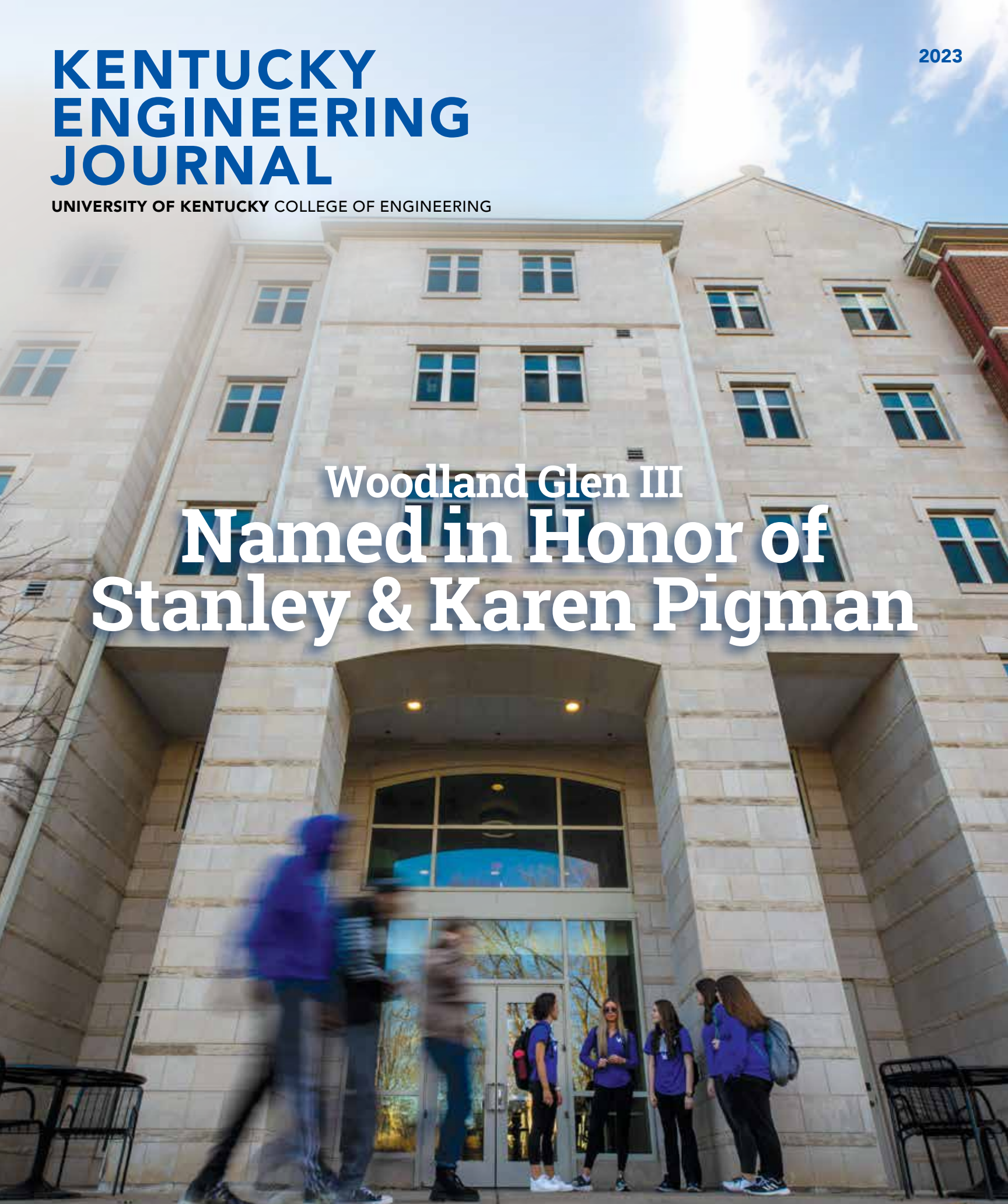


KENTUCKY ENGINEERING JOURNAL

2023

UNIVERSITY OF KENTUCKY COLLEGE OF ENGINEERING

Woodland Glen III Named in Honor of Stanley & Karen Pigman



Engineering Career and Co-op Center



The Career and Co-op Center is the college's new full-service resource center. It provides a comfortable space for students to converse with employers, learn resume and networking skills from their peers, and meet professional staff for career-related needs. The team supports students throughout their career journey, from building their first resume to securing a full-time job offer.

In addition to one-on-one meetings with professional staff, students can meet with Career Peers and Recruiters in Residence, and attend resume labs, topical workshops, info sessions and career fairs. Students can market their skills for future co-ops, internships and full-time positions with over 350 companies.

MESSAGE FROM THE DEAN

Generative AI — or more explicitly, generative artificial intelligence. Most of us have heard about artificial intelligence. The idea, and practical embodiments of it, has been around for 50 or 60 years. But recently, geometric increases in computing power have put AI on steroids and “generative” AI has burst into our awareness. Generative AI creates text, images, video, audio, code or synthetic data from simple prompts. It is powerful. It can teach and inform, as with ChatGPT, which generates detailed responses and articulate answers across many domains of knowledge. It can inspire through the creation of art with Dall.E2, and it can mislead us with deepfakes. To illustrate, here is an example of how ChatGPT works — that also provides a good lesson.

Based on a simple prompt, “High points of the College of Engineering at the University of Kentucky,” ChatGPT comes up with the following:

Here are some of the high points of the College of Engineering at the University of Kentucky:

- *Strong academic programs: The college offers undergraduate and graduate degree programs in various fields of engineering that are highly regarded for their academic rigor and quality. The college is also home to the only accredited mining engineering program in Kentucky.*
- *Research focus: The college has a strong focus on research and innovation, and its faculty members are involved in various research projects with industry, government agencies, and other academic institutions. The college has several research centers and institutes that are dedicated to advancing knowledge and technology in various engineering fields.*
- *Industry partnerships: The college has established partnerships with industry leaders in various engineering fields, which provide students with opportunities for internships, co-op programs, and employment after graduation.*
- *Student organizations and programs: The college provides various student organizations and programs to help students develop their skills and interests outside of the classroom. These include professional societies, student design teams, and leadership development programs.*
- *State-of-the-art facilities: The college has modern and well-equipped facilities that are designed to support teaching, research, and innovation. These include specialized labs, research centers, and classrooms equipped with the latest technology.*
- *Commitment to diversity and inclusion: The college is committed to creating a diverse and inclusive community that welcomes students from all backgrounds. The college provides various programs and resources to support underrepresented students and promote diversity and inclusion in the engineering field.*

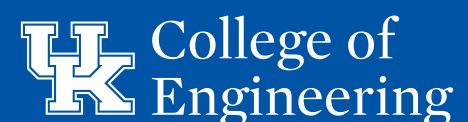
ChatGPT took less than 30 seconds to produce this summary. Very simply, it collected, integrated and prioritized what was written about the college on the web and reproduced it. Much of what is out there has been written by our own marketing and communications team, so the substance of this summary is not so surprising. As a result, ChatGPT is a great ambassador for the college.

In that is the lesson: To be ambassadors for our college, I hope we all read this edition of the Kentucky Engineering Journal to discover all the great things happening across the college and share that information widely!

Sincerely,



Rudy Buchheit
The Rebecca Burchett Liebert Dean



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On February 25, the college held its 100th edition of E-Day. Lexmark and Lockheed Martin sponsored the open house, which featured approximately 100 contests, demonstrations and exhibits.

NEWS OF THE YEAR



Luke Fortner Heads to the NFL

After six years on the football field, two engineering degrees and an MBA, Luke Fortner was drafted by the Jacksonville Jaguars in the third round of the NFL draft. Fortner became one of the first students to receive a master's degree in aerospace engineering. He did so under the supervision of Professor Alexandre Martin.

"It is not often that a student ends up passing up the opportunity to work at NASA because he is going to play in the NFL. But with Luke, who knows, maybe he will end up doing a Ph.D. at the same time," quipped Martin.



D.B. Produces COVID-Deactivating Mask

At the beginning of the COVID-19 pandemic in 2020, University Alumni Professor of Chemical Engineering Dibakar Bhattacharyya, known to friends and colleagues as "D.B.," along with collaborators across disciplines at UK, received a grant from the National Science Foundation (NSF) to create a medical face mask membrane that can capture and deactivate the SARS-CoV-2 spike protein on contact. Two years later, D.B. and Ph.D. student Rollie Mills made the mask a reality.

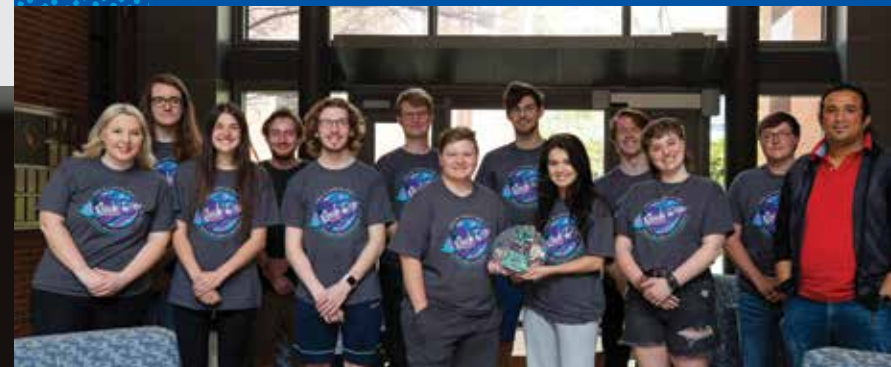
"This innovation is another layer of protection against SARS-CoV-2 that can help prevent the virus from spreading," said D.B., who is also director of UK's Center of Membrane Sciences. "It's promising for the development of new products that can protect against SARS-CoV-2 and a number of other human pathogenic viruses."



Turning Trash into Fuel

Last summer, Kaitlyn McGlenon, a junior studying chemical engineering at the UK College of Engineering Paducah campus, traveled to Mpigi, Uganda, to install five Trash-to-Tank processors into local homes. These processors, developed by Professor Jeffrey Seay, convert plastic waste into clean-burning cooking fuel. The trip marked McGlenon's third with Seay's lab. She went to Uganda in July 2021 and to Nepal in March 2022.

"These trips have opened my eyes and changed my life," said McGlenon. "Plastic never goes away. It doesn't biodegrade. And it's killing people. After going on these research abroad trips, I will never look at plastic the same way again."



RockOn!

Two UK teams participated in RockOn!, an annual workshop hosted by the Colorado Space Grant Consortium and NASA Wallops Flight Facility. The teams, along with others from institutions across the country, built payload decks, which were launched in a suborbital-sounding rocket from NASA Wallops Flight Facility, located in Virginia. The program is a precursor to RockSat-C and RockSat-X, which also send custom-created student experiments into space.

"It's been great watching these younger students experience their first payload build, and I hope that it will inspire at least some of them to seek new opportunities for research and growth," said Kristin Ford, an undergraduate student majoring in aerospace engineering.



UK Computational Electromagnetics Group Awarded Director's Innovation Award by NASA, Johnson Space Center

Rob Adams, Cai-Cheng Lu and John Young, professors in the UK Department of Electrical and Computer Engineering, were awarded the 2022 NASA and Lyndon B. Johnson Space Center (JSC) Director's Innovation Award. The award recognizes innovation in the operations of NASA or the JSC in science, technology, engineering and business practices. The CEM group was selected for the prestigious award for their groundbreaking work on GEMINI, the NASA and JSC electromagnetic software modeling system.

"When I visited the Johnson Space Center, the NASA scientists were very excited about our faculty's work in this area and what it allowed them to do," said Mike Johnson, professor and chair of the UK Department of Electrical and Computer Engineering.



Formula Kentucky Places Third at FSAE Michigan

UK's Formula Society of Automotive Engineers (SAE) Team placed third in cost and presentation at the international Formula SAE competition May 18-21, 2022. The annual international Formula SAE competition challenges teams of university undergraduate and graduate students from all over the world to conceive, design, fabricate and develop Formula-style race cars. Participating teams enter their vehicles in a series of off-track and on-track events where they earn scores from judges.

"Placing third in cost and presentation is the first time the team has ever won anything in a competition," said Adam Reynolds, team captain. "In design judging, we gained 10 points on our previous score as well. The team has been a lot more organized, which has really helped us improve."

UK Solar Car Team Grabs Two Third-Place Finishes

Last summer, the UK Solar Car Team won third place in both the Formula Sun Grand Prix (FSGP) and the American Solar Challenge (ASC). The FSGP is a 24-hour track race at Heartland Motorsports Park in Topeka, Kansas. Over three days, teams attempt to complete as many laps as possible. UK's team completed 273 laps on the track, which was roughly 680 miles. The ASC race, which took place on the open highway, gave teams eight days to drive from Independence, Missouri, to Twin Falls, Idaho.

"We are so happy with how our car performed at these two big summer competitions," said Sheldon Salins, a team member who graduated with his bachelor's degree in mechanical engineering from UK in May 2022.



Wildcat Pulling Team Back on the National Stage

The UK Wildcat Pulling Team achieved an overall third-place showing in the 2022 American Society of Agricultural and Biological Engineers International 1/4-Scale Tractor Student Design Competition held June 2-6 in Peoria, Illinois. After a three-year hiatus, two of which were due to the COVID-19 pandemic, the team overcame broken parts, two flat trailer tires, a dried fuel pump and more during its odyssey.

