



# Arkansas ENGINEER

The alumni magazine of the University of Arkansas College of Engineering 2017

## THE INNOVATION ISSUE

SurfTec, a company founded by a U of A professor and graduate, is creating new products that help machines run more efficiently.

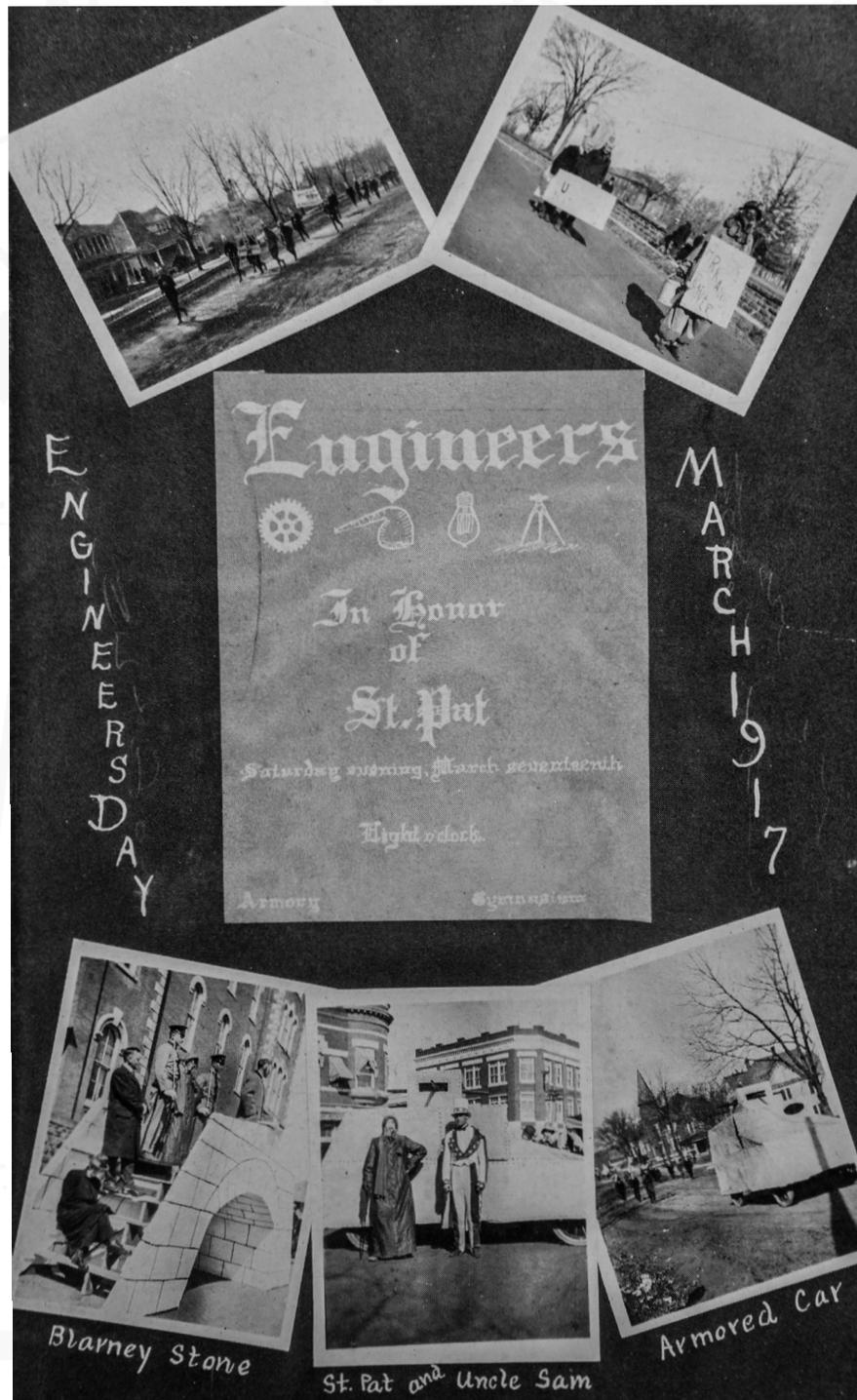
On campus, students have new opportunities to explore innovation.



UNIVERSITY OF  
ARKANSAS

College of Engineering

# Yesteryear



A page from the 1917 issue of *The Razorback*, courtesy of the University of Arkansas Special Collections.

## A message from the dean



### John English

Dean, College of Engineering  
Irma F. and Raymond F. Giffels Endowed Chair in Engineering

I am pleased to present the 2017 issue of the Arkansas Engineer. It focuses on a theme that has become increasingly important in our college and in the world as whole: innovation. Innovation is the intersection of creativity, engineering and business. Without innovation, there would be no progress. This is why the college is working to give our students encouragement and support as they explore new ideas.

You can learn about one of these innovative students, Dylan Trichell, in this issue of the magazine. Also in this issue, we celebrate the success of the innovative faculty and student team behind the startup SurfTec. And you'll meet our 2017 Outstanding Senior, Danielle Neighbour. Her passion for improving lives has led her around the world, and she has gained a lot of recognition along the way.

Keep us in mind and share your stories and your successes with us! You can email us at [engrcomm@uark.edu](mailto:engrcomm@uark.edu). And don't forget to update your information with the Arkansas Alumni Association at [arkansasalumni.org](http://arkansasalumni.org).

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### Comments, questions or story ideas?

Contact: [engrcomm@uark.edu](mailto:engrcomm@uark.edu)

### Dean of Engineering

John English

### Editor

Camilla Shumaker

### Designer

Laura Fickett

### Photographers

Russel Cothren

Laura Fickett

Matt Reynolds

### College of Engineering Corporate Partners

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# RESEARCH BRIEFS



## MARTREC RETAINS TIER 1 STATUS

In 2014, total waterborne commerce in the United States was 2,346 million tons, or 40 percent of domestic cargo, according to the U.S. Army Corps of Engineers. At the Maritime Research and Transportation Center, or MarTREC, researchers from the U of A and collaborators at five other institutions focus on preserving the existing U.S. transportation system through maritime and multimodal transportation research, education, and technology transfer. With a new \$1.4 million award from the U.S. Department of Transportation, researchers have renewed the status of the center as one of 20 Tier 1 University Transportation Centers nationwide. The new award is part of an anticipated 5 year program that will total up to \$7 million in federal funding and \$3.5 million in matching funds.

## COLLABORATION WITH HONEYWELL WILL LEAD TO NATIONAL SECURITY INNOVATIONS

U of A researchers will be working with the Kansas City National Security Campus for the U.S. Department of Energy's National Nuclear Security Administration, which is managed and operated by Honeywell, the international technology company. The campus is a high-tech facility that has more than 3,000 employees and specializes in science-based and additive manufacturing. It provides diverse engineering and manufacturing for national security. The master collaboration agreement between the U of A and Honeywell was signed by Provost Jim Coleman; Jim Rankin, vice provost for research and economic development; Robin Stubenhofer, vice president for engineering with Honeywell Federal Manufacturing & Technologies; and Todd Durbin, National Nuclear Security Administration.





## J.B. HUNT AND U OF A ESTABLISH SUPPLY CHAIN INNOVATION CENTER

J.B. Hunt Transport Services, Inc. is making a \$2.75 million investment in the U of A to create the J.B. Hunt Innovation Center of Excellence. The center will be a collaborative effort between the company, the College of Engineering and the Sam M. Walton College of Business to advance supply chain management efficiency through technology. This industry collaboration advances the U of A's culture of interdisciplinary research through the creation of a center that allows engineering, computer science and business researchers and students to work with J.B. Hunt employees in finding solutions to real-world problems through innovative design and technology-driven supply chain solutions.

