Edward Lira
Said Ahmad	2002	Ross Teske	Kurt Bishop	Esteban Rios	Manuel Vasquez	Manuel Vasquez	Phillip Zinsli	Marco Alatorre	David Maynard
Kaleem Beg	Alejandro Angel	Phat Tran	Kevin Bukata	Matthew Rounds	Matthew Zerull	Garrett Williams		Ryan Badilla	Jose Monreal
Robert Bruant	Thomas Bail	John Wallace	Kevin Bukata	David Schaller		Kemei Zhao		Jay Chakker	Eric Prewitt
Hummann Fargadmand	Tara Burke	Douglas Westra	Richard Campbell	Marco Trujillo Silva				Danielle Craig	Zulima Rhodes
Fargadmand	Nicholas Fifer	Justin Wheeler	John Condon	Pablo Vasquez	2008			Bradley Dyal	Stephen Tan
Steven Franks	Mark Hamel	Nathan Whigham	Hector Coronado	Jessica Yeh	Ahmad Abou Adas			Richard Ely	
Mark Hawthorne	Eric Hein		Brian Cox	Zhen Zhou	Avinash Ayyalaso-mayajula			Michael Gaas	
Cade King	Geoffrey Hill	2004	Gregory Dion		William Baker			Kyle Johnston	2013
Stephen Kuenzli	Marisa (Zamora) Jacquez	Laucetia (Begay) Baum	Judd Dyer	Matthew Gledhill	Aaron Boyd			Aaron Kapilivsky	Todd Balls
Christopher Lee	Susan Leonetti	Irail Cortinas Lopez	Matthew Gledhill	Ann Hoang	Kyle Clary			Alexander Klaus	Brian Franz
Laura Lohner	Micah Lesmeister	Christopher Cunningham	Jeffrey Kissinger	Brian Hogan	John Dorso			Robert Koven	Ravi Garg
Claudia Lopez	Michael Machino	Daniel Czupryna	Joshua Koch	Jeffrey Kissinger	Andrea Gains-Germain			Zhe Li	Mark Gregory
Lance Nelson	Hugo (Sesteaga) McBride	Richard Damron	Jack Mumbo	Joshua Koch	Logan Gaither			Eduardo Moreno	Garrett Hawes
Scott Sayles	Gary Newson	Sridhar Dasika	Creighton Murrieta	Jack Mumbo	Jacob Gulotta			Kevin Pounds	Sean Henderson
Michael Schwager	Stephanie (Carroll) Ogle	Cassandra Herrera	Matthew Dabkowski	Creighton Murrieta	David Hahs			William Radican	Kelsey Hoyt
Daniel Seif	Scott Smith	Wen Huang	Joseph Fico	Murrieta	Jeffrey Hunt			Collin Reynolds	Cameron Kingsley
Hao Sun	Jones Tembo	Timothy Juvera	Victor Foulk	Joseph Fico	Matthew Kinnaman			Jorge Sanchez	Matthew Nipper
Chad Van Liere		Patrick Kelly	Shannon (Hoblitzell) Green	Victor Foulk	Amit Kumar			Shailendra Simkhada	Oscar Rico
2001		Michael Kiefer	Ryan Holloway	Shannon (Hoblitzell) Green	Juan Mena-Gonzalez			Stephen Gomez	Nicole (Montalvo) Rojas
Adrian Arvizo	2003		Eric Rosenwald	Ryan Holloway				Troy Grossarth	Tyler Stibrich
Kiran Bhumana	Sarvesh Bhardwaj		James Siritaranukul	David Kraemer				Qing He	Shanna Tune
Laszlo Braun			Kurt Sonnenberg	Christopher Leatham				Alexander Herrera	Jeffrey Uhorn
Chi-Fu Chen								Nick Stylianos	



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ALUMNI



Donn Silberman

Light Fantastic—Donn Silberman, aka “Dr. Don, Wizard of Light,” gives a presentation called “Optricks/Artricks” at a family event at the UC Irvine Beall Center for Art + Technology in November 2010.

Donn Silberman BS/Engr. Physics 1983

Donn Silberman, aka “Dr. Donn, the Wizard of Light,” has garnered a few accolades recently. In November 2012 he received the UC Irvine Extension dean's Outstanding Service Award for his efforts founding and implementing the optical engineering and instrument design certificate programs. A month later he won the 2012-2013 UA Honors College Advocate for Education Award and gave the keynote address at the

College's precommencement ceremony. More recently, SPIE Professional magazine published his article, Optics Outreach Evolves, about his OptoBotics program at the Optics Institute of Southern California that combines optics, photonics and robotics to encourage high school students to get into the optics-photonics field. “The past year has been extraordinary for me personally as many good things have happened,” said Silberman, who founded the nonprofit OISC in 2003

to offer high-quality optics education and outreach programs. The “Dr. Don, Wizard of Light” moniker derives from his role as an Edmund Optics Super Hero, in which he seeks to inspire young minds by creatively teaching science and optics with a fun, hands-on approach. The objective, he said, is to empower “the young and young at heart” to “embrace their love of science” and help shape the upcoming generation of optical engineers.

J. Philip Barnes
BS/ME 1978

Phil Barnes is principal engineer, air vehicle and



Phil Barnes

subsystems performance, at Northrop Grumman Corporation in California, where he has worked for 32 years. He has published papers with and given presentations to SAE, ASME and AIAA, including one on dynamic soaring and regenerative flight. The paper features photos of his travels to Antarctica and an engineering analysis and real-time simulation explaining how the wandering albatross uses dynamic soaring to remain aloft indefinitely on shoulder-locked wings over a waveless sea. This multidisciplinary study applies paleontology, oceanography, photography, flight dynamics, computer graphics, and a bit of poetry. His other presentations include an aerodynamic and artistic study of the German jets of WWII, and configuration aerodynamics – from the Wright Brothers to the Delta Canard. All his presentations, and contact details, can be found on his website: howfliethealbatross.com.



Nicole Rojas

Nicole Rojas
BS/ME 2013

After graduation, Nicole Rojas joined ExxonMobil as a drilling engineer in the company’s Worldwide Ventures Unconventional

Drill Team and now works in Argentina. She is pictured above representing UA Engineering during a tour of platform drilling contractor Helmerich & Payne’s rig-up yard in Houston.

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