"We really did overcome a lot to get where we did," said Michael Sama, associate professor of biosystems and agricultural engineering. "This just goes to show how much can go wrong and how hard the team worked to overcome obstacles while under tremendous pressure. I have no doubt they learned a lot in such a short time."

Since 2001, the Wildcat Pulling Team has placed in the top three 14 times, coming in either first or second seven of those times.



First Karen and Stanley Pigman Engineering Technology Scholars Arrive

Last fall, a cohort of eight students moved into Pigman Hall as the first Karen and Stanley Pigman Engineering Technology Scholars. The students have two academic pathways in the Department of Engineering Technology. One leads to a Bachelor of Science in lean systems engineering technology, and the other leads to a Bachelor of Science in computer engineering technology. Students begin each pathway at Bluegrass Community and Technical College, where they receive an associate degree in applied science in two years. Students will then work toward their bachelor's degree at UK during their second two years.



Civil Engineering Students Partner with Habitat for Humanity

In September 22, 10 students from the UK student chapter of the American Society of Civil Engineers partnered with Habitat for Humanity to help build a home for a family in need in Georgetown, Kentucky. Students helped with construction and wrote encouraging notes on the walls.

"The participation of the ASCE students with Habitat for Humanity is the essence of the humanitarian engineering program here at UK," said L. Sebastian Bryson, chair of the Department of Civil Engineering. "We want to equip our students to engineer resilient and sustainable infrastructure systems for the benefit of humanity. Our students can make a difference in their communities."



Preparing High School Students for a UK Engineering Education

On November 9, 2022, 175 high school students from across Kentucky came to the University of Kentucky College of Engineering campus for Transition to Engineering (T2E) Project Kickoff Day. Now in its third year, T2E takes the college's wildly successful First-Year Engineering (FYE) program, required of all freshman engineering students, and applies it at the high school level. On T2E Project Kickoff Day, all participating high school students come to UK with mock-ups of their project ideas during the fall semester of their senior year. They meet with UK College of Engineering faculty and learn how their engineering projects will be evaluated.



UK Paducah Campus Unveils New Innovation Center

The UK College of Engineering Paducah Campus celebrated the grand opening of the Paducah Engineering Innovation Center (PEIC) in fall of 2022. The new PEIC makerspace gives students access to high-quality manufacturing equipment, such as Tormach Computer Numerical Controlled (CNC) mills and lathes, 3D printers, latex printers and a CNC plasma cutter. Generous donors made PEIC a reality.

"This new Engineering Innovation Center will transform the engineering education that our students receive," said Y. Charles Lu, director of the UK Paducah campus. "Students can now come here to build products they design on paper. The experiences of being hands-on and doing practical things will make our students great engineers!"

OFF TO A GOOD START

Launched in 2016, the First-Year Engineering program has created a more positive experience for new UK College of Engineering students

By Ravyn Ladenburger

Samuel Hahn enrolled at the University of Kentucky with plans to major in chemical engineering. Of all his high school science courses, chemistry had been his favorite. Since he already knew he wanted to pick an engineering major, Hahn thought chemical engineering seemed like a natural fit.

Not long into his first semester, and before he had taken a single course in chemical engineering, he told his advisor he wanted to switch to mechanical engineering. Why?

"The First-Year Engineering program had a lot to do with it," Hahn recalled. "For the EGR 101 course, we needed to attend presentations about each major in the College of Engineering. I didn't know much about chemical engineering when I started at UK, but after hearing about the careers in chemical engineering and comparing them to the careers in mechanical engineering, I realized that mechanical engineering was a better fit for what I want to do in life."

Prior to the First-Year Engineering (FYE) program's inception in 2016, students spent a year gaining foundational knowledge in engineering prerequisites like calculus, chemistry and physics. Only in their sophomore year would the typical student begin taking courses within their major. If well into their college career a student discovered that major or career path wasn't for them, they faced the expensive proposition of tacking on an extra year or two to change majors.

“ I didn't know much about chemical engineering when I started at UK, but after hearing about the careers in chemical engineering and comparing them to the careers in mechanical engineering, I realized that mechanical engineering was a better fit for what I want to do in life. ”

– Samuel Hahn





“FYE matters because it’s keeping kids in engineering, which is allowing us to graduate more engineers. It impacts the whole state.”

– Douglass Kalika,
Director of First-Year Engineering

That was if they progressed that far. Many students who struggled with the prerequisites, as well as the jump from high school to college, quietly dropped out of the college in favor of a less demanding major. In 2016, that trend presented itself in unmistakable terms to Kimberly Ward Anderson, associate dean for administration and academic affairs.

Three years earlier, the college had celebrated crossing the 3,000 undergraduate student threshold for the first time in its nearly 150-year history. However, as Anderson scrutinized the data, she couldn’t ignore that too many students the college had welcomed through the front door were slipping out the back door.

“We were losing students after the first year. They would switch from the College of Engineering to a different college because they didn’t enjoy their classes,” said Anderson. “But they weren’t taking engineering classes! They were taking math and science courses and UK Core. We realized we needed to show these students what engineering was, as early as possible.”

Seven years later, the FYE program prides itself on providing a robust entry into the engineering profession. By placing first-year engineering students in real engineering courses in their first semester, participants gain an informed perspective on the majors offered in the college and the careers available upon graduation.

What’s more, students are now less likely to leave the College of Engineering after their first year. Since FYE’s implementation, the retention rate of students who stayed in the college for a second year has increased from 67.9% to 89.3%. The rate of students staying for a third fall semester has increased from 59.2% to 63.2%, and the graduation rate for the College of Engineering has increased from 46% to 51.5%.

“FYE matters because it’s keeping kids in engineering, which is allowing us to graduate more engineers. It impacts the whole state,” said Douglass Kalika, chemical engineering professor and FYE director. “Before companies decide to open a new office or plant somewhere, they examine the local talent base. If we

are increasing the number of engineers in Kentucky, we are helping Kentucky’s economy grow.”

According to Janet Lumpp, professor in the Department of Electrical and Computer Engineering and the initial director of the FYE program, hiring full-time lecturers to teach FYE courses is part of FYE’s secret sauce. Because lecturers aren’t expected to operate research labs or publish in journals, they offer more availability to students who need anything from extra instruction to a boost in confidence. Students frequently describe FYE instructors as mentors who genuinely care about their well-being.

“The FYE faculty are the first engineering professors the students meet. In a way, they make a first impression for the entire college. It’s made the students more comfortable with all the faculty. They’re more willing to ask questions to all their professors because the FYE instructors have already paved the way,” Lumpp said.

Laura Letellier is a good example of the kind of lecturer with whom students immediately feel at ease.



Letellier joined the nascent FYE program after wrapping up careers in the military and in industry. Today, she is one of the most beloved lecturers in the FYE program. Students describe her as a teacher who pushes them to do their best, and one who shows sincere interest in their academic and personal lives. Letellier became known for holding office hours in the lobby of Woodland Glen III, home of the College of Engineering’s Living Learning Program. In 2020, she won a “Teachers Who Make a Difference Award” from the UK College of Education.

“These are young people who would like to be engineers, and if that’s what they want to do, then I’m going to help them. That’s really the bottom line. I’ll help them get there,” she said.

During the spring semester of their first year at UK, engineering students who meet certain requirements can choose a major and take the rest of their courses within that department. Because FYE puts all first-year engineering students in the same classes regardless of their major interest, students often gain an appreciation for their classmates’ diverse interests.

“We knew we wanted to make sure we’re representing all the engineering disciplines and exposing our first-year students to the opportunities in all those different majors,” explained Kalika. “At the end of the second semester, when the first-year students decide what major they are going to pursue, we can know they are making an *informed* decision.”

“The FYE program gives you the opportunity to experience engineering before you have invested time into

taking classes in a specific discipline,” added Kenton Carrier, a 2021 computer science graduate and software engineer for Target. “If you start out in one discipline, you may find that another form of engineering is better for you, and FYE gives you the resources to make those discoveries before you’ve taken two semesters of the wrong major. You also get to flex your engineering muscles in the coursework and projects; the classes allow you to solve problems and create designs that real engineers encounter in industry.

students is resiliency,” said Kalika. “My hope is that our students have the patience and the persistence to see any problem through.”

To that end, Kalika has worked to design the curriculum so that it includes complicated activities that don’t necessarily have a single right answer. One of his goals is to help students understand what engineering is really like — trying and failing to solve a difficult problem by exploring various routes. FYE’s supportive environment helps

instructors also teach modules that cover study methods, interpersonal skills for group projects, unconscious bias and sustaining one’s well-being throughout college.

“We wanted the classes to help students prepare for the overall college experience,” said Lumpp. “We teach them to do things they might be intimidated to do. It’s not just a technical curriculum. We want to prepare them to communicate and be on a team.”

If a student transfers into engineering from another college or another university, they take EGR 215, a one-semester FYE course for transfer students. Transfer students often have different challenges than traditional first-year students, such as commuting, raising a family, working a job or adjusting to life as a military veteran. The FYE faculty realized that transfer students were often more mature and didn’t need a full year to adjust to engineering classes.

“Putting the transfer students together gives them a sense of community, just like putting the first-year students together gives them community,” said Anderson. “Community is important to success in the College of Engineering.

Anderson helped put the FYE program in motion nearly seven years ago. As she reflected upon its impact, she sees an overall positive trajectory.

“Our goals for FYE have been to provide community, to teach our students the engineering skills that they’ll need and to build confidence,” she said. “Here’s how you study. Here are how you can be successful. Here’s the resources you’ll need. I think we’ve done just that.” ■



UK’s approach to guiding first-year engineering students provides a refreshing counterexample to many traditional engineering programs, which have a reputation for “weeding out” students who struggle with the curriculum’s rigor. At UK, every faculty member wants to help every student make it through every class.

“What I really want to teach our FYE

students build the confidence necessary for persevering in the face of setbacks.

FYE’s curriculum consists of fall semester courses EGR 101 and 102, which introduce students to computing and other skills that will help them think like engineers, and the spring semester EGR 103 course, which immerses students in project management in anticipation of their senior design projects. FYE

THE FIRST-YEAR ENGINEERING PROGRAM

The First-Year Engineering program is one of several strategic initiatives aimed at giving incoming engineering students multiple points of support. Below are other ways our dedicated advising staff demonstrates its commitment to student success.

Advisors send all incoming students a summer newsletter, which provides a countdown until their arrival on campus and prepares them for the start of the semester.

When students first get to campus, advisors offer “meet and greet” appointments to start building the advising relationship.

Advisors keep an open-door policy for students — no appointment is needed for most of the semester.

Students who are unsuccessful in meeting the college’s academic standards can complete a Student Success Contract to resume their academics.

Advisors work collaboratively with FYE faculty to identify students who may need additional support.

College of Engineering advisors and staff teach sections of UK 101 designed solely for engineering students. The engineering-only sections create learning communities and introduce new students to fellow engineering students.



WELCOME TO PIGMAN HALL

In gratitude for Stanley and Karen Pigman's consistent devotion to supporting aspiring College of Engineering students, the University of Kentucky has renamed Woodland Glen III 'Stanley and Karen Pigman Hall.'

By Ravyn Ladenburger

Over 20 years ago, Stanley Pigman, a 1980 mining engineering graduate, and his wife, Karen, spent time visiting Stanley's mother in Eastern Kentucky. While they were in the area, Stanley said he would like to see the Bible camp he'd attended as a kid to see what had changed. So they did. Not long after entering the camp's grounds, the Pigmans ran into Stanley's camp counselor from decades before, who was now running the camp.

As they chatted, the director's son, Ben, came down the hill, carrying the chainsaw he had used to clear the hiking trails. After finding out Ben would soon begin his senior year of high school, Stanley asked him if he was looking at colleges. Ben replied he would probably go to Eastern Kentucky University, although he would like to go to the University of Kentucky. Then, Stanley asked Ben what he planned to study, to which he answered, "Engineering."

Stanley grinned and said, "Do I have a scholarship for you!"

The next year, Ben Hudson became one of the first students to receive a full scholarship from the Pigmans to study engineering at UK. Ben graduated, became an electrical engineer, and he and his family now live in Chicago. Ben and

the Pigmans remain in touch.

That vignette provides just one example of the numerous relationships Stanley and Karen have formed with students they have supported through scholarships or through the college's Leadership Class. What began with financially supporting and mentoring one or two students at a time has now swelled to over 200 students who have received either a full four-year scholarship or a significant amount that greatly reduced a student's unmet financial needs.

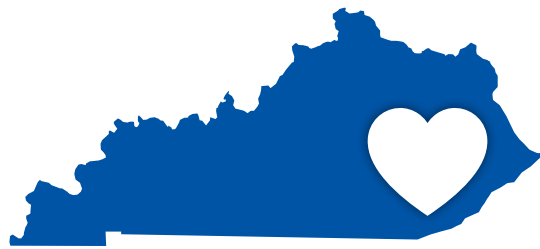
In honor of the Pigmans' sustained generosity and as a way of expressing gratitude for the hundreds of lives they have positively impacted, the University of Kentucky Board of Trustees approved renaming the Woodland Glen III residence hall "Pigman Hall" at their December 2022 meeting. Woodland Glen III has accommodated the college's Living Learning Program (LLP) since it opened in 2015.