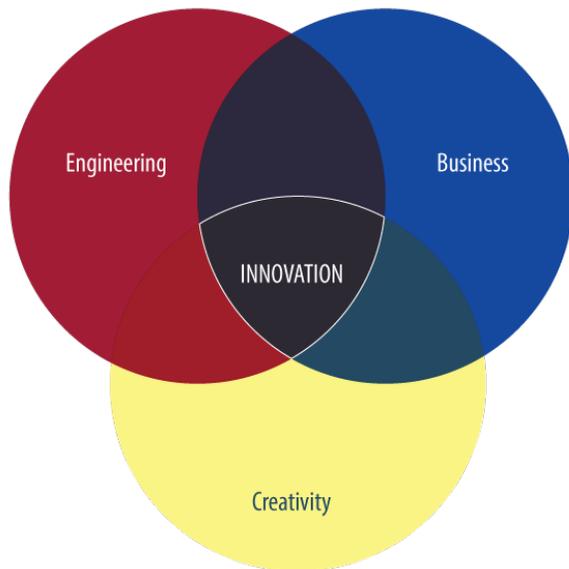
## INCREASING FOOD SAFETY WORLDWIDE

Food-borne diseases cause more than 600 million cases of illness and thousands of deaths worldwide per year. U of A researchers are working with the Walmart Food Safety Collaboration Center, as well as Chinese universities and poultry companies, to improve the safety of poultry products in that country. The project is supported by a grant from the Walmart Foundation. It has two main focuses: biosensing technology to more rapidly and easily detect pathogenic bacteria and antibiotic residues in the poultry supply chain, and dynamic risk-assessment models integrated with supply chain management to help the industry and regulators make better decisions for ensuring food safety. The project encompasses the entire poultry supply chain, from the farms where chickens are raised, all the way to the kitchens in which meals are prepared.



# EDUCATION INNOVATION

A NEW PROGRAM GIVES STUDENTS THE CHANCE TO EXPLORE CREATIVITY AND ENTREPRENEURSHIP



**DYLAN TRICHELL'S INTEREST IN ENTREPRENEURSHIP STARTED WITH A PROBLEM. AS A HIGH SCHOOL STUDENT, HE HAD A HABIT OF BITING HIS NAILS. HE DISCOVERED A SOLUTION—SMALL PLASTIC DEVICES THAT YOU COULD SPIN WITH A FLICK OF YOUR FINGERS. THESE DEVICES, CALLED FIDGET SPINNERS, DISTRACTED HIM ENOUGH TO BREAK HIS HABIT, BUT THEY ALSO INSPIRED DYLAN'S CREATIVITY. HE SAW WAYS TO IMPROVE THE DESIGN—TO MAKE THE SPINNERS QUIETER AND MORE AESTHETICALLY PLEASING. HE DECIDED TO PUT HIS IDEAS INTO ACTION.**

“Once I got into my senior year of high school, I got more into the idea of starting my business,” he said. “I like the idea that you can make anything into a product. You just have to make sure that people want it. I like the idea that I can help people that need it.”

## A Home for His Business

When he arrived at the University of Arkansas as a freshman in the engineering program, Trichell found he had plenty of resources available on campus and in the local community. “The U of A has that homey feel, but you can also make it a home for your business,” he said. “And the local community is amazing. They want to help you out.”

At the Student Technology Center on campus, Trichell had access to the software he needed to create a design for his first spinners. The McMillon Innovation Studio, a retail innovation and technology lab at the Sam M. Walton College of Business, allowed him to use their 3D printers to print them. With help and advice from Clint Johnson, director of the Innovation Studio, Trichell researched his competition to make sure he stayed ahead of the trends as the market for fidget spinners grew.

Dylan's network also grew. He started volunteering at the Fab Lab on the Fayetteville square, and used their 3D printers to perfect his technique. He also learned to use other fabrication tools, such as a CNC router and laser engraver to make wood spinners, which he sees as a niche product for people who want a higher quality spinner.

Trichell is also finding ways to increase the visual appeal of his spinners, using colorful marbles in place of the usual metal bearings, experimenting with new materials such as metal and glass and looking for ways to add a logo to the device so companies can use them for promotional items.

Trichell has also made contact with local businesses. He tries to source as many of his materials as he can locally, and he has started providing his spinners to local companies.



## More Than a Toy

While these spinners can be a nuisance if used inappropriately, Trichell finds that they help him focus, and he was excited to learn that they could be even more useful for people who have learning or developmental disabilities.

“Once I started making them and mentioning it to people, occupational therapists told me that they would be good for people with Attention Deficit Disorder and Autism,” he explained. Trichell hopes to target this market, providing his spinners to schools, hospitals and therapy clinics where they can help people who need them most.

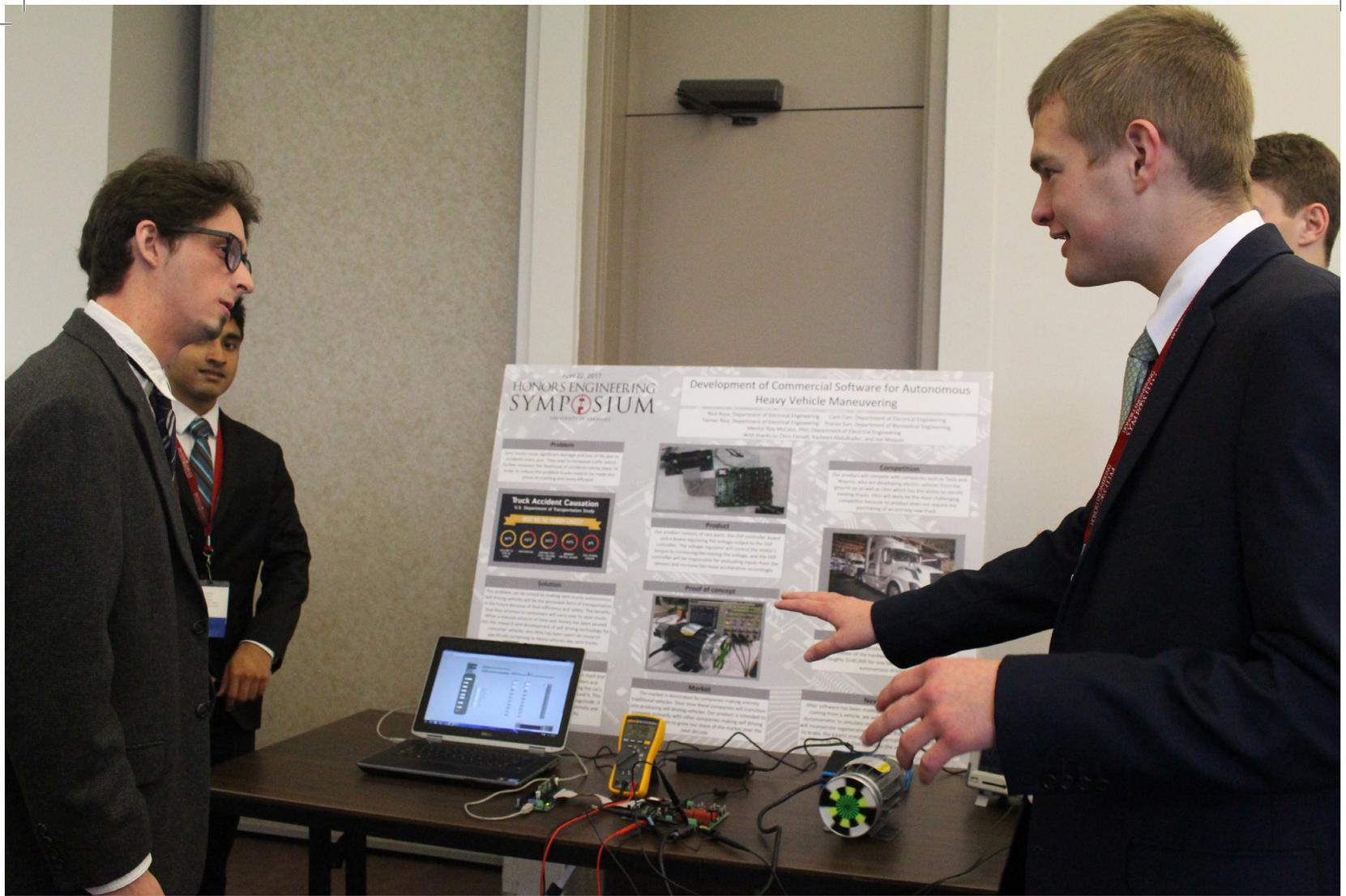
It was Trichell’s experience in the Honors Innovation Experience, a class he took as part of the Freshman

Engineering Program, that turned this student with a good idea for a small business into a real entrepreneur. In this class, Trichell learned valuable information that helped him build his fidget spinner business, and he worked on a team to develop a new, bigger idea. This class helped Trichell see that innovation could be the central principle of his career as an engineer.