"Stanley and Karen Pigman are indispensable members of the UK family," said UK President Eli Capilouto. "Their generosity has transformed the College of Engineering and opened doors for students of all backgrounds. We are proud to name this residence hall in their honor."

““ Their generosity has transformed the College of Engineering and opened doors for students of all backgrounds. We are proud to name this residence hall in their honor.””

– Eli Capilouto,
University of Kentucky President





A HEART FOR EASTERN KENTUCKY

Born in Knott County, Kentucky, Stanley is particularly passionate about funding first-generation students from Eastern Kentucky.

“When I first met Stanley, he brought me to UK, and we met with four or five students he was supporting through

scholarships,” said Karen. “We really got to know them. Each year we added two, three, four more students. Eventually, it became my passion just as much as Stanley’s. These students bring blessings to our life.”

Throughout Stanley’s successful career, he has always initiated and financially supported programs that connect high school and college students with engineering and technology. He and Karen have not only endowed need-based scholarships for UK students, but they also provide scholarships for 70 UK engineering students each year.

Stanley created the L. Stanley Pigman Scholarship Program in 1999.

“The Pigman Scholarship provides not only financial assistance but also a built-in support system,” said Martina Martin, associate director of student and

community resources and services in UK’s Office for Student Success. “It gives recipients access to new experiences that are academic, personal and service-oriented.”

In 2021, Stanley and Karen created the L. Stanley Pigman First-Generation Scholarship to provide scholarships to first-generation students from Eastern Kentucky. The scholarship reduces unmet need for students up to \$2,000 and requires recipients to live in the First-Generation Scholars Living Learning Community during their first two years at UK.

“We want to help. There are inherently intelligent people everywhere. It is just that sometimes they do not have the opportunities, educational or otherwise. Our hope is that these scholarships will significantly improve the lives of promising students from Eastern Kentucky,” said Stanley.

INVESTING IN THE NEXT ENGINEERING LEADERS

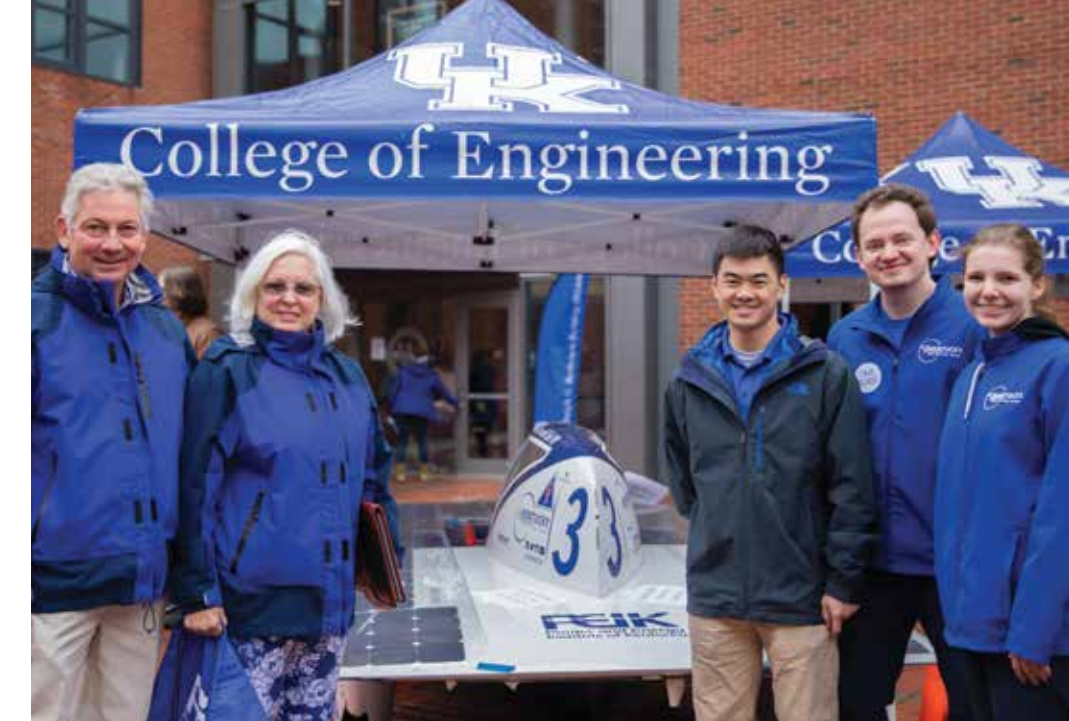
In 2008, Stanley founded the Leadership Development Program. Each year, 15 students are selected based on academic performance, student involvement and personal interviews with UK College of Engineering faculty, staff and alumni. During the semester, students engage with leaders in engineering and business, many of whom graduated from UK with degrees in engineering.

During UK’s spring break, the class takes an all-expenses-paid trip to Washington, D.C., where it visits members of Kentucky’s congressional delegation and federal agencies focused on major engineering issues.

“We don’t have the resources to bring huge improvements to the College of Engineering by ourselves, but we have resources to invest in very promising students taking part in the leadership program,” explained Stanley. “They gain self-confidence from having the opportunity to meet with CEOs, generals and company presidents. When else does a 20-year-old get a chance to have dinner with the CEO of a major corporation?”

Graduates of the class have established careers at notable companies and research centers, such as SpaceX, NASA, Boeing, Facebook, NASCAR, Marathon and General Electric, or are pursuing graduate studies at prestigious institutions such as Princeton University, University of Texas-Austin, University of Michigan and Yale University, among others. In 2017, Leadership Development Program alumni collectively pledged \$250,000 to UK.

“I don’t know that I’ve ever met more generous people than the Pigmans,” said Amna al-Jumaily, a 2021 chemical engineering graduate, who met the Pigmans through the leadership class. “They donate their money, but more importantly, they donate their time to the people of Kentucky and the students in the college. They make me think about the kind of engineer I want to be and how I want to give back to the college.”



POWERING THE SOLAR CAR TEAM

Stanley and Karen have also supported the UK College of Engineering’s Solar Car and Formula Kentucky teams. The Solar Car team designs and builds a car that runs on solar power. Students build the shell of the car and then attach solar cells that connect to the car’s motor. The Formula Kentucky team builds a race car from the ground up, but it doesn’t need to be solar powered. There are a few parts that are bought for both cars because they can’t be physically built by the students, such as tires.

Monon Rahman, a 2019 graduate from the UK College of Engineering, met Stanley at the end of his freshman year when Rahman was the business lead of the Solar Car team. One of Rahman’s responsibilities as the business lead was to fundraise for the team, an endeavor that had proven difficult in years past.

“When I met Mr. Pigman, he had never heard of the Solar Car or Formula Kentucky teams,” recalled Rahman. “At the time, we weren’t improving much year to year because we could never afford the new parts we needed.”

Stanley saw the potential of the teams. After spending time with Rahman, he decided to contribute to both teams as well as teach them how to fundraise. The team improved rapidly.

“Mr. Pigman’s support changed everything for us. He would always say, ‘Get what you need, don’t worry about cost,’” said Rahman. “Once we had financial support, we could focus more on building the car instead of fundraising for it. Mr. Pigman made it easier for us to learn and grow.”

When Rahman started with the Solar Car team in 2019, the best teams’ cars could go 40 mph, but UK’s car could only go 30 mph. This year, the UK Solar Car team’s car went 75 mph.



“Mr. Pigman saw Solar Car and Formula Kentucky as an opportunity to help more engineering students,” said Rahman. “It’s so much bigger than an extracurricular college activity. When I applied for jobs after college, the first question I got in interviews was always about Solar Car. I think Mr. Pigman realized how important this would be for our careers. He wouldn’t let us give up.”

“Mr. Pigman also connects us with solar car teams throughout the state,” said Sheldon Salins. “We’re really hoping those students who have worked on their high school’s solar car team will come to UK and join us.”



ENERGY AND ENGINEERING TECHNOLOGY

In addition to their scholarship funds, Stanley has established two endowed faculty positions in power engineering, the L. Stanley Pigman Chair in Power and the L. Stanley Pigman Faculty Fellowship in Power. In 2021, Stanley and Karen created the Lighthouse Beacon Foundation to support their philanthropic endeavors.

Last year, the Pigmans supported an engineering technology collaboration between the College of Engineering and

the Bluegrass Community and Technical College (BCTC). This collaboration will help BCTC students transfer to the UK College of Engineering to finish their bachelor’s degree.

The partnership with BCTC requires the recipients to live in the Engineering LLP in Pigman Hall, the largest LLP on UK’s campus. Students living in the Engineering LLP benefit from interaction with peer mentors, college administrators, faculty, Engineering LLP alumni representatives, advisors and other staff that assist students in their pursuit of a degree. Engineering students living in the LLP have been shown to have higher grade point averages than students who live

elsewhere. The Engineering LLP’s success is due in large part to Stanley and Karen’s vision and generosity.

For his career achievements and commitment to community service and his alma mater, Stanley was inducted into the college’s Hall of Distinction in 2009 and the UK Alumni Association Hall of Distinguished Alumni in 2020. The university awarded him an Honorary Degree of Humane Letters in 2017.

The Pigmans have proven to be the UK College of Engineering’s biggest advocates. We look forward to welcoming future Engineering LLP students to Pigman Hall for many years to come. ■

“I was excited to join the college’s Young Alumni Philanthropy Council, because I had been looking for ways that I could give back, like the Pigmans do. I want to be a part of this cycle of generosity.”

– Amna al-Jumaily,
2021 chemical engineering graduate

GIVING BACK

Inspiring students to pay it forward is important to the Pigmans.

“I was excited to join the college’s Young Alumni Philanthropy Council, because I had been looking for ways that I could give back, like the Pigmans do. I want to be a part of this cycle of generosity,” declared al-Jumaily.

In 2020, Stanley and Karen founded the Pigman Philanthropic Partnership Program to help reduce the barrier for alumni to launch endowments. They hope this will help alumni realize their

philanthropic aspirations to create endowments of their own. So far, the program has made 13 endowments possible.

When asked what motivates their philanthropy at the University of Kentucky, Stanley explained, “I couldn’t have gone to college without the scholarship I received from UK. Even as a freshman at UK, I realized that if you’re poor — and my family was poor — the only way out of poverty is through education. There are still many young people in Kentucky in the same situation today, needing help to pursue a college degree and a successful career. That’s why we do what we do.”

Karen said, “My whole idea of philanthropy is if everybody in the entire world would find something to give back to, no matter how big or small it is, the world would be a better place. The benefit of giving is it makes you feel good. Why wait until you die? Enjoy it.”

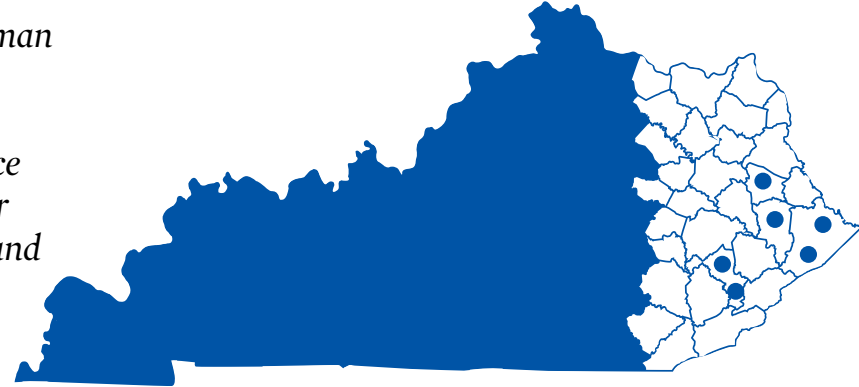
Karen’s parents, Earl and Kitty Congdon, share Karen’s philosophy. They’ve joined Stanley and Karen in supporting student scholarships since the beginning.

“Dad said, ‘Well how many scholarships can you handle?’ I said 50. And he said, ‘I’ll pay for half of those — how much is it?’ And he writes a check every August,” said Karen.



UP CLOSE & PERSONAL

In September 2022, Stanley and Karen Pigman took UK President Eli Capilouto to several Eastern Kentucky schools where they had invested in engineering and computer science education. The experience was formative for the president — and for the many students and teachers he met.



By Kel Hahn

While attending the 2022 SEC Men's Basketball Tournament in Tampa, Florida, Stanley Pigman had the opportunity to sit next to UK President Eli Capilouto.

He had no intention of merely talking basketball. In fact, Stanley had an idea he wanted to pitch to the president: see firsthand the groundbreaking work occurring in Eastern Kentucky high schools that have introduced engineering and computer science programs.

"I knew it would mean so much to the whole region," remembered Stanley. "I can't just sit here and tell him what it's like there. It wouldn't have the same impact. I knew he had to see it himself and personally interact with the people."

Capilouto agreed to Stanley's proposal, and over a period of days in September 2022, Stanley and his wife, Karen, gave UK's president a personal tour of Eastern Kentucky schools affiliated with Project Lead the Way (PLTW).

Six years ago, the Pigmans started an affiliation with PLTW, a national program that fully funds a four-year high school engineering curriculum. Harlan County High School implemented PTLW first, then Belfry High School, which sits on the Kentucky/West Virginia border.

At the outset of their tour, the Pigmans and Capilouto first visited Belfry, where the students were competing in the Congressional App Challenge. The Belfry students' app focused on wellness, connecting users with resources for COVID-19, depression, suicidal thoughts and more. Each day,

users receive a motivational message from the app.

"The students were ready for the president's visit," said Stanley. "This was a big deal to them. They put on a show for him — drones, robots, everything they've learned in their engineering program."

Next, the group stopped in Jackson, Kentucky, to visit Hazard Community College, which features a technology center the Pigmans funded in early 2020. The Pigmans hope to one day incorporate the Hazard Community College into the UK Engineering Technology program, which allows graduates of Bluegrass Community and Technical College to come to UK and graduate with a degree in computer engineering technology or lean manufacturing systems technology — in just two years.

They also visited the Challenger Center in Hazard and Pikeville Independent High School, which is the highest-ranked school in Eastern Kentucky and the fifth-highest ranked high school in the state. Five years ago, Stanley connected with their physics teacher, Jesse Lucas, who had graduated from UK with a degree in physics education.

"Finding a trained high school physics teacher is about as rare as hen's teeth," said Stanley, grinning. "I immediately contacted him and told him that if he stayed in Pikeville and implemented Project Lead the Way at Pikeville Independent, I would fund the program." Lucas took the Pigmans' offer and ran with it.

The next PLTW school they toured was the Floyd County



School of Innovation. The Floyd County School of Innovation is a college and career pathway school where students design, create and build their ideas in engineering and computer science. The Pigmans personally recruited all the engineering and computer science teachers employed by the Floyd County School of Innovation.

"I could tell President Capilouto was a little surprised that we knew everybody there. We pride ourselves on getting as involved as we can. We really care about these projects," said Stanley.

At the Floyd County School of Innovation, the engineering students built a wheelchair out of PVC pipe that looked like the Batmobile. The car was used by a local child, who wanted to trick-or-treat as Batman and who uses a wheelchair.

Karen recalled, "The students chose to make that project on their own. This community takes care of each other."

From there, the crew traveled to Johnson Central High School. After successfully implementing PLTW, the school secured a state grant for \$10 million to construct a career and technical school, which is currently under construction.

"We visited their solar car team, which of course is inspired by the UK Solar Car team housed in the College of Engineering," said Stanley. "They were so excited to show it to the president. It should be finished this year."

The trip to visit Eastern Kentucky schools had a noticeable

impact on Capilouto.

"Every time I have the opportunity to see firsthand what students are doing for their communities, I return home inspired," said Capilouto. "But this trip in particular — and the level of commitment I saw not only from the Pigmans but from each of the schools and students — reaffirmed for me the importance of everything we do at this university to advance Kentucky. That is why we're here: to educate the next generation so they may go on to lead lives of meaning and purpose."

"Many people have not been to the hills and don't know about the poverty there," said Karen. "UK is so well respected but attending UK and moving to Lexington is a lofty goal for so many kids. For the president to visit them was a huge deal."

"It was really the schools that impressed the president," explained Stanley. "We invited the teachers, the counselors, the administrators — everybody — to dinner at each school. Everyone was excited to meet the president of UK. We wanted to ensure that he talked to everybody and heard their stories."

The Pigmans hope to see more kids from Eastern Kentucky obtain degrees in engineering and computer science. While it's not uncommon for local students to resist moving elsewhere, many tech jobs are now 100% remote, which opens up previously unavailable opportunities.

"Our dream is to see Eastern Kentucky blossom again," said Stanley. ■

ONE OF THE CREW



UK Men's Soccer standout Clay Holstad is taking his game to the next level

By Kel Hahn

For Clay Holstad, the past year has been one of grand finales followed by promising beginnings. The Birmingham, Alabama, native graduated from the University of Kentucky in May 2022 with a chemical engineering degree. This past November, his playing career as a member of the UK Men's Soccer team came to an end with a 2-1 loss to the University of Pittsburgh in the Elite Eight of the national tournament.

No matter: Clay isn't done learning, and he certainly isn't done playing soccer.

In December, the Columbus Crew of Major League Soccer drafted Clay in the second round of its SuperDraft. The team's season began in late February. As he pursues a career in professional soccer, Clay is also progressing toward an MBA through UK, taking courses online while living and training in Columbus, Ohio.

"This past year has been incredible," Clay said. "I'm sure at some point I'll

look back on it in amazement, but for now, things are moving so fast there isn't much time to reflect."

As a fifth-year player while finishing up at UK, Clay assumed a leadership role in what he deems his favorite season. The team went 15-1-5 and earned a No. 1 seed in the national tournament. Clay started all 21 matches and was named the MVP in the Sun Belt Conference

Tournament, which UK won.

"Everyone on the team — even the young guys — are all really good," said Clay. "But there's experience that comes with being on the team for so long. People just look up to you because it's

a long season and you've been there. We had several seniors and fifth years, so as a group we took on a leadership mentality."

In the classroom, Clay enjoyed his chemical engineering courses; in particular, he appreciated the Capstone course taught by lecturer Anastasia

“You only get this opportunity so often, so I want to play for as long as I can. I know I can only play a kids' game and get paid for so long.”



Hauser. Clay even completed pre-medical school requirements with an eye toward going to medical school. Throughout his time at UK, he learned how to balance a demanding chemical engineering curriculum and a grueling soccer schedule.

"Sometimes, when I'd have six problems to do, I might only have time to do one," Clay explained. "But then that one was out of the way, and I'd have to spend less time on homework the next time I could get to it. I'd work on the bus. A lot of the time, I just had to make myself get up and get to work."

As Clay considers what a future career outside of soccer might look like, he thinks about putting his MBA to work through medical device sales. He also took a course in bourbon distilling at UK that has sparked thoughts about working in the bourbon distilling industry.

For now, he'll see how long he can play professional soccer.

"You only get this opportunity so often, so I want to play for as long as I can," Clay shared with a winning smile. "I know I can only play a kids' game and get paid for so long." ■

ONE DAY FOR UK 2023!

For 24 hours on April 19, 2023, alumni, faculty, staff, students and friends will support the UK College of Engineering through One Day for UK — the University of Kentucky’s annual giving day.

From its inception, UK has pioneered new ways to carry out its mission to ensure brighter futures in our state and beyond. And one thing has always been true: When UK alumni, faculty, staff, students, and supporters join together, we can achieve anything.

One Day for UK is an opportunity to promote UK pride and benefit students, faculty, research, programs and initiatives across campus. Join in the fun and make a gift that will help us build upon our momentum and ensure our promise to be the "University for Kentucky."

Help Unlock a \$275,000 Challenge Gift from Mike Marberry!

On One Day for UK, you can help unlock a generous challenge gift from alumna Mike Marberry, who earned his bachelor's and master's degrees in chemical engineering in 1981 and 1983, respectively.

Marberry recently retired from J.M. Huber, one of the largest family-owned companies based in the U.S., after a 25-year career that included 13 years as Huber's CEO.

"During my years as CEO of J.M. Huber Corporation, I worked with a terrific leadership team, and together we established 'Prosperity with a Purpose' as a core philosophy at our company. This was all about leveraging Huber's business success in many ways to do good in the world around us — especially in the communities where our employees lived and worked," said Marberry.

To honor his service, the corporation and its family owners endowed a \$225,000 scholarship fund in Mike Marberry's name at the University of Kentucky. If our College of Engineering family makes 275 gifts on One Day for UK, Marberry will add \$275,000 to the endowment, which will increase the number of scholarships awarded to UK Engineering students.

"I began funding engineering undergraduate scholarships more than a decade ago, and I plan to continue this at a higher level in the future," said Marberry. "I can still remember from my own undergraduate experience how stressful it was at times to manage financial pressures while being immersed in a demanding engineering curriculum. It makes me happy that through scholarship assistance I can now help ease that burden for so many talented engineering students. It is wonderful to hear from the scholarship recipients on how this support has made a real difference in their pursuit of a college degree and future engineering aspirations."

Marberry said it feels great to give back in ways that will help create new opportunities now for the next generation, and that he's looking forward to the UK Engineering community unlocking his challenge gift on One Day for UK.

"I think One Day for UK is a fun way to challenge people to get more involved with UK's future and to feel the positive power of working together for a charitable cause. It's not about the size of your gift. It's about connecting with others who share a passion for UK and expressing your support for a particular college, program or special cause that is meaningful to you."

#ONEDAYFORUK



MIKE MARBERRY
CHALLENGE GIFT
275 GIFTS
Unlocks
\$275,000!



A LIFE OF SERVICE

The Joseph R. Yanek Engineering Scholarship Fund will support future UK Engineering students in the Air Force ROTC program

By Kel Hahn

Joe Yanek received a bachelor's degree in mechanical engineering from the University of Kentucky in 1970. While on campus, Joe joined the University's Air Force Reserve Officer Training Corps program (AFROTC) program. After graduating, he served in the U.S. Air Force on active duty for 10 years. So, when Joe and his wife, Donna, who had earned a UK degree in elementary education, were conducting legacy planning, and deciding where to give back, Joe intuitively knew he wanted to put engineering and AFROTC together.

In fall of 2022, Joe and Donna created the Joseph R. Yanek Engineering Scholarship Fund, which will annually fund two scholarships for undergraduate students with demonstrated financial need who are majoring in mechanical engineering at UK and participating in the university's Air Force ROTC program. In addition to providing scholarships for current students, the Yaneks have created a legacy gift that will support their fund in perpetuity.

"Donna and I believe that each of us can make a difference in the lives of others and encourage them to also contribute to our great country," explained Joe. "I felt the need to give back to the two programs that formed the foundation for my career."

After completing 10 years of active duty, Joe transitioned to the U.S. Air Force Reserves at Charleston Air Force Base, where he spent 17 years and retired as a lieutenant colonel in 1997. Concurrently, in 1980, Joe began working full-time as an engineer with the E.I. DuPont Company at the Department of Energy's Savannah River Site in Aiken, South Carolina. In that role, Joe worked on high-level projects in DuPont's nuclear operations. He stayed at DuPont and its successor companies until retiring in 2006.

But Joe didn't stay retired for long. That same year, Fluor Corporation recruited Joe to manage its Environmental Safety and Health programs for their government business and global operations. He served as executive director for eight years before transitioning into a consulting role for the final three years of his tenure with Fluor. During his career, Joe served on the American Society of Mechanical Engineers' Nuclear Codes and Standards Board and chaired the Energy Facility Contractors group, representing over 100 contractors in the Department of Energy's nuclear weapons complex. Joe retired for good in 2017.

"I'm one of the few people who can say he's retired three times," Joe shared with a grin.

Joe and Donna are passionate about giving back to those in need. They have been loyal donors not only to UK but also to Samaritan's Purse, the United Way, animal welfare groups and other charitable organizations in the communities where they have lived. In fact, Joe has chaired multiple charitable boards, including the Aiken South Carolina Society for the Prevention of Cruelty to Animals and Fluor Corporation's Military Support Coalition. The Yaneks also support veterans through Fisher House, Purple Heart Homes and Tunnels to Towers, a charity for 9/11 victims, disabled veterans and first responders.

Joe and Donna are both members of the Golden Wildcat Society, Life Members of the UK Alumni Association and members of the Association's Fellow Society. Always appreciative of their alma mater, they hope this new scholarship fund will take what they have received and pay it forward.

"My family sacrificed to save and put away so that I could attend college," said Donna. "There were times that were really lean, and they would still put five dollars toward my education. They had the foresight to look up to the road. I was blessed to never have to take out a student loan."

"People need to know they can make a difference at every level," added Joe. "I don't think people realize that you can make a difference by giving any amount. If you create a scholarship fund that will generate scholarships for a couple of students, that makes a huge difference to those who receive them. I hope that more people with the ability to bless others in this way won't say, 'I can't do it, because I don't have a million dollars.' I think we're proof that you can make a difference at any level." ■

STUDENT SPOTLIGHT:

MADISON KORFHAGE MEDICINE + ENGINEERING

By Kel Hahn

When the University of Kentucky holds its May 2023 commencement ceremony, Madison Korfhage will walk as one of UK's first students to earn an undergraduate degree in biomedical engineering. In addition to the degree, Korfhage will graduate with a patent, two publications to her name, and the experience of speaking at a national conference.

As a young girl, Korfhage accompanied her grandfather to his many medical appointments and chemotherapy treatments as he battled cancer.

"I had a little plastic syringe without a needle that I used to give him 'shots,'" Korfhage recalled. "I admired how the doctors and nurses were helping him. I knew then that I wanted to do something related to medicine when I grew up."

In high school, Korfhage took AP Computer Science Principles and excelled in the class. She decided to

enroll in the UK College of Engineering, although she wasn't sure which engineering major was right for her.

"I really loved science and technology, but at the same time, I also wanted to work in health care," said Korfhage. "I didn't know how to make that happen."

During Korfhage's second year at UK, the College of Engineering announced a new undergraduate degree program in biomedical engineering. Korfhage was among the first students to enroll.

"It was perfect timing," said Korfhage, who added a minor in computer science. "Biomedical engineering was exactly what I was searching for."