## An Innovative Approach to Education

At the U of A, experts in engineering and business know that students who are encouraged to explore innovation are more likely to become successful entrepreneurs. Around the time Trichell was developing his passion for innovation and entrepreneurship, the U of A Engineering Advisory Council, a group of successful and influential College of Engineering alumni, suggested to John English,

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dean of the College of Engineering, that innovation be added to the freshman engineering curriculum.

▲ One of the Honors Innovation Experience teams presenting their research.

English and Matt Waller, dean of the Walton College, had also been discussing ways to better integrate business and engineering curricula. The two colleges had complementary problems when it came to preparing students for the workplace: engineering students needed more exposure to business concepts, and business students needed more technical knowledge. And both colleges wanted to find new ways to nurture and support students who were interested in innovation.

### Expert Advice

English knew the perfect person to tackle this problem. Karl Schubert graduated with a chemical engineering degree from the University of Arkansas in 1975,

**“INNOVATION IS THE CORE OF WHAT IT IS YOU WOULD TRY TO COMMERCIALIZE. THE THING THAT MAKES IT UNIQUE, INTERESTING, DIFFERENT.”**  
**—KARL SCHUBERT**

and he earned a Ph.D. in 1983. When he entered the workplace, Schubert discovered that he had a rare ability to bridge the gap between engineering and business. This skill, combined with his natural innovative spirit, led Schubert to a diverse and successful career that revolved around innovation.

At IBM, Schubert was part of a team that developed the first touch screen. Later he started a new division at Dell, focused on digital storage. He has also been involved in several startup companies. He is currently a consultant. His company, TechNova Consulting, provides information technology expertise to CEO's and CFO's, a role that requires a thorough understanding of both technology and business practices.

"I've always considered my engineering education to be a tool kit I could apply to a lot of different things," he said. "My career has been unique. I haven't stayed on one path. I've played many roles."

Schubert defines innovation as the intersection between engineering, entrepreneurship and creativity. "In engineering, we tend to focus on products and services. The other things that make a company are entrepreneurship. But innovation is the core of what it is you would try to commercialize. The thing that makes it unique, interesting, different."

### The Honors Innovation Experience

The first step in adding innovation to the engineering curriculum was to create the Honors Innovation Experience. This class is part of the Freshmen Engineering Program, a two-semester program that all engineering freshmen participate in. Honors students in FEP have the opportunity to conduct research projects, and starting in the fall semester of 2016, they also had the option of developing a new product idea.

Leslie Massey, an instructor in the Freshman Engineering Program, is teaching the Honors Innovation class. She explained that the class is divided into three different parts. During the first eight weeks of the fall semester, students heard lectures from

industry leaders about the different challenges involved in taking an idea all the way to a successful business.

Massey's goal for this part of the class is to familiarize the students with the process of going from an idea to a company. Some of the topics include market research, project management, intellectual property issues, finding funding and lifecycle analysis. Schubert made a presentation to the class, in which he emphasized that for a startup company, having a good team and being in the right place at the right time is even more important than the original idea.

Trichell explained that this aspect of the class was especially helpful for him. "Each one of those speakers told us something new," he said. "Or they pounded an idea into your head: make sure you're making something bigger, better, cheaper. It was really useful."

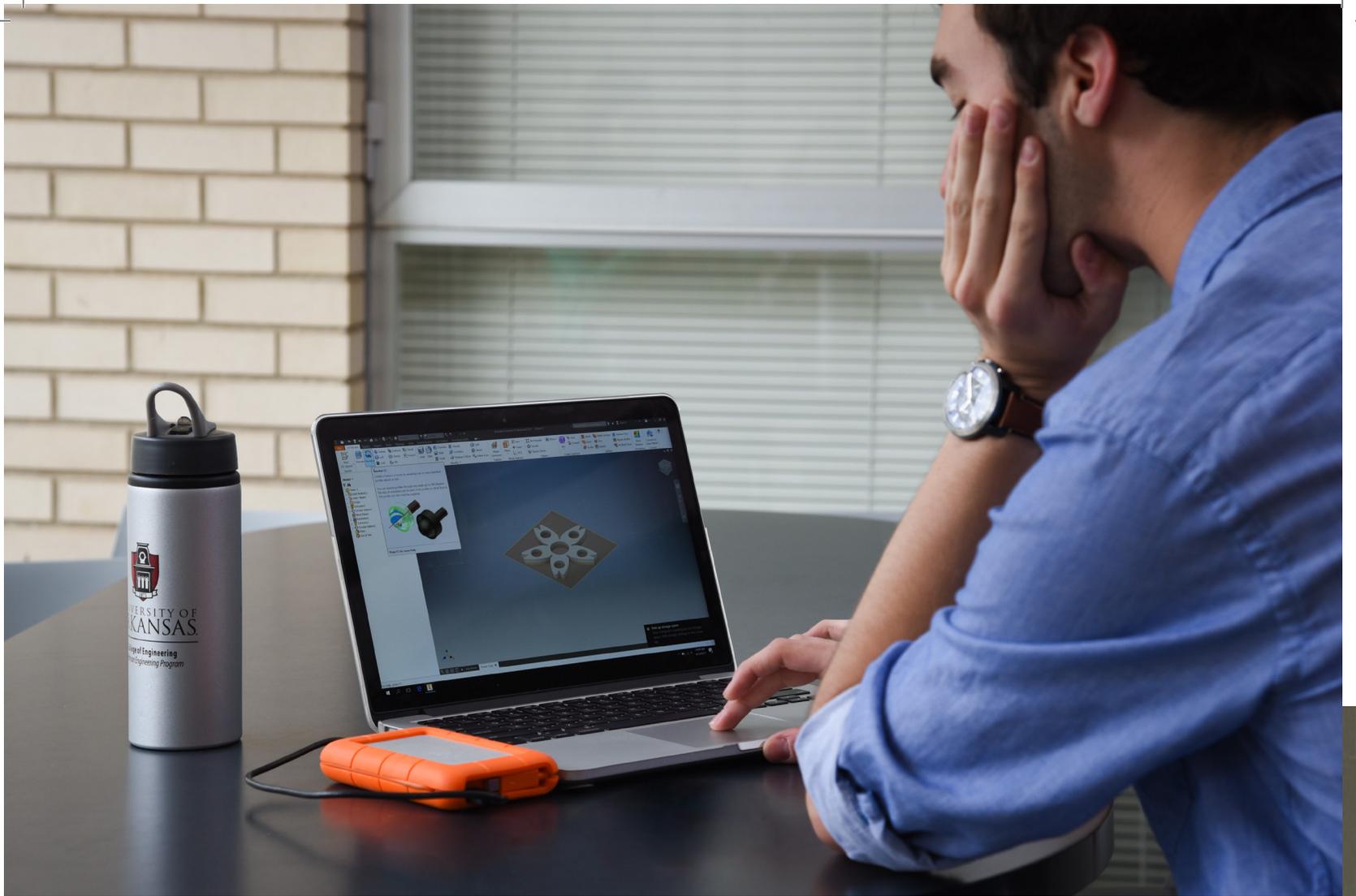
During the second eight weeks of the class, the students formed teams and conducted market research in order to develop a product proposal. Each team had a faculty mentor who provided lab space and guidance for the product development, plus they had access to a panel of industry experts who could provide advice.

### Solving a Global Problem

While most teams developed product proposals around their mentors' existing research, Trichell's team came up with their own idea: they wanted to make a new kind of water filter. Their filter is composed of recycled agricultural waste and silver nanoparticles. It is designed to be both effective and cost efficient so that it can be easily used in communities that lack a safe and reliable source of drinking water. Under the mentorship of Bob Beitle, professor of chemical engineering, the team won first place in the college's Honors Innovation Colloquium.