After declaring biomedical engineering as her major, Korfhage was connected with Caigang Zhu, assistant professor in the F. Joseph Halcomb III, M.D. Department of Biomedical Engineering. She has spent her time at UK conducting cancer research in his Spectroscopic

Imaging Laboratory. The laboratory is dedicated to developing novel optical methods to advance translational cancer research. Korfhage creates the instrumentation and devices used in the lab for testing.

In Zhu's lab, Korfhage has created a low-cost device that uses spectroscopy methods to detect neck and head cancer. She had the honor of showcasing her research at the National Conference for the Biomedical Engineering Society in San Antonio, Texas, October 12-15, 2022. After graduation, Korfhage plans to pursue her master's degree while continuing her current spectroscopy research.

"I never imagined that I would end up where I am today," said Korfhage. "If you told me a year ago, that I would be a co-author of a patent, have two co-authored publications and have the opportunity to speak at a national conference, I would be in shock. My younger self would be amazed." ■

“If you told me a year ago, that I would be a co-author of a patent, have two co-authored publications and have the opportunity to speak at a national conference, I would be in shock. My younger self would be amazed.”

RESEARCH IN THEIR OWN WORDS



Yang-Tse Cheng

After 20 years of research at the General Motors Research & Development Center, Dr. Yang-Tse (Y.T.) Cheng came to UK in 2008 and quickly established a vibrant, multidisciplinary research effort toward developing next-generation batteries for electric vehicles and grid storage. This effort has been financially supported by the National Science Foundation, the Department of Energy, the U.S. Department of Agriculture, the National Renewable Energy Lab and Sandia National Laboratories, as well as companies like General Motors, Ford Motor Company, Mercedes-Benz Research & Development North America, Toyota Motor Engineering & Manufacturing North America, and Pacific Industrial Development Corporation. Fifteen of the 16 students who have earned their Ph.D. degrees under Cheng's supervision conducted their doctoral research in this area. After receiving their degrees, those students have been hired at General Motors, Ford, Tesla, Rivian, Apple, PIDC, Albemarle and Huawei. Some have taken positions as faculty members at universities, where they are continuing their research and development in advanced battery technologies.

Cheng is the Frank J. Derbyshire Professor of Materials Engineering and Professor of Physics and Astronomy. His lab is called the Energy, Nanomechanics and Surfaces (ENS) Research Laboratory. Cheng has been elected a Fellow of the American Physical Society, Fellow of the Materials Research Society and Fellow of the National Academy of Inventors. He attributes curiosity and passion for "use inspired" research as the key to his lab's successes.

Last October, the Biden administration awarded \$2.8 billion in grants to build and expand domestic manufacturing of batteries for electric vehicles in 12 states. Safe, affordable batteries that charge quickly and allow for longer EV travel will go a long way toward helping our government and automobile companies meet self-initiated, ambitious goals like having electric vehicles account for 50% of the sales share by 2030 in the U.S., or eliminating gasoline and diesel light-duty cars and SUVs by 2035. The ENS at the University of Kentucky has been working productively in this area for the past 15 years.

Batteries are ubiquitous. They're in our smartphones, watches and, of course, electric vehicles (EV). They can, however, be further advanced with higher energy and power, lower cost and greater safety. Higher energy density will enable EVs to travel longer distances in a single charge. More power will shorten the time for charging the battery, as well as improve

the "zero to 60" performance measure. Lower cost and greater safety are crucial to ensure the success of EVs in the marketplace.

A rechargeable battery converts chemical energy to electrical energy during discharging and back to chemical during charging. During the charging of a lithium-ion battery, the external power supply drives electrons from the positive to the negative electrodes through the external circuit and lithium ions from the positive to the negative electrode internally through, typically, an organic liquid electrolyte — thus converting electrical energy to chemical energy. When the battery is in use, the reverse processes occur; electrons flow from the negative to the positive electrodes through the external circuit to power a lightbulb, a phone or an electric motor, while lithium ions move internally from the negative to the positive electrodes. The energy density of the battery is determined by the amount of lithium that the electrodes can store. The power

density is determined by how quickly lithium can move from one electrode to the other.

As lithium enters and exits the electrodes during charging and discharging of the battery, the electrode expands and contracts. In general, the higher the electrode capacity, the greater the volume change. Since repeated volume changes can cause cracking in the electrodes, the mechanical behavior of the electrode materials can strongly affect the performance, durability and safety of the batteries. Because of the multidisciplinary nature of batteries, understanding the relationships between mechanical, thermal and electrochemical effects is essential to advancing battery technologies.

In partnership with our industrial and academic collaborators, our ENS Research Laboratory has developed theoretical models and characterization tools to help understand the coupled mechanical-electrochemical phenomena



in lithium ion batteries. For example, we established theoretically that nanoparticles are less likely to crack than their bulk counterpart because of the influence of surface energy and stress. We acquired and assembled multiscale mechanical property measurement tools — many inside argon-filled gloveboxes to prevent sample exposure to air and moisture — to investigate the changes of mechanical properties as a function of the state-of-the-charge of the electrode and the number of charge-discharge cycles the electrode experiences. At the nano- and micro-meter length scales, we use atomic force microscope and nanoindentation techniques to locally measure the elastic modulus and hardness, as well as the fracture toughness. At the macroscale, we use bending and sound-wave measurements to measure changes in fracture strength and damage accumulation.

The theoretical understanding and characterization tools have helped us develop strategies to mitigate cracking in silicon-based electrodes. By replacing graphite with silicon, the energy density of the battery can be doubled. We have also worked on solid electrolytes and lithium metal electrodes that can enable batteries to achieve even higher energy density. Moreover, the solid-state batteries are safer because they do not use flammable organic liquid electrolytes.

Our lab is also developing electrode manufacturing methods to reduce the cost and environmental impact of making batteries. Specifically, we are developing a dry electrode manufacturing method that will do away with the use of toxic organic solvents used in today's electrode manufacturing process. With an eye to sustainability, we have developed ways to convert biowaste and waste coal into a useful form of carbon for battery applications through collaborations with other UK researchers.

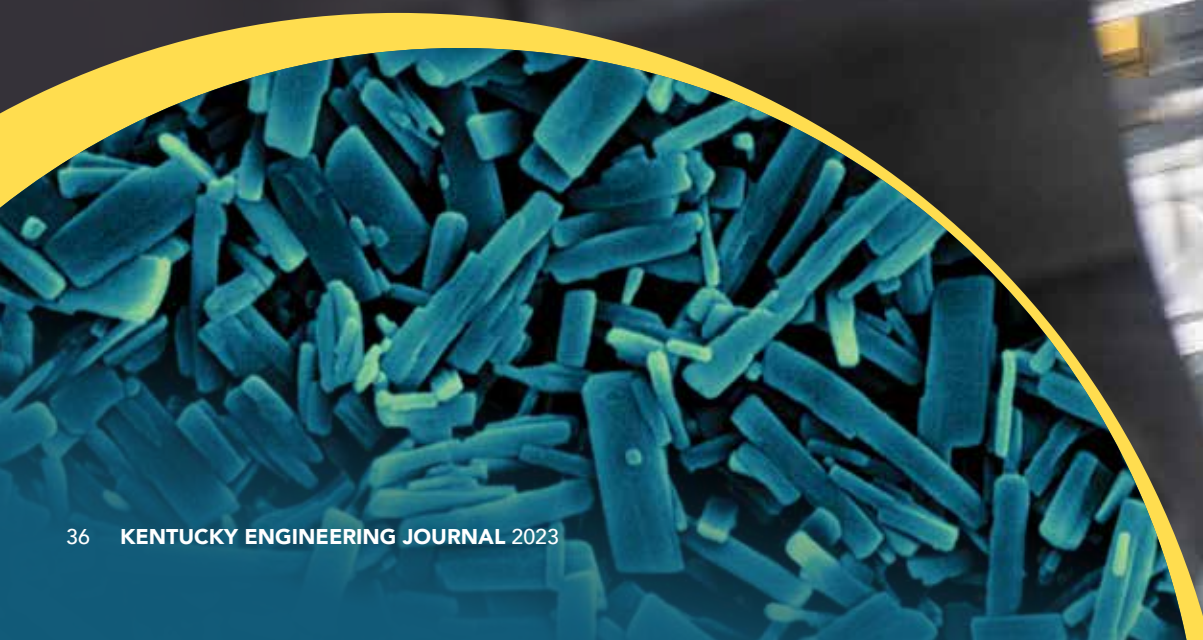
More powerful and more safe with less charging time and less expense — we're working hard in each of these areas to ensure Americans have an easier time choosing an EV over a gas-powered alternative for their next vehicle purchase. ■

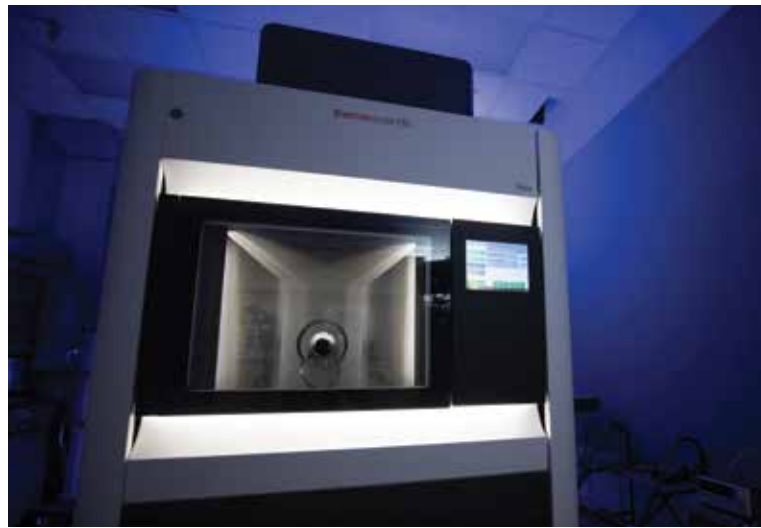
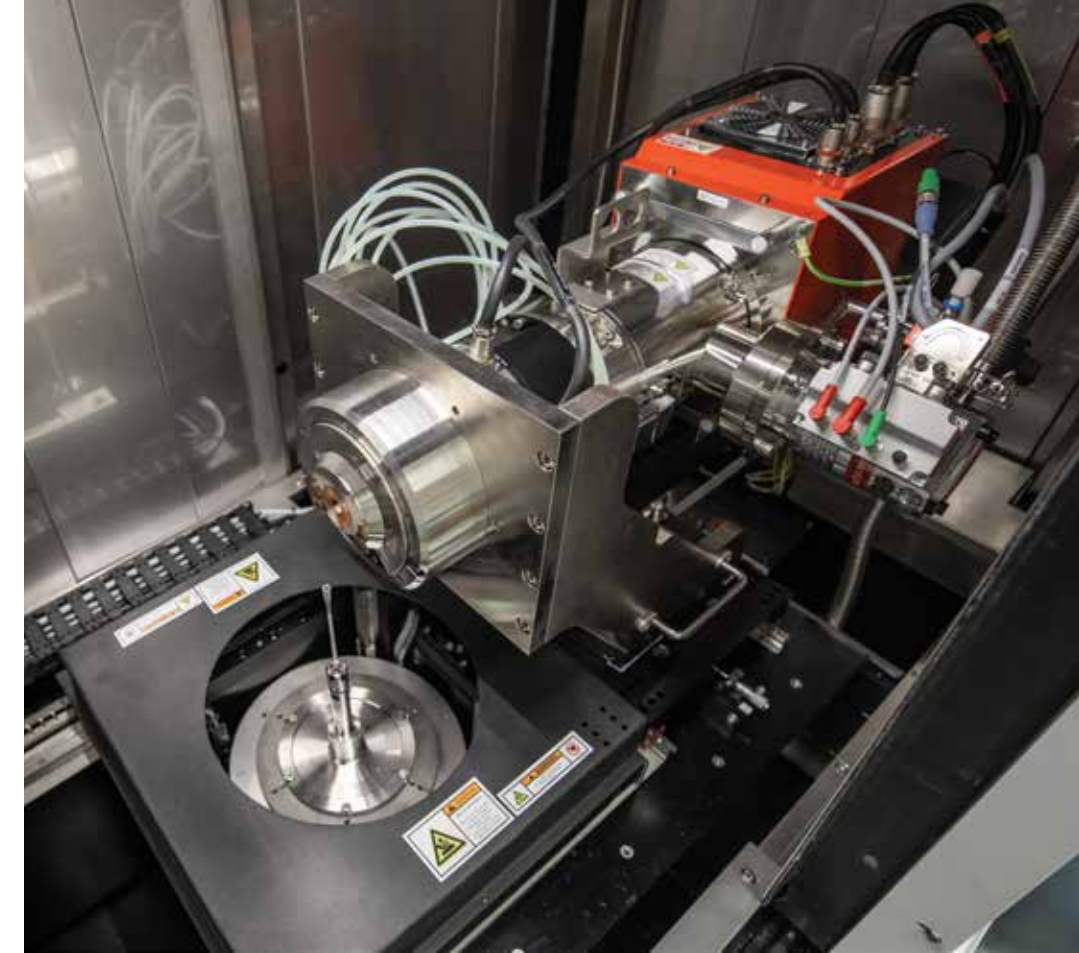
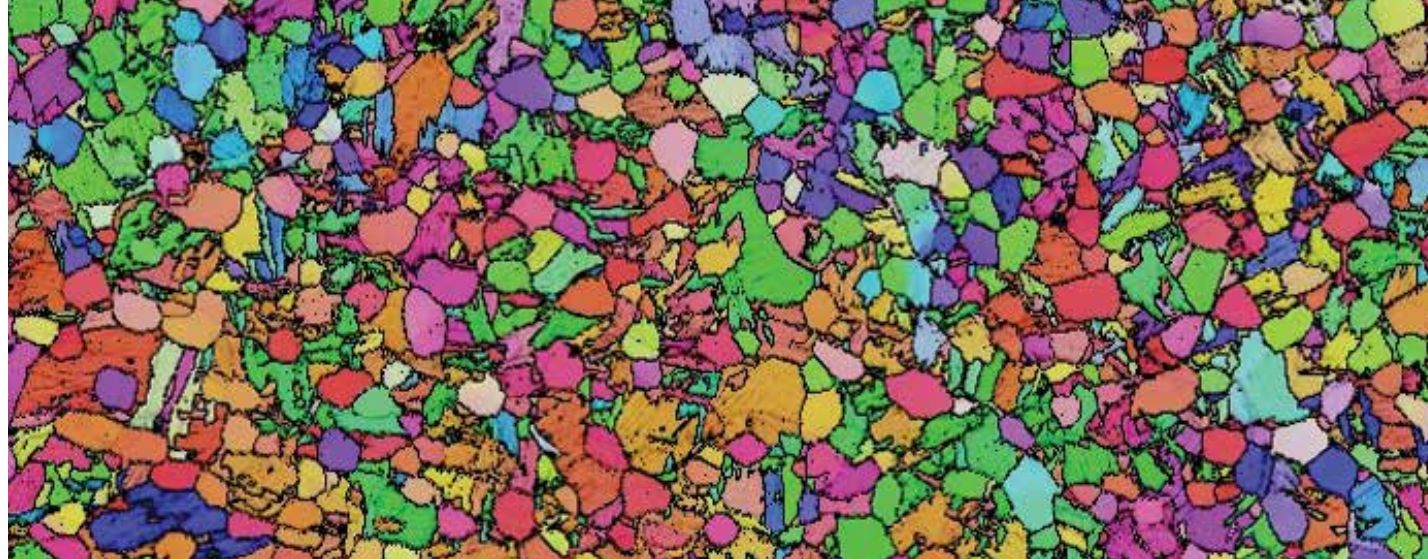
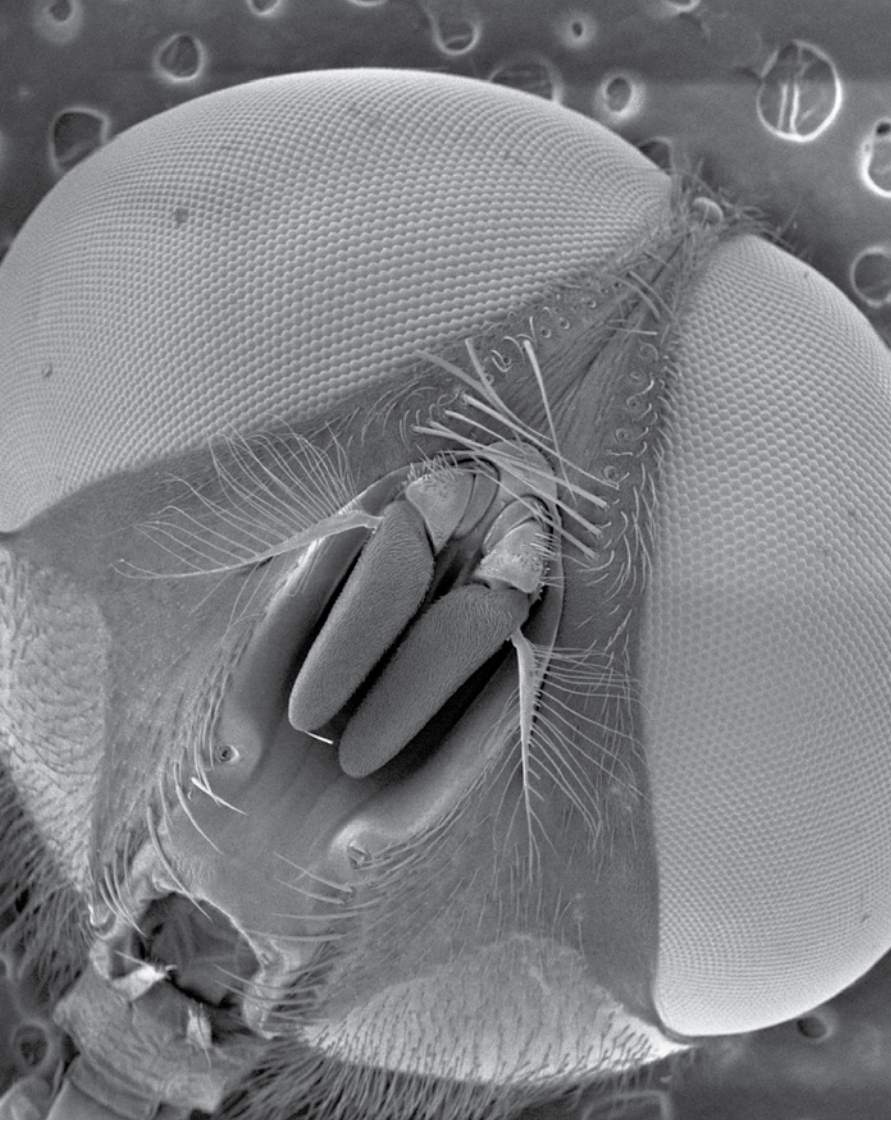
ELECTRON MICROSCOPY CENTER

The Electron Microscopy Center (EMC) at the University of Kentucky is a multiuser shared equipment center that serves the entire university community and industries locally and nationwide. The EMC offers access, training and assistance on state-of-the-art imaging and materials characterization instruments.

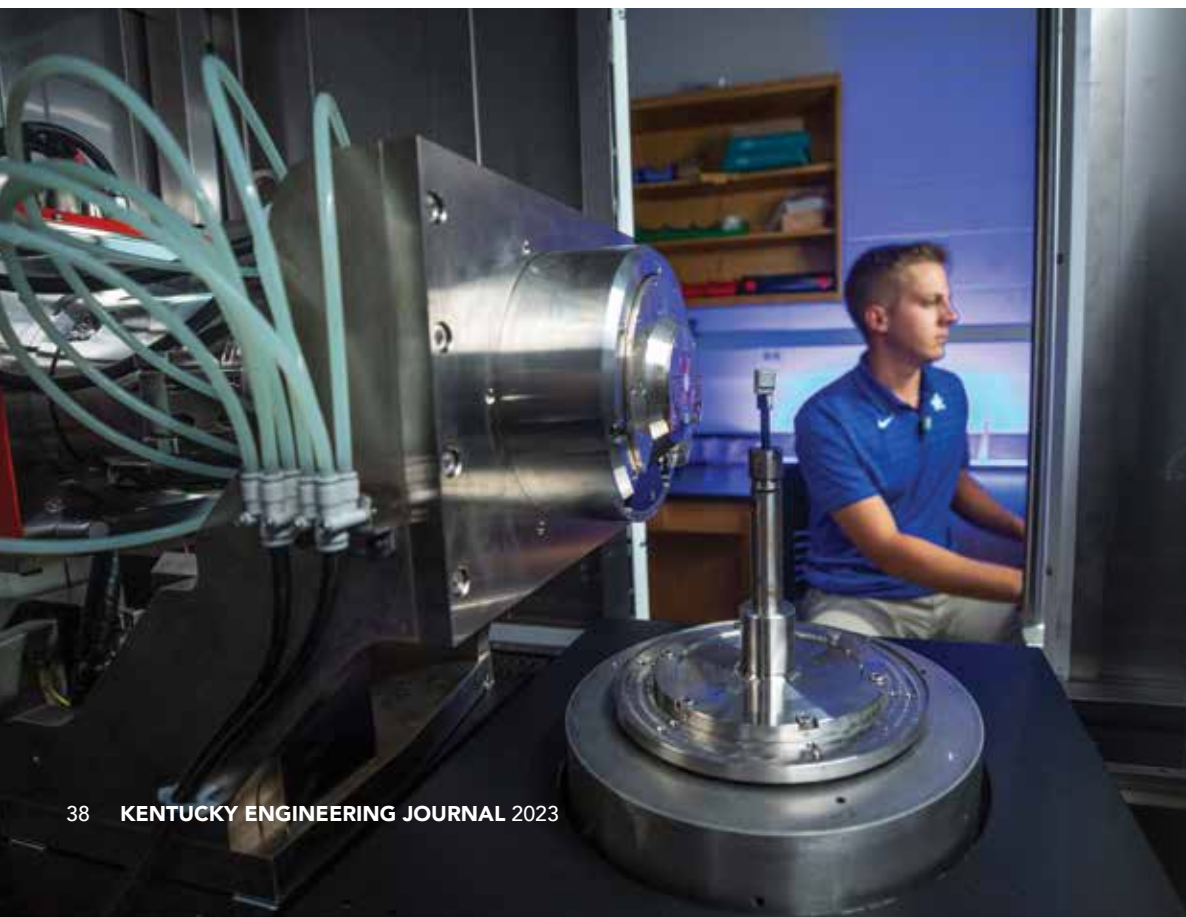
The EMC is an active member of the Kentucky Multiscale Manufacturing and Nanointegration Node, one of 16 nationally recognized sites in the National Nanotechnology Coordinated Infrastructure, and a member of the KY IDeA Networks of Biomedical Research Excellence, which is part of the National Institutes of Health's National Institute of General Medical Sciences.

The EMC has received over \$14 million in capital investments since 2014. On a yearly basis, over 150 researchers at UK are trained to use its equipment. More than 80 grant-funded projects at UK are using resources and services offered by the EMC.

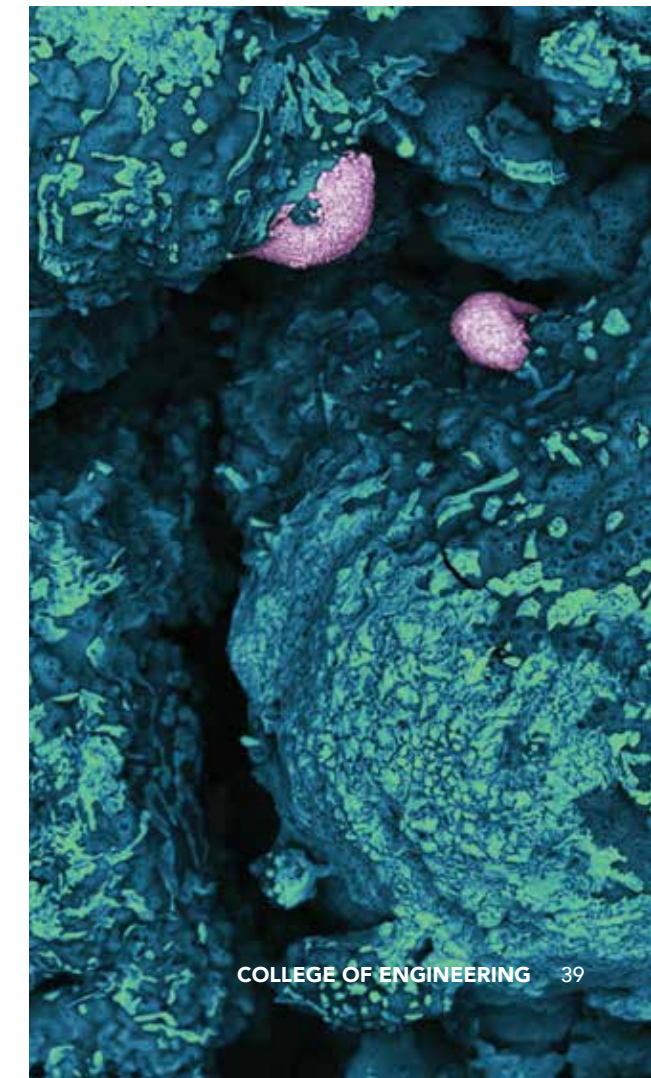
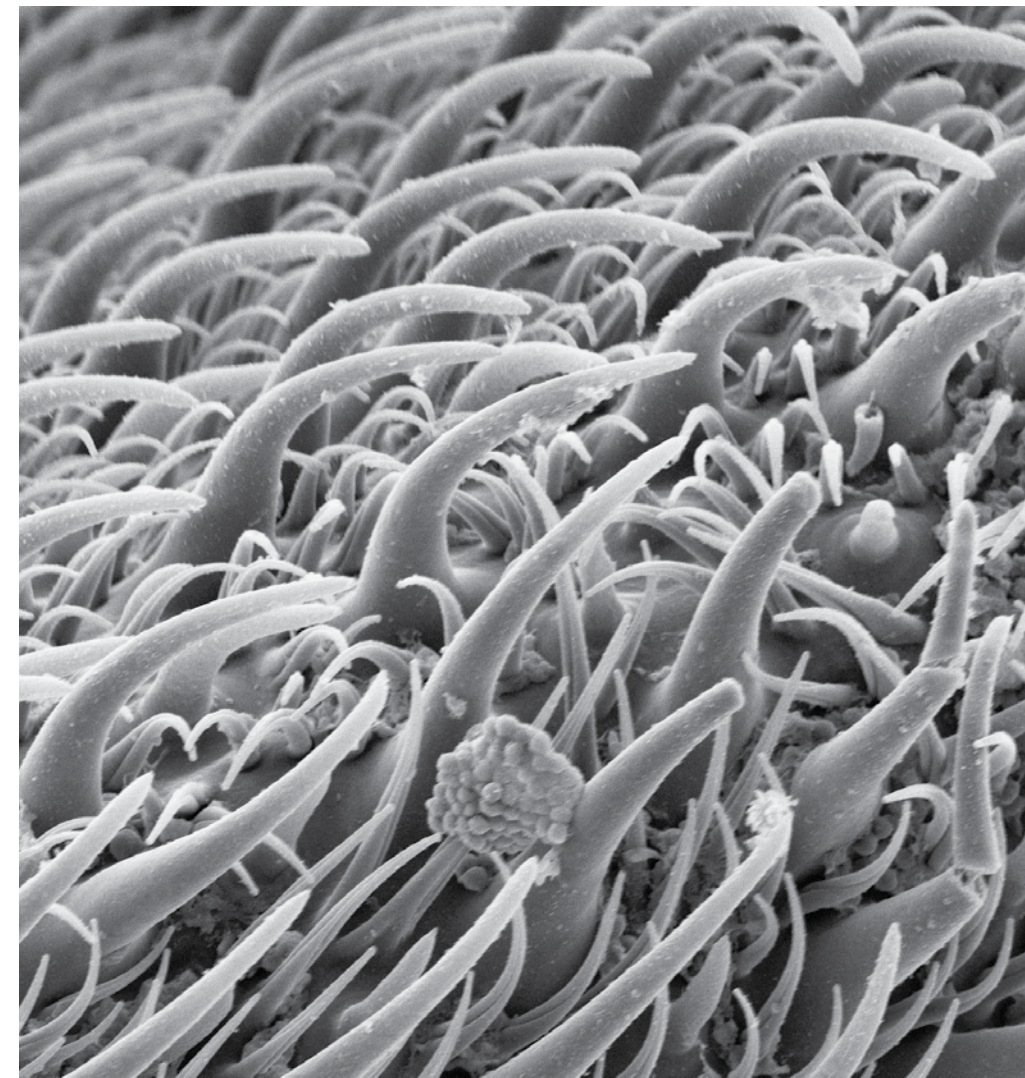