Trichell, who is majoring in mechanical engineering, plans to continue to work on the project throughout his time at the University of Arkansas, and Schubert, along with the college administration, are working to help make this happen. The Honors Innovation Experience is the first step, explained Schubert.

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BUT YOU CAN ALSO MAKE IT A HOME  
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—DYLAN TRICHELL**

### **The Future of Innovation**

The goal of the College of Engineering is that by the time Trichell is a senior, he and the other students who started learning about innovation as freshmen will be able to do innovation-focused projects in their capstone design classes, working with both engineering and business professors. In addition, engineering students have an opportunity to add a business component to their education by taking advantage of a fast-track Master of Business Administration program through Walton College. English and Waller hope that emphasizing innovation opportunities for undergraduate students will lead to more engineering students enrolling in the MBA program after they graduate.

Schubert is applying the lessons he has learned over the course of his career as he helps implement this vision, especially the concept of agile development, which comes from the software industry.

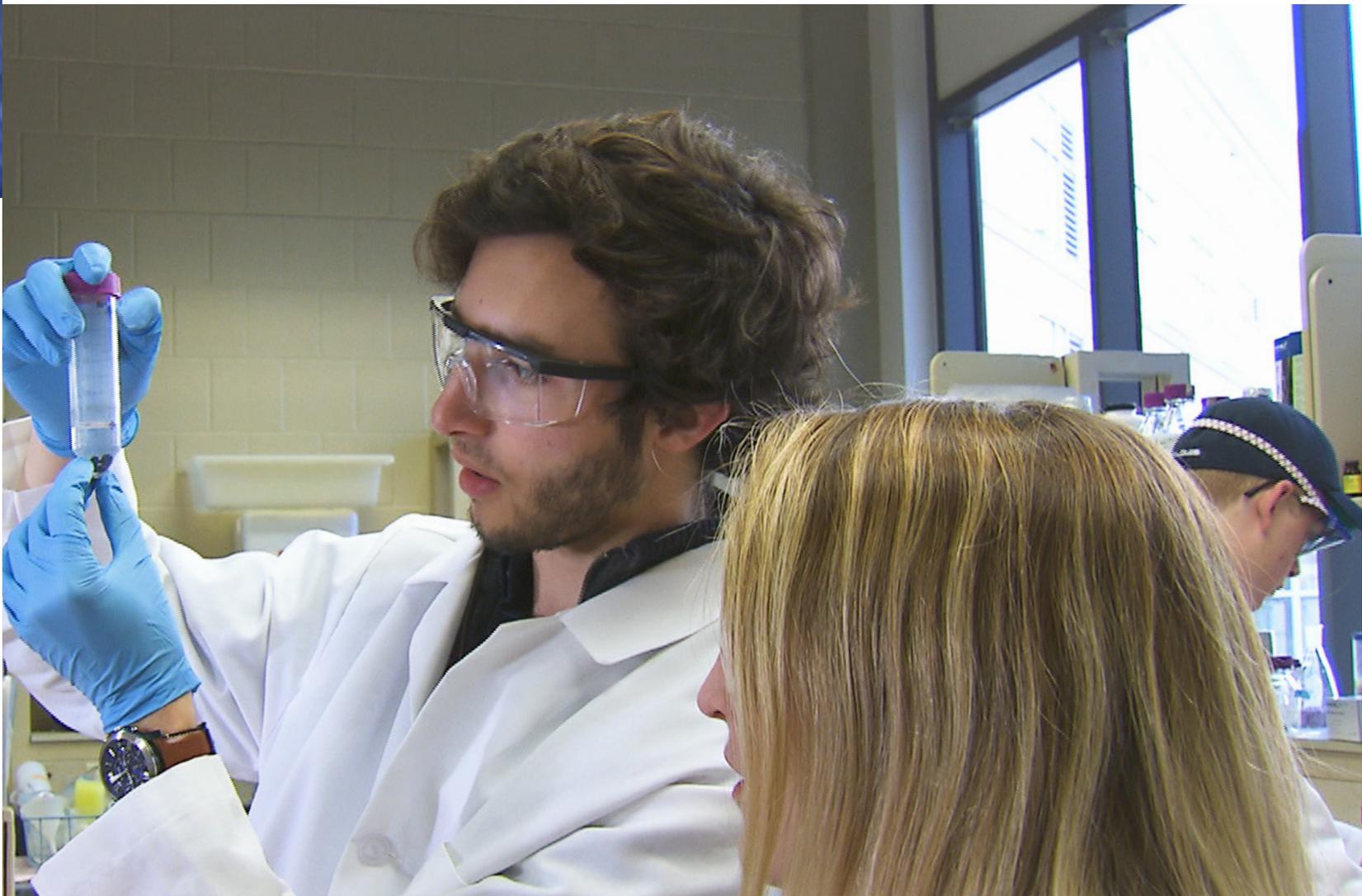
“In agile development, you do a part [of a project] at a time and improve as you go,” he explained. “We have an overall objective, but it would be a mistake to think we could define the entire project from the beginning. We should be innovative in how we do it. Agile development focuses on specific things that are doable over specific periods and making adjustments as you go.”

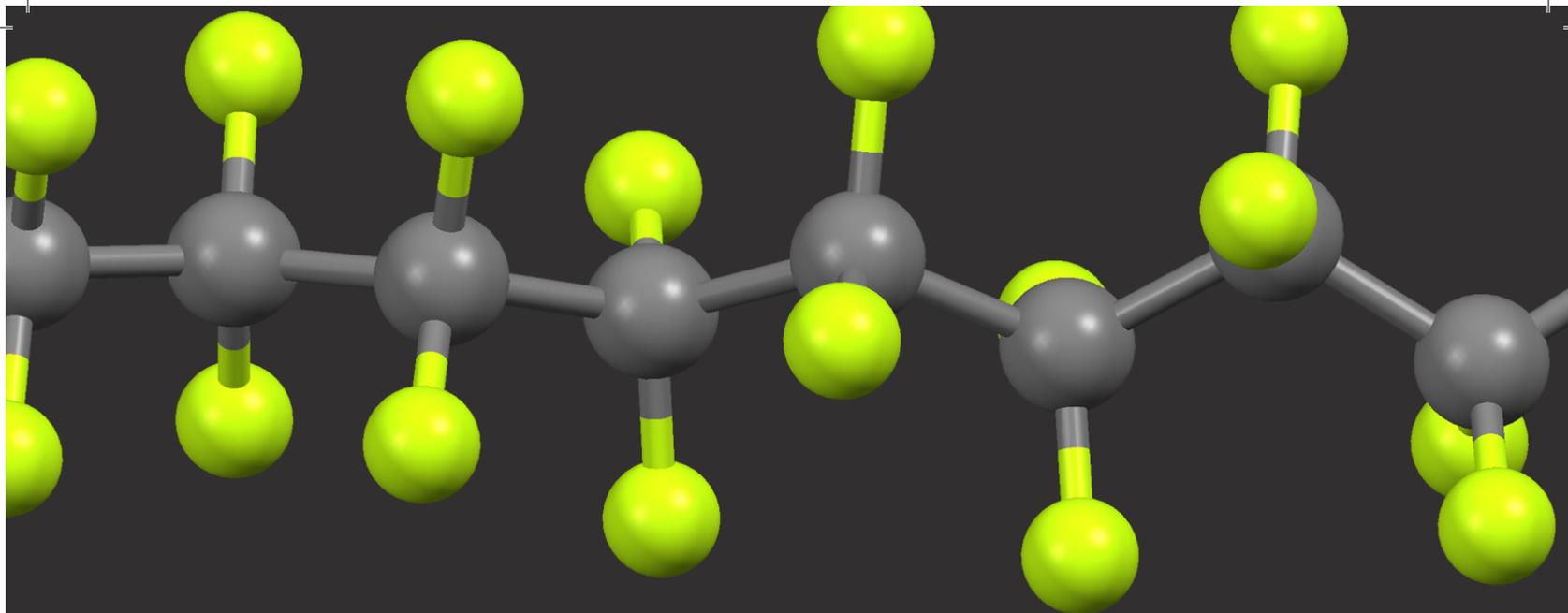
Massey explained that the first iteration of the Honors Innovation Experience was a success. “I was very happy with the results,” she said. “The teams functioned well. The students learned a lot, and they had a good time.”