"We are always working to improve our facilities and offer access to new characterization techniques," said William T. Bryan Professor in Materials Science and Engineering John Balk, associate dean for research and graduate studies in the UK College of Engineering and director of the EMC.



The Electron Microscopy Center offers access to multiple characterization and sample preparation techniques. Three scanning electron microscopes, a transmission electron microscope, a dual beam (focused ion beam/SEM), microCT and an X-ray photoelectron spectroscopy system are available at the EMC, in addition to specimen preparation stations. The equipment allows for elemental analysis, crystal orientation mapping and electron diffraction.





COLLEGE OF ENGINEERING CELEBRATES 100 YEARS OF E-DAY

By Kel Hahn

For Gabriel Suarez, a fascination with using machines and technology to solve some of the world's most complex problems began at a young age.

As a boy growing up in Danville, Kentucky, Suarez remembers the excitement he felt when his grandparents drove him, his brother and cousin to the University of Kentucky's Lexington campus for an afternoon filled with wonder.

"They took me to E-Day when 3D printing was being introduced. I was very young," Suarez said. "Neither of my grandparents went to UK, but they were — and still are — huge on showing their grandchildren what the world has to offer."



Fast forward to the present: Suarez is now a sophomore studying materials engineering at UK, and he hopes E-Day will continue to inspire younger generations for years to come.

"When I came to UK to pursue my engineering degree, I was exploring campus as any other curious student does and found myself in the civil engineering building — I instantly remembered E-Day," he said. "Now, every time I walk through that building, I smile and think about where it all started."

From building bridges and discovering medication to writing software, Engineers Day, or E-Day, is the College of Engineering's celebration of science, technology, engineering and math (STEM).

On February 25, the college held its 100th E-Day. Lexmark and Lockheed Martin sponsored the open house, which featured approximately 100 contests, demonstrations and exhibits.

"This is a celebration. So many of our students had their first exposure to engineering through E-Day," Rudy Buchheit, the Rebecca Burchett Liebert Dean of the College of Engineering,

said. "We are so proud that 100 years later, the University of Kentucky is still introducing engineering to Kentuckians."

A decades-long tradition, UK Engineering held its first E-Day on May 26, 1921. The university dismissed classes at noon to allow the community to tour the college and see its researchers and students in action.

Now, an estimated 3,000 people attend E-Day each year.

"E-Day is a blast for students of all ages," Derrick Meads, chair of E-Day, said. "It's so powerful for kids to see that engineering is interesting, exciting — and just plain fun. This event helps them see themselves as future engineers."

During E-Day, which is free and open

to the public, attendees of all ages also have the opportunity to interact with engineering companies, researchers and college students.

During the COVID-19 pandemic, UK Engineering hosted "E-Day Live!" — an all-day livestream variety show full of engineering activities, live webinars, and on-demand activities and presentations. This year's event marked a return to an in-person format for the first time since February 22, 2020.

Engineers Day comes at the end of Engineers Week, an annual event sponsored by a coalition of more than 100 professional societies, major corporations and government agencies dedicated to promoting math and science literacy and ensuring a diverse and well-educated future engineering workforce. ■



UNIVERSITY OF KENTUCKY
COLLEGE OF ENGINEERING

Hall of Distinction

John Wesley Gunn, Class of 1890, earned the first engineering degree awarded by what eventually became the University of Kentucky. Since that modest beginning over 130 years ago, more than 28,500 individuals have followed his example and received degrees in engineering and computer science. Through their extraordinary achievements, our alumni have established a lasting legacy of excellence. Initiated in 1992, the Hall of Distinction recognizes and honors those alumni who have demonstrated distinguished professional accomplishments, outstanding character and commitment to community service. This recognition serves to encourage exemplary achievements by current students and others. It is a symbol of the respect and admiration held by the University of Kentucky College of Engineering for these esteemed individuals. Below are the 2023 inductees.



ROB BEELER

B.S. in Mechanical Engineering, 1989
M.S. in Electrical Engineering, 1991

For over 30 years, Rob Beeler has provided strategic and technical leadership for software development organizations. A technological executive and entrepreneur, Beeler is currently chief technology officer and co-founder of Trava Security, a startup in the cybersecurity and cyber insurance space. As chief technological officer for Trava, Beeler is responsible for all technical aspects of the company, as well as its overall strategic leadership. He has helped lead the company through three rounds of outside investment and developed partnerships with various security and insurance providers. A pancreatic cancer survivor, Beeler and his wife, Colleen, have helped raise over \$260,000 to advance scientific research and provide resources for patients, caregivers and medical professionals.

XIANGMING 'JACK' CHENG

Ph.D. in Materials Science and Engineering, 2000

Jack Cheng began his career as a researcher but quickly transitioned to an entrepreneur and visionary leader who empowers his employees to push the status quo and drives his company to become a global leader in metal manufacturing and distribution. In 2003, Cheng launched AA Metals from his home office with just \$600 in savings in the bank. Thanks to his vision and leadership, Cheng has grown AA Metals into a rapidly expanding global aluminum manufacturing and distribution leader with over 500 employees and \$1.2 billion in revenue. AA Metals serves over 500 customers around the world, providing 500 million pounds of aluminum and steel per year, with a global supply network in Asia, South America, Europe and the Middle East.



TRACY D. DRAIN

B.S. in Mechanical Engineering, 1998

Tracy Drain is a flight systems engineer at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California. She is currently the lead flight systems engineer for the Europa Clipper mission, which is slated to launch in 2024 and will study Jupiter's icy moon of the same name. Drain has also worked on the Psyche project, which will launch a spacecraft in 2023 that will study the solar system's largest metal asteroid. Drain has received the JPL Bruce Murray Award for exceptional support for the education of minority and female STEM students through community programs, distance learning and public events. She has also been honored with NASA Exceptional Achievement Medals for her work on the Kepler mission and the Mars Reconnaissance Orbiter Mission.

EDWARD G. FOREE

B.S. in Civil Engineering, 1964

Edward G. Foree's distinguished career consisted of 12 years as an engineering professor with a prolific research group and 24 years leading a successful environmental consulting firm. While teaching and conducting research in the Department of Civil Engineering at the University of Kentucky, Foree co-founded Commonwealth Technology Inc., an environmental consulting firm, in 1977. Three years later, Foree left UK to begin devoting all his efforts to his company, which became highly successful. Foree not only became known for developing and implementing water quality standards for all streams in Kentucky but also for establishing a stream reaeration model that became used throughout the United States. Foree ran the company as president until 2001, when he sold it to Tetra Tech. He retired in 2004.



VINCENT M. HOLLOWAY

B.S. in Electrical Engineering, 1984

Vincent M. Holloway is a vice president within Tetra Tech's Federal IT Group. This role culminates over 38 years of leadership and technical experience in the U.S. Army and defense service industry as a senior business and technology executive. Holloway served in the U.S. Army from 1985 until 2005, where he held a series of positions with increasing responsibility, including systems engineer, commanding officer and chief of staff in domestic and international locations. Following his 20-year career in the Army, Holloway joined Booz Allen Hamilton, a global consulting firm headquartered in McLean, Virginia, as a project manager, strategic consultant and subject matter expert across multiple markets. In 2014, Holloway was named a Modern-Day Technology Leader at the Black Engineer of the Year Awards.

HOWARD F. MOORE

B.S. in Chemical Engineering, 1974
M.S. in Chemical Engineering, 1975

Howard F. Moore has been involved in petroleum processing and synthetic oils research for Marathon Petroleum Company since 1974, when he represented the University of Kentucky in a National Science Foundation-funded partnership between UK and Ashland Oil to develop a coal pyrolysis unit. As a hydroprocessing technologist since 1998, Moore has taken responsibility for coordinating 32 hydrotreaters in seven refineries. He has formed and headed separate technical advisory groups; implemented intranet availability for internal and external information; developed and written best practices; maintained state-of-the-art review of technology status and served as an internal expert. Moore has over 24 patents and, in 2022, Marathon Petroleum recognized Moore as the company's most prolific inventor. He is also known for mentoring young engineers coming into the industry.





MEET THE NEW CHAIR OF THE YOUNG ALUMNI PHILANTHROPY COUNCIL AMNA AL-JUMAILY

By Ravyn Ladenburger

Amna Al-Jumaily is an engineer for Marathon Petroleum, but when she first came to UK at age 17, she had no interest in engineering.

"I wanted to study chemistry, but my older brother told me that chemical engineering was harder than chemistry. He said it would be way too challenging for me," Al-Jumaily said. "So, of course, I immediately changed my major to chemical engineering." She didn't know much about engineering, but she wanted to prove to her brother that she was smart enough to pass any college course.

Al-Jumaily flourished in her engineering classes and realized, thanks to trying to spite her brother, she had found her home on campus. She joined the Society of Women Engineers, participated in chemical engineering research and worked as a College of Engineering student ambassador. After her junior year, she spent a full year completing three co-ops and one internship at NASA, Toyota and Marathon Petroleum. Her senior year, she was invited to join the Dean's Leadership Class, a year-long exclusive course for senior engineering students who show exceptional leadership potential.

She graduated with her bachelor's degree in chemical engineering in 2019. Today, she is a linear program modeler for Marathon Petroleum in Finlay, Ohio.

"I'm actually so grateful that my brother challenged me to pursue engineering, whether or not that was his intention," said Al-Jumaily. "The UK College of Engineering is where I made my best friends, discovered my passions and learned about the importance of alumni involvement for a successful college."

In 2021, she applied to be a part of the inaugural class of the UK College of Engineering Young Alumni Philanthropy Council (YAPCO).

In 2022, Dean Rudy Buchheit selected her to be the second-ever chair of YAPCO. As chair, Al-Jumaily leads the group of 40 young alumni in supporting current students through mentorship, networking and funding.

"I hope that students will see me give back my resources and want to do the same," said Al-Jumaily. "I received so much from UK, and I feel responsible to support current students in the same way." ■

“The UK College of Engineering is where I made my best friends, discovered my passions, and learned about the importance of alumni involvement for a successful college.”