Schubert and Massey already have ideas for improving the freshman innovation class, such as scheduling speakers earlier so that they can be more strategic about the order and timing of topics.

For his part, Trichell also has an overall objective that is bigger than fidget spinners or even the water filtration project. Typical of a savvy entrepreneur, he is keeping the details to himself until the time is right. “It will be a revolution for renewable energy,” is all he can say for now.

▼ Trichell in the lab with his teammates, Courtney Golman and William Redinger





# ENGINEERING BUSINESS: **SURFTEC**

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**WHETHER YOU KNOW IT OR NOT, YOU PROBABLY OWN ITEMS COVERED IN POLYTETRAFLUOROETHYLENE, OR PTFE. BETTER KNOWN UNDER THE BRAND-NAME TEFLON, PTFE IS COMPOSED OF CARBON ATOMS THAT ARE SURROUNDED BY FLUORINE ATOMS. THE TWO ELEMENTS ARE HELD TOGETHER WITH VERY STRONG BONDS. BECAUSE OF THE STRONG, NON-POLAR CARBON-FLUORINE BOND, PTFE IS NON-REACTIVE, REPELS WATER, RESISTS CORROSION AND REDUCES FRICTION. THIS MAKES IT USEFUL FOR COATING COOKWARE, BUT IT ALSO HAS INDUSTRIAL APPLICATIONS AS A SOLID LUBRICANT, REDUCING FRICTION AND WEAR IN MACHINERY.**

However, as anyone who has owned a non-stick pan knows, PTFE coatings wear off easily. The non-stick property that makes this material such a good solid lubricant also means it can be easily scraped from a metal surface by an errant fork or spatula.

Min Zou, professor of mechanical engineering, and Samuel Beckford, CEO of SurfTec, have been researching ways to improve the performance of PTFE as a solid lubricant. Zou and Beckford, who was her graduate student at the time, discovered that incorporating silica nanoparticles into the PTFE increased its resistance to wear without sacrificing the lubricating qualities of the substance. The two researchers also developed an adhesive that bonds PTFE more securely to a metal surface.

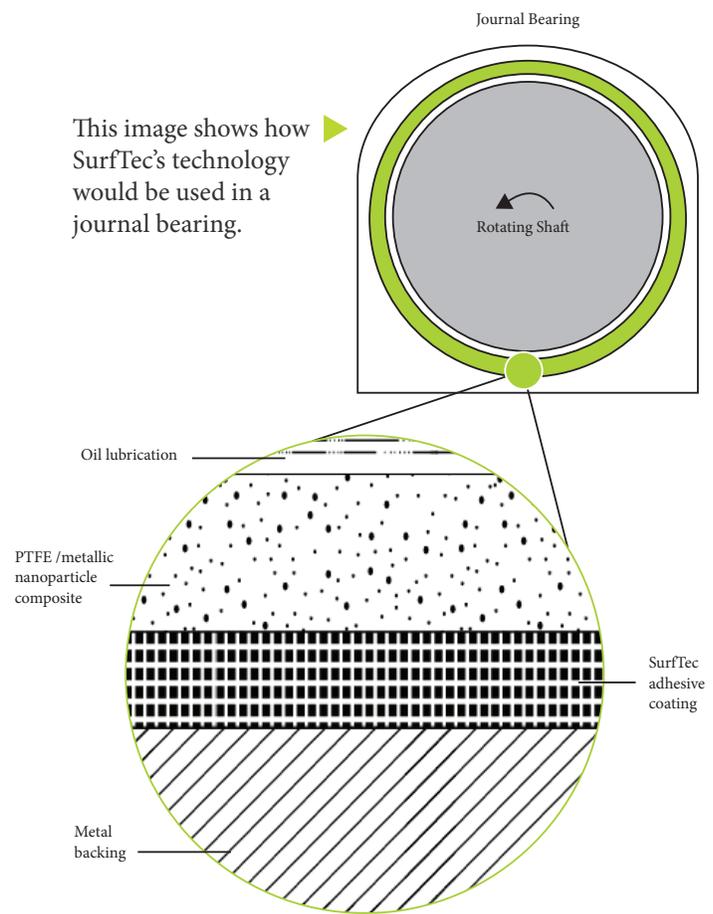
Beckford received his PhD in 2014, and he and Zou turned their research into a startup company. SurfTec, LLC focuses on providing a replacement for lead-based journal bearings, which are used in electric motors and generators.



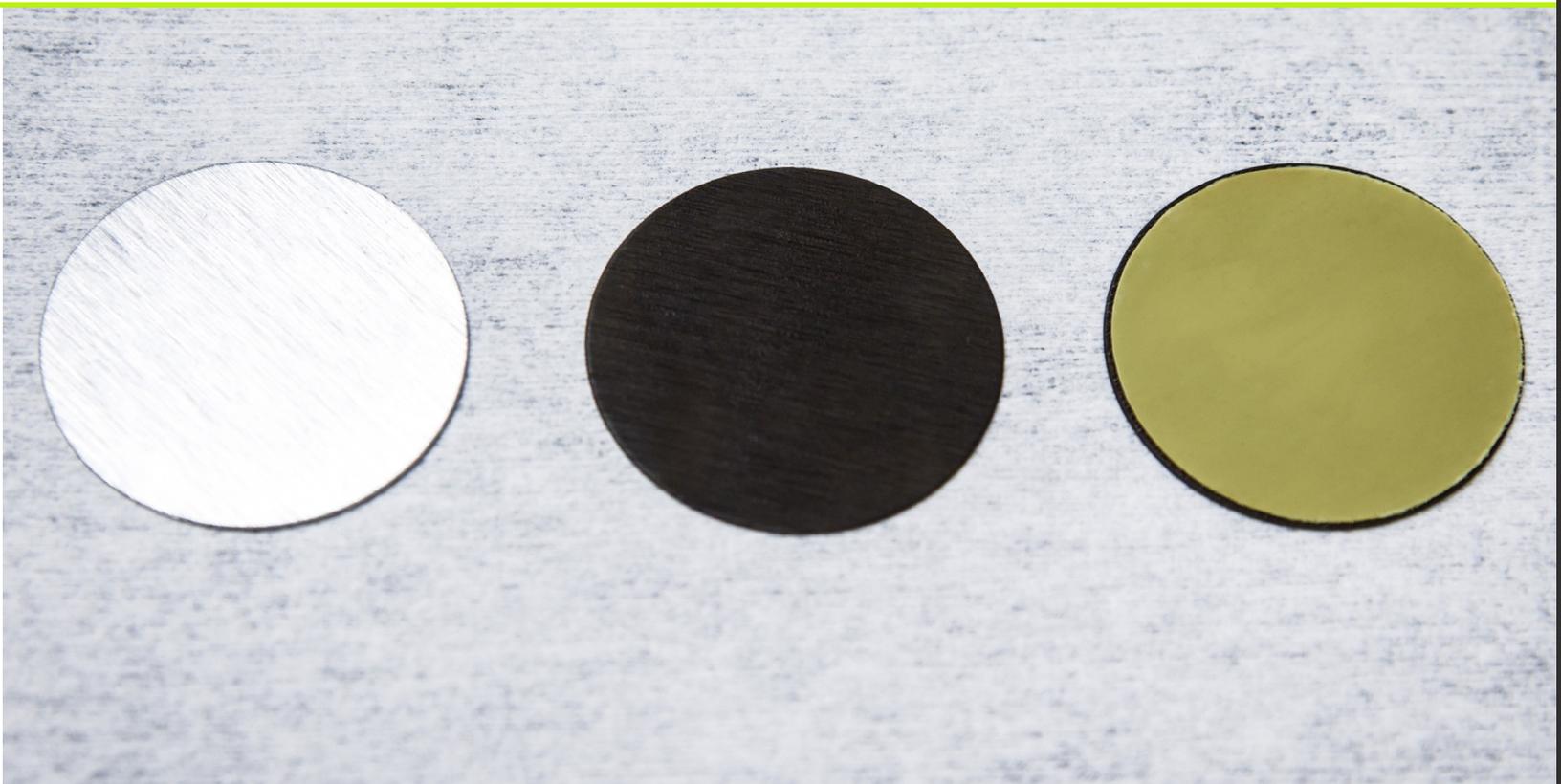
▲ Zou and Beckford in the lab. SurfTec's facilities are located in the University of Arkansas Research and Technology Park.

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Journal bearings are a simple form of bearing, composed of a shaft, or journal, surrounded by a supporting metal sleeve. In motors, these bearings usually contain lead liners to reduce friction during metal-metal contact. This is not ideal, however, because lead is toxic and presents an environmental issue. According to Beckford, about half of all electric motor problems and breakdowns are due to bearing failures. To improve reliability and reduce negative environmental impact of lead-based bearing materials, industry and research groups have concentrated on developing new lead-free bearing materials.



▼ This image shows a metal sample (left), a sample coated in SurfTec's adhesive (middle), and a sample covered with PTFE (right).



In the lab, Beckford and Zou use small specimens of carbon steel as a substrate on which to test their product. These specimens can be sprayed with a proprietary low-friction PTFE nanoparticle composite coating, or with a proprietary adhesive polymer that is later bonded to PTFE liners. Once the liners are pressed onto the specimen, researchers perform peel tests to measure adhesion of the PTFE liner to the underlying surface.

SurfTec recently received a \$1.2 million grant from the U.S. Department of Energy to support their work. The U.S. Department of Energy is specifically interested in new products that can reduce friction in high-speed, medium-voltage electric motors and generator systems. Successful integration of SurfTec's nanomaterial coating in journal bearings could reduce friction by 10 percent and increase the life of parts by 40 percent. If achieved, these outcomes would meet the Department of Energy's goal of using lead-free bearings and reducing energy losses in high speed, megawatt class, electric motors and generator systems.

- ▶ This machine sprays SurfTec's proprietary coating onto steel specimens.
- ▶ The researchers then use this press to bond PTFE films to their adhesive coating.



# OUTSTANDING SENIOR:

DANIELLE NEIGHBOUR, BSCE 2016



▲ Neighbour used her engineering skills to help villagers in Ecuador.



**DANIELLE NEIGHBOUR WANTS TO SPEND HER CAREER ALLEVIATING THE GLOBAL WATER CRISIS, AND HER EXPERIENCE AT THE COLLEGE OF ENGINEERING HAS GOTTEN HER OFF TO A GREAT START.**

Neighbour, who is from Kansas City, received an Honors College Fellowship to study civil engineering at the University of Arkansas. She admitted that she didn't know much about Arkansas. "I came on a visit and it was nothing like I imagined. It was beautiful. That set the spark."

Another big factor in Neighbour's decision to attend the U of A was the funding she could get from the Honors College to study abroad.

Neighbour's first trip abroad was an internship with Reach Beyond International in Ecuador. It was on this trip that she learned what it means to help communities struggling with water issues. She spent part of her time developing projects to help rural Andean and Amazonian villagers get clean water, then helped implement the projects while she lived among the people she was working with.

"I went in with an idea that I was going to use my technical skills and impose myself on these villagers," she explained. "It was really humbling to realize that wasn't going to work at all. I learned I had to quite literally get in the trenches with the people I was working with. In the process, I was able to form friendships and relationships. I was more successful when I engaged with the communities and let them meet their own needs, instead of what I thought their needs were."

Neighbour built on her experience with water quality issues on a service leadership study abroad trip to Vietnam. Upon realizing the vast water quality issues faced by the communities



the service leadership team was serving, Danielle petitioned the trip supervisors and was allowed to spend her time focusing on assessing water access in the Vietnamese villages. During this trip, Neighbour conducted interviews with farmers about their water needs. After she got back from the trip, she passed along the information she had gathered and worked with the next cohort of students, so that those who travel to Vietnam in the future can build on what she's started.

Neighbour has also studied abroad at the University of Barcelona in Spain, where she took classes in Spanish, participated in a language exchange partnership program, and made new friends from all over the world.

At an internship at Burns and McDonnell in Kansas City, Neighbour gained experience in consulting engineering, and was struck by the differences between engineering in the U.S. and her experiences in the developing world, but also by the similarities. At that company, "I had access to every resource that I needed," she said. "But it still involved the creative

aspects of engineering that I applied in Ecuador. The basic rules of engineering were the same, and I would treat my clients the same. My goal was to problem solve for my clients in a way that would improve their quality of life and their business."

Neighbour's global adventure hasn't ended since she graduated in December 2016. As a senior, she received both the Truman Scholarship and the Schwarzman Scholarship. Since graduating, she spent the spring semester getting more hands-on experience as a strategic initiatives intern with the water technology company Xylem Inc. in New York City. While there, Danielle developed a new framework for water resilience and recently presented her work at a conference in Bonn, Germany, with local governments from around the world.

In the spring, Neighbour was selected as the College of Engineering's Outstanding Senior, and she returned to campus to give a speech at commencement. In her speech, she credits her friends and family for her success.

"When I reflect on the village that raised me, I think of the sacrifices of my mom, who supported me through a difficult eye disease diagnosis as a child; I think of my dad whose deep passion for science encouraged me to pursue it for myself. I reflect on the encouragement of my family and friends, the gentle 'you can be better' push from mentors and faculty, and the inspirational examples of professors, engineers, and leaders," said Neighbour.

She also called on her fellow graduates to make the most of their engineering education. "You now possess a very powerful gift – one that can be used to improve the lives of others in astonishing ways. To me, that's the beauty of engineering. We are uniquely situated by virtue of our position to solve so many of the twenty first century's problems, and I believe we have the power to help others in the process."

Next on Neighbour's agenda is a summer internship with the U.S. State Department's Office of Conservation and Water in Washington D.C. as part

of her Truman Scholarship. In the fall, she will travel to Beijing and begin working on her master's degree at Tsinghua University, where she'll be studying public policy.

People in China face many kinds of water problems, both in rural areas and in cities like Beijing. "Beijing only has enough water to support half its population," Neighbour explained. This might be daunting to some travelers, but this is the reason Neighbour has chosen to spend time in this area. For her, it's an opportunity to build on the first-hand experience she found so valuable in Ecuador. "I want to live, work and study somewhere that faces water issues on a daily basis," she explained.

After she finishes her master's degree, Neighbour plans to get a doctorate. Her long term plan is to find a job that combines environmental engineering and

public policy, because she has learned that it will take more than just engineering to solve global water problems. "I want to attack the water crisis from two very different sides: the technical side and the policy side," she said. "Significant governmental involvement, communications, and organization—that side of bureaucracy has to be included."

Neighbour has advice for future engineers at the University of Arkansas. "Get to know the faculty and get to know your fellow students," she said. "You can get a degree in civil engineering anywhere, but the people at Arkansas are unique, especially the professors. You won't find people as willing to invest in you anywhere else. My professors helped me forge a path. They opened doors I didn't know could be opened."



# CAMPAIGN *Arkansas*

**Campaign Arkansas is the University of Arkansas' second comprehensive capital campaign.**

The first was the Campaign for the Twenty-First Century:

- July 1, 1998 to June 30, 2005
- The College of Engineering raised \$70.9 million in that effort—exceeding the goal of \$54.8 million
- The university raised over \$1 billion

The University of Arkansas has risen in the rankings of public research universities in the past decade, and private support has played a critical role in that achievement. We are now poised to continue our efforts to produce the people, the research and the results to make the future of our state and region even brighter.

## CAMPAIGN ARKANSAS TIMELINE

8 year effort: July 1, 2012 – June 30, 2020



## COLLEGE OF ENGINEERING PROJECT GOAL

35.8 MILLION

\$68.5 MILLION

52% Goal Raised as of May 31, 2017

**STUDENT SUPPORT**  
\$10,500,000 total



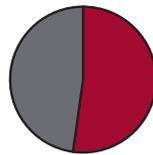
- \$5,000,000**  
Undergraduate need based scholarships
- \$3,000,000**  
Scholarships for transfer students/current students displaying leadership/academic merit
- \$2,500,000**  
Endowments for Ph.D. awards in engineering

**FACULTY SUPPORT**  
\$24,000,000 total



- \$12,000,000**  
Eight endowed chairs
- \$9,000,000**  
Three endowed department head chairs
- \$3,000,000**  
Dean's endowed chair

**CAPITAL PROJECTS**  
\$10,500,000 total



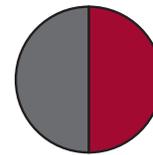
- \$5,500,000**  
John A. White, Jr. Engineering Hall Addition
- \$5,000,000**  
Civil Engineering Research & Education Center

**PROGRAM SUPPORT**  
\$5,500,000 total



- \$2,000,000**  
Freshman Engineering Program
- \$1,500,000**  
K-12 STEM development
- \$1,000,000**  
Endowed award funds
- \$1,000,000**  
Engineering Career Awareness Program (ECAP)

**RESEARCH SUPPORT**  
\$10,000,000 total



- \$5,000,000**  
Faculty research incentives endowment
- \$5,000,000**  
Endowments for faculty development in entrepreneurship

**CURRENT USE FUNDS \$8,000,000**

## The College of Engineering is positioned to help grow the state's knowledge-based economy and to address major issues confronting the state of Arkansas and the world.

### COLLEGE OF ENGINEERING VISION

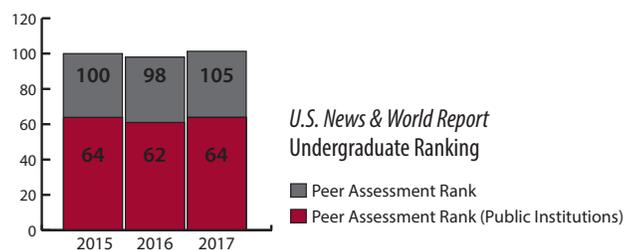
Pursue excellence in research, scholarship and education, ensuring personal and professional growth for future generations of engineering leaders who will stimulate prosperity for Arkansas, the nation and the world.

### COLLEGE OF ENGINEERING MOTTO

Preparing you for your tomorrow

### COLLEGE OF ENGINEERING POINTS OF PRIDE

- We are the **largest** doctoral-granting engineering program in Arkansas.
- We have **eight departments** offering bachelor's and graduate degrees, as well as interdisciplinary and online degrees.
- Our fall enrollment in 2016 was the **highest in the history** of our College with 3311 undergraduates and 993 graduate students.
- Last year, more than 60 of our undergraduate students received **nationally competitive awards**, including the National Science Foundation Graduate Research Fellowships, the Barry Goldwater Scholarship, the Harry S. Truman Scholarship, the Schwarzman Scholarship and the Gates Cambridge Scholarship.
- Our students regularly win **design contests**, including the International Environmental Design Contest. Students have brought home awards from this contest for the past 22 years in a row.
- Two of our professors, Ashlea Milburn and Matthew Patitz, were awarded **NSF CAREER awards** last year.



## CLASS NOTES

**JOE DOSS PHILLIPS** BSCE 1984, Texarkana, Texas, was named executive director of the Texarkana Water Utilities on May 3.

**JOSEPH K. SAMIA** BSME 1990, Wichita, Kansas, is the new owner of Central Air Conditioning Co. and Central Fire Protection Co., which he has combined and renamed Central Consolidated Inc.

**JAMES O. WEAR** BS 1959, MS 1960, PHD 1962, received the "Distinguished Collaboration Award for Exceptional Contribution to the Clinical Engineering Profession in China" from the Chinese Society of Clinical Engineering, Chinese Medical Association. This award was presented at their National Congress in July in Suzhou, China, for his work in the development of their Certification of Clinical Engineers. He also helped give written and oral exam for the Certification of Clinical Engineers at the meeting.

**BRUCE L. MCFADDEN** BSCE 1960 was recently inducted into the Associated General Contractors of Arkansas' Construction Hall of Fame.

**LOWRANCE HODGE** BSIE 1961, and Marilyn Hodge of Dallas, Texas celebrated their 60th wedding anniversary on Aug. 26, 2016.

**GEORGE A. LOCKHART** BSCE 1962, and Rebecca J. Lockhart of Jacksonville, Florida, celebrated their 55th wedding anniversary Jan. 27.

**MICKY F. MAYFIELD JR.** BSEE 1964, MS 1966, Rogers, retired this year from being the VP of sales at Nokia Siemens Networks.

**KELLY A. MCGRUDER** BSBA 2006 and **DRAKE M. MCGRUDER**, BSBE 2006, MSE 2012, Fort Smith, welcomed a new baby girl into the world on Dec. 1, 2016.

**BARRET R. KNUTSON** BSBE 2015, Fayetteville is joining the MCE team as a project designer for the water/wastewater department in the Fayetteville office.

**EMILY L. MONEY** BA 2007 and **SHANNON DAVID MONEY**, BSE 2002, BSCE 2010 of Conway announce the birth of their son, Evan David Money. He was born April 5, 2017. They are also the parents of Elise Ann Money.

**RUFAIDAH Y M J A ALMAIAN** PHD 2014, received first place at the seventh annual Industrial Engineering and Operations Management (IEOM) International Conference in Rabat, Morocco, for her dissertation titled "A Strategic Leadership Approach to Effectively Manage Supplier Quality within the Construction Industry."

## IN MEMORIAM

### 1940

**ROGER W. HARRIS** BSCE 1945, Waco, Texas, July 24, 2016. Served in the U.S. Navy Construction Battalion during WWII. He was also a surveyor for Carter Oil Company.

**MARTIN T. DYKE III** BSEE 1946, Boston, Georgia, Dec. 9, 2009.

**J. WALTER KELLER JR.** BSEE 1946, MS 1948, MS 1950, Miami, Florida, Oct. 12, 2016. He was employed with the Naval Research Laboratory in Washington D.C.

**RAYMOND W. TOLER** BSEE 1947, MSEE 1952, Springdale, Oct. 8, 2016. He was an Army Signal Corps officer and veteran of World War II, serving in the Philippines.

**MARVIN D. BOATRIGHT** BSEE 1948, Fayetteville, Aug. 27, 2016. He was an electrical engineer at Aero Jet General and also served in the U.S. Navy.

**LESTER E. THURMAN** BSCE 1949, Carlisle, Sept. 16, 2016. He was a registered structural engineer and worked for the Little Rock District Corp. of Engineers. He served in the Navy during WWII and the Korean War.

### 1950

**EDWARD E. ROGERS** BSCE 1950, Springfield, Ohio, June 25, 2016. He was a veteran of World War II, and retired in 1995 as Clark County Sanitary Engineer.

**RICHARD W. NEWBY JR.** BSEE 1950, Little Rock, Oct. 7, 2016. He served in the U.S. Navy as an electrician. He later served as senior plant electrical engineer for Reynolds Metals Hurricane Creek plant in Bauxite.

**EDWARD L. GAMMILL** BSME 1950, Scottsdale, Arizona, Dec. 14, 2014. He served in the U.S. Army Air Corps as an aircraft mechanic. After serving he worked for Garrett AiResearch Manufacturing Co. (Now Honeywell).

**ALLEN JACKSON PEEBLES** BSEE 1950, North Augusta, South Carolina, Oct. 4, 2007. He served in the U.S. Army during World War II where he attained the rank of First Lieutenant in the Signal Corps and received the Bronze Star.

**THOMAS A. LYON** BSEE 1950, San Francisco, California, June 22, 2016. Tom worked for Cummins for more than 30 years, retiring as the owner of Cummins West in San Francisco.

**JOE B. MELTON** BSME 1951, Richmond, Virginia, Aug. 2, 2016. Served in the U.S. Navy at the end of WWII. He was also a mechanical engineer with Reynolds Metals (now Alcoa) for 39 years.

**CHARLES R. JOHNSON** BSEE 1952, Marked Tree, Sept. 25, 2016. He was a U.S. Army veteran and served in Thule, Greenland during the Korean War. He worked for Western Electric for 35 years.

**JAMES R. BOWEN** BSEE 1953, Westminster, Maryland, June 6, 2016. Jim's love of country led him to travel to all fifty states, as well as Canada and Europe.

**KENNETH E. DAVIS** BSCE 1953, Jefferson City, Missouri, May 24, 2016. He served in the Army during the Korean War. He worked as a civil engineer for the Missouri State Highway Department.

**ARTHUR H. RUBECK** BSME 1954, Irving, Texas, May 13, 2016. He was employed by Chance Vought Aircraft in Dallas and its successors (Ling Temco Vought then LTV) until his retirement in 1988.

**JAMES W. YARBROUGH** BSCE 1954, MSCE 1958, Memphis, Tennessee, May 26, 2016. He was a civil engineer in Memphis for 45 years, retired in 2002 from the City of Germantown where he was traffic engineer.

**BILLY K. COOPER** BSCE 1955, Hot Springs Village, Sept. 22, 2016. He worked for the Arkansas State Highway Department and was an engineer. He was the chief engineer for 18 years.

**MARK G. PURIFOY JR.** BSEE 1955, Austin, Texas, June 14, 2016. He worked for Exxon for 35 years.

**HAROLD S. WATSON** BSME 1956, Palm Desert, California, April 29, 2016. Scott served as an engineer in the U.S. Army, and enjoyed a decades-long career as an engineering and marketing leader in the aerospace and defense industry.

**GERALD S. SMITH** BSEE 1957, Huntsville, Sept. 18, 2016. He served in the U.S. Army. He worked on numerous missile programs.

**JERRY FRANKLIN BUEHRE** BSCE 1957, Kansas City, Missouri, Feb. 7, 2016. He worked for the U.S Army Corps of Engineers for 40 years.

**JOHN M. WHITE** BSCHE 1958, St. Louis, Missouri Nov. 27, 2016. He was a chemical engineer.

**HUBERT W. HACKNEY JR.** BSEE 1959, Columbus, Kansas, May 12, 2016. He served in the Missouri National Guard. He worked for The Empire District Electric Company for his entire career.

**JAMES L. WORST** BSEE 1959, Broad Run, Virginia, Oct. 30, 2016. He served in the United States Air Force in the last days of the Korean War. He worked for RCA on the cold war radar tracking system known as BMEWS (Ballistic Missile Early Warning System).

**ROBERT E. NOEL** BSEE 1959, Joplin, Missouri, July 16, 2016. Bob served in the Army Security Agency. He spent a large part of his professional career at Finley Engineering. In 1996, he opened his own practice.

**PAUL C. MCLEOD JR.** BSME 1959, MS 1967, Sheridan, Oct. 30, 2016. He was a research lab assistant at the U of A. He and other engineers and scientists opened the Graduate Institute of Technology in Little Rock.

## 1960

**JOHN P. HEDGECOCK** BSCHE 1960, North Little Rock, June 8, 2016. He was a Navy veteran during the Korean War.

**HAROLD DIXON SMITH** BSCE 1960, Arlington, Texas, Aug. 4, 2016. Served for four years in the Air Force during the Korean War. Also worked for the United States Environmental Protection Agency.

**EARNEST J. HILLHOUSE** BSEE 1961, Huntsville, April 12, 2015.

**HAROLD GLENN HALL** BSEE 1961, Van Buren, Dec. 1, 1966.

**KENNETH W. RICHEY** BSCE 1961, Springdale, Dec. 3, 2016. He had served in the United States Army during the Korean War.

**JOHN H. MOORE** BSCHE 1962, Gainesville, Florida, Aug. 10, 2016. Was a research professor emeritus of anthropology at the University of Florida. He also worked as a surveyor for the U.S. Army Corps of Engineers.

**JERRY YEARGAN** BSEE 1962, MSEE 1965, Fayetteville, Arkansas, March 31, 2017. Dr. Yeargan was a former faculty member and Head of the Electrical Engineering Department, and also served as Head of the Computer Science Computer Engineering Department.

**RICHARD VINCENT BORDSEN** BSCE 1962, Little Rock, July 15, 2016. Survivors: wife and son.

**D. E. MORRISON JR.** BSCHE 1964, Fayetteville, Oct. 13, 2016. He worked for DuPont Company as a chemical engineer for 40 years.

**WILLIAM G. CATHEY** BSME 1964, Niceville, Florida, Nov. 19, 2016. He served in the National Guard and later served as an Air Force Officer. Survivors: wife Georgia Cathey BSE 1963, son, daughter, grandchildren and one great-grandchild.

**WILLIAM D. BROWN** BSEE 1969, Fayetteville, Arkansas, March 30, 2017. He served as Department Head of Electrical Engineering as well as Associate Dean of Research for the College of Engineering.

**FRED ALAN WILLIS** BSME 1967, Boulder, Colorado, June 26, 2016. Fred worked for IBM for 30 years in Lexington, Kentucky; in Tucson, Arizona and in Boulder, Colorado, and for five years with Exabyte Corp in Boulder after his retirement from IBM.

**ROBERT H. SPOONTS** BSCHE 1967, Stamps, May 24, 2016. Spoonsts was a chemical engineer for 42 years with Reynolds Metals and traveled all over the world with his job. Survivors: brother, Ed Spoonsts.

**DAVID LEE POOLE** BSME 1968, MSIE 1972, Sheridan, Aug. 26, 2016. He served in the Vietnam War. He worked for Sun Oil before he moved back to Arkansas where he later worked for the Department of Health.

## 1970

**LARRY J. STONE** BSAGE 1970, MSCE 1972, Hot Springs, Aug. 28, 2016. Was a civil engineer and had a firm in Longview.

**BILL N. MEADOWS SR.** BSIE 1970, MBA 1975, Fayetteville, May 21, 2016. He was a member of Sertoma and was a longtime member of the Board for The Salvation Army.

**JOE F. CARROLL JR.** BSIE 1970, Little Rock, May 15, 2015. He was a boxer in the Navy and was the proud owner/operator of Wolfies Tavern and BBQ for many years.

**JAMES R. TUCKER** BSIE 1971, Jacksonville, Mississippi, Oct. 11, 2015.

**RICHARD C. JACKSON** BSEE 1972, Batesville, Aug. 16, 2016. Spent over 30 years as an engineer at Woodruff Electric Cooperative.

**JUNIUS B. STONE JR.** MSEE 1974, Little Rock. He was a retired facilities engineer.

**LEE R. MCEWEN JR.** BSEE 1977, Hartford, Texas, Aug. 1, 2016.

**JOHN J. MARTIN** BSME 1979, Spartanburg, South Carolina, June 18, 2016. He was a retired mechanical engineer. He was a true "Jack of all Trades" and loved to garden.

## 1990

**MICHAEL D. GLOVER** BSEE 1993, MSEE 1995, PHD 2013, San Jose, California, Oct. 27, 2016. He worked for the University of Arkansas as a research assistant professor in electrical engineering.

## 2000

**CHRISTOPHER KERRY ALLEN** BSME 2003, Fayetteville, May 25, 2016. He was a professional rock climbing guide in the New River Gorge area of West Virginia.

## 2010

**BEN R. FARMER** BSCHE 2013, Bryant, June 6, 2016. Ben worked for Kohler in Sheridan as an engineer.

**Have a Class Note?**  
Send your news to  
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Engineering

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1 University of Arkansas  
Fayetteville, AR 72701

The University of Arkansas College of Engineering Announces Its 2017

# *Alumni Award Recipients*

## HALL OF FAME

BOB H. CRAFTON, BSCE 1957  
LARRY G. STEPHENS, BSIE 1958

## DISTINGUISHED ALUMNI

PAT BOURNE, BSEE 1968  
BOB HARRISON, BSME 1974  
PAM MCGINNIS, BSIE 1990  
LYNN MOORE, BSCSE 1994, MSCSE 1996  
MIKE SHOOK, BSAGE 1982  
MICHAEL WOOD, BSCHE 1984  
CARL YATES, BSCE 1958

## EARLY CAREER

ANDY DAVIS, BSCE 1999, MSCE 2001  
ADAM EKENSEAIR, BSCHE 2005  
MATT FRANCIS, BSEE 2003, BS 2004, MSEE 2007, PHD 2009  
AMANDA FURR, BSIE 2003  
TONI MCCRORY, BSBE 2007  
JONATHAN SCHISLER, BSCMP 2004, MSCMP 2005  
MATT ZWICKER, BSME 2003