RESEARCH AWARDS

\$71M

in total research awards in FY'22

\$48M

in research awards with engineering faculty as the PI

75%

increase over the past two years

2022 MINING ENGINEERING

\$565,986

PFI-RP: Development of a SMaRT (Sustainable Materials and Recovery Technologies) Process for the Recovery of High-Value Metals from Electronic Waste

Sponsor: National Science Foundation

PI: Joshua Werner

2022 COMPUTER SCIENCE

\$10,078,001

Mid-scale RI-1 (M1:IP) EduceLab – Infrastructure for Next-Generation Heritage Science

Sponsor: National Science Foundation

PI: William Seales

2022 CIVIL ENGINEERING

\$1,375,210

Nutrition and Superfund Chemical Toxicity

Sponsor: National Institute of Environmental Health Sciences

PI: Kelly Pennell

2022 ELECTRICAL ENGINEERING

\$876,408

Real-Time Digital Simulator Empowered Modeling, Diagnostics, Protection and Control of Power Components and Systems

Sponsor: Office of Naval Research

PI: Yuan Liao

2022 BIOMEDICAL ENGINEERING

\$989,015

Imaging & Bioengineer Controllable in Vivo Genome Editing for Immune-Checkpoint Blockade in Solid Tumors

Sponsor: National Institute of Biomedical Imaging & Bioengineer

PI: Sheng Tong

2022 MECHANICAL ENGINEERING

\$750,000

Solar Activity and Space Weather

Sponsor: National Aeronautics and Space Administration

PI: Alexandre Martin

2022 MECHANICAL ENGINEERING

\$720,000

Advanced Computational Center for Entry System Simulation (ACCESS)

Sponsor: NASA

PI: Alexandre Martin

2022 COMPUTER SCIENCE

\$865,474

FABRIC: Adaptive Programmable Research Infrastructure for Computer Science and Science Applications

Sponsor: National Science Foundation

PI: James Griffioen

2022 MINING ENGINEERING

\$1,613,463

Occupational Safety and Health Education and Research Centers (T42): Central Appalachian Regional Education Research Center

Sponsor: National Institute of Occupational Safety and Health

PI: Joseph Sottile

2023 INSTITUTE FOR SUSTAINABLE MANUFACTURING

\$4,500,000

Next Generation Materials and Processing Technologies (NextGen MatProTech)

Sponsor: U.S. Army Research Office

PI: Ibrahim Jawahir

2023 COMPUTER SCIENCE

\$1,000,000

Mid-scale RI-1 (M1:IP) EduceLab – Infrastructure for Next-Generation Heritage Science

Sponsor: National Science Foundation

PI: William Seales

2023 MECHANICAL ENGINEERING

\$1,546,299

Covid 19: Wastewater Assessment for Coronavirus in Kentucky: Implementing Enhanced Surveillance Technology

Sponsor: National Institute on Drug Abuse

PI: Scott Berry

2023 MECHANICAL ENGINEERING

\$1,000,000

PIPP Phase I: Advancing Environmental Surveillance for Pandemic Prediction in Remote and Resource-Poor Settings

Sponsor: National Science Foundation

PI: Scott Berry

2023 CIVIL ENGINEERING

\$799,445

BPE-Track 3: Inclusive Mentoring Hub for Enabling Pathways From Inner-City and Rural Appalachian Households to Engineering in Kentucky and West Virginia

Sponsor: National Science Foundation

PI: James Fox

2023 CHEMICAL ENGINEERING

\$760,000

RII Track-2 FEC: Membrane Purification Platform for Continuous Biomanufacturing of Virus Particles in Arkansas and Beyond

Sponsor: National Science Foundation

PI: Dibakar Bhattacharyya

2023 ELECTRICAL ENGINEERING

\$599,428

DEPSCOR: Learning Multilayer and Hypergraph Networks From Data

Sponsor: U.S. Air Force Office of Scientific Research

PI: Daniel Lau

2023 MECHANICAL ENGINEERING

\$680,000

Development of Irradiation and Creep Resistant High-Cr Ferritic/Martensitic Steels via Magnetic Field Heat Treatment

Sponsor: U.S. Department of Energy

PI: Haluk Karaca

2023 MECHANICAL ENGINEERING

\$600,000

DEPSCoR: Fragmentation and Melting of Ice Particles Subjected to Hypersonic Aerothermodynamic Environments

Sponsor: U.S. Air Force Office of Scientific Research

PI: Savio Poovathingal

2023 MINING ENGINEERING

\$1,320,144

Occupational Safety and Health Education and Research Centers (T42): Central Appalachian Regional Education Research Center

Sponsor: National Institute of Occupational Safety and Health

PI: Joseph Sottile

UK Makes History With Successful Space Capsule Experiment

By Alicia Gregory

It's not often that seeing something you built set ablaze is cause for celebration. However, for a team of University of Kentucky students and scientists, triumph was found in seeing their work survive a fiery entry and safely land in the middle of the Pacific Ocean.

Two Kentucky Re-entry and Universal Payload System (KRUPS) capsules entered the atmosphere and were set on fire by the extreme temperatures they experienced at more than 20 times the speed of sound.

At that moment, UK made history with three "firsts":

- First time a university-built entry capsule successfully transited a planetary atmosphere.
- First time a university flew a hypersonic vehicle.
- First time a 3D-printed heat shield flew on an entry mission.

The data — temperature measurements recorded over a 9-minute span — will help scientists build better thermal protection systems (TPS). These systems protect a payload — whether astronauts, equipment or scientific instruments — during the harsh flight into the atmosphere of a distant planet or on its return to Earth.

This mission, named the Kentucky Re-Entry Probe Experiment

(KREPE), gathered TPS data with KRUPS capsules. These capsules were built by UK College of Engineering students and faculty, with funding from NASA, NASA EPSCoR, the NASA Kentucky Space Grant Consortium and EPSCoR Programs, the KY Statewide EPSCoR Committee and the Cabinet for Economic Development.

The UK team began building three capsules in the summer of 2020. Two capsules had LI-2200 TPS (Space Shuttle Orbiter

tiles) fabricated by the NASA Ames Research Center. The third capsule had a novel 3D-printed TPS, developed by Oak Ridge National Lab, NASA Johnson Space Center and NASA Ames Research Center. One of the LI-2200-equipped capsules did not complete the mission, due to an activation failure onboard the International Space Station, but the other two capsules successfully transmitted data.

"This real-flight temperature data will allow us to enhance our

computer simulations and design more efficient and more effective thermal protection systems," said Alexandre Martin, professor of mechanical and aerospace engineering who led the team. "It's exciting to have the work of students — who have been developing the KRUPS capsules over many years — culminate in this history-making flight experiment."

Another flight campaign, planned for July 2023, will test new instruments, new TPS and a new capsule ejection mechanism.

“ It's exciting to have the work of students — who have been developing the KRUPS capsules over many years — culminate in this history-making flight experiment.”
— Alexandre Martin



TIFFANY MESSER, ASSISTANT PROFESSOR IN THE DEPARTMENT OF BIOSYSTEMS ENGINEERING, HAS RECEIVED AN NSF FACULTY EARLY CAREER DEVELOPMENT AWARD

Messer's project, "Impact of Pesticide and Antibiotic Cocktails on Nitrogen Removal Processes in Treatment Wetlands," will receive \$501,479.00 over five years.

"My goal is to design cost-effective wetland treatment systems for rural communities and low-income areas," said Messer.

"Ecosystem-based water treatment facilities have lower maintenance and lower costs than traditional water treatment facilities. They are also customizable based on location."

Abstract

Nitrate is the most common chemical contaminant of water in the world. Pesticides and antibiotics have also become ubiquitous in waterways, particularly in agricultural and urban settings.

While important for agricultural productivity and lawncare, the release of these chemicals has resulted in significant impacts, including bee colony disruptions, human reproductive and development disruption, and the spread of antibiotic resistance. Treatment wetland systems have the potential to be a cost-effective alternative to prevent the release of these chemicals and other emerging contaminants.

The goal of this project is to develop science-based guidance for the use of treatment wetlands to remove contaminant mixtures and nitrate to improve water quality. The influence of specific contaminants on wetland treatment processes will be evaluated using state-of-the-science tracers and automated sensing technology.

Successful completion of this project will lead to cost-effective treatment alternatives for contaminants to protect human and ecological health in low income, rural communities. These results will be used to develop innovative community water quality education programs both locally and remotely.

Messer joined the University of Kentucky faculty in 2020.



STEPHEN WARE, ASSISTANT PROFESSOR IN THE DEPARTMENT OF COMPUTER SCIENCE, HAS RECEIVED AN NSF FACULTY EARLY CAREER DEVELOPMENT AWARD

Ware's project, "Structured High-Agency Interactive Narratives for Virtual Environments," will receive \$530,369 over five years.

"We're trying to use technology to do something good — to create intelligent training for de-escalation with the purpose of calming everyone down and creating a safe environment for police officers and the communities they serve," said Ware.

Abstract

Narratives are fundamental to the way we think, communicate and learn. Virtual environments such as training simulations invite the user to play the role of one character in a narrative while the system controls all the other nonplayer characters and the environment. Interactive narratives are effective tools for teaching people how to perform a task and educating people about important topics.

However, writing interactive narratives is challenging. Most are manually written, ensuring a nice structure but limiting their scope because every choice must be imagined in advance.

This project will use artificial intelligence planning algorithms to create narratives in games and training simulations. In addition, this project will explore fast algorithms for generating narratives and models of what users remember and expect.

Over the project duration, the research team will develop virtual environments, such as a virtual reality deescalation training simulation for police officers, that evolves from a role-playing exercise between two people to a fully automated virtual environment where the artificial intelligence personalizes the interactive narrative for each player.

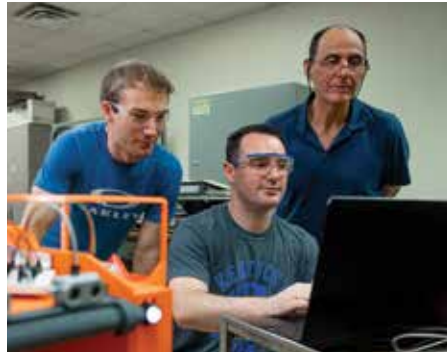
Ware joined the University of Kentucky faculty in 2019.



The CAREER Award is one of the "most prestigious awards in support of the early career-development activities of those teacher-scholars who most effectively integrate research and education within the context of their organization's mission," according to the National Science Foundation.

NEWS & RECOGNITION

PROFESSIONAL RECOGNITION



Zach Agioutantis, chair of the Department of Mining Engineering, received the Rock Mechanics Award from the Society for Mining, Metallurgy & Exploration.

Carmen Agouridis, extension professor in the Department of Biosystems and Agricultural Engineering, has accepted the position of senior associate dean in the College of Agriculture, Food and Environment.

Tyler Barzee, assistant professor in the Department of Biosystems and Agricultural Engineering, was nominated for the 15th annual Undergraduate Excellent Research Mentor Award.

Dibakar "D.B." Bhattacharyya, UK Alumni Professor in the Department of Chemical and Materials Engineering, received a 2022 College of Engineering Excellence in Research Award.

Whitney Blackburn-Lynch, a First-Year Engineering lecturer, received the second place award for Best Presentation in the First-Year Programs Division at the 2022 ASEE National Conference.

Mei Chen, professor in the Department of Civil Engineering and **Xu Zhang**, research engineer in the Kentucky Transportation Center, had a paper selected as the 2022 recipient of a Transportation Research Board Best Young Professional Paper Award.

Donald Colliver, professor in the Department of Biosystems and Agricultural Engineering, has been named a Distinguished Lecturer by the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

Aaron Cramer, TVA Professor of Electrical and Computer Engineering in the Department of Electrical and Computer Engineering, has been elected to serve as a faculty trustee on the University of Kentucky Board of Trustees.

Gabriel Dadi, associate professor in the Department of Civil Engineering, received a 2022 College of Engineering Excellence in Research Award.

Elaine Duncan, president of Paladin Medical Inc. and adjunct professor in the F. Joseph Halcomb III, M.D. Department of Biomedical Engineering, received a Society for Biomaterials Award for Service at the 2022 annual meeting in Baltimore.

Gregory Erhardt, associate professor in the Department of Civil Engineering, has been awarded a Hans Fischer Fellowship by the Technical University of Munich-Institute for Advanced Studies.



Isabel Escobar, professor in the Department of Chemical and Materials Engineering, has been selected to serve as Chellgren Chair and Director of the Chellgren Center for Undergraduate Excellence.

Joyce Evans, a senior research associate in the F. Joseph Halcomb III, M.D. Department of Biomedical Engineering from 1970 to 2019, was inducted into the Kentucky Aviation Hall of Fame.

Brittany Givens, assistant professor in the Department of Chemical and Materials Engineering, received the 2022 Oak Ridge Associated Universities Ralph E. Powe Junior Faculty Enhancement Award.

Christine Goble, senior lecturer in the Department of Mechanical and Aerospace Engineering, received the 2022 College of Engineering Henry Mason Lutes Award for Excellence in Engineering Education.



Martha Grady, associate professor in the Department of Mechanical and Aerospace Engineering, received a 2022 College of Engineering Excellence in Research Award.

Jack Groppo, professor in the Department of Mining Engineering, was named as one of six 2022 Great Teachers by the UK Alumni Association.

Hyun-Tae Hwang, associate professor in chemical engineering at the Paducah Campus, was elected as the vice president of the U.S. Chapter of the Korean Institute of Chemical Engineers.

Kathy Ice-Wedding, academic advisor in the Department of Computer Science was awarded the UK College of Engineering Staff Excellence Award in the exempt category.

Robert Hannigan, administrative services assistant in the Department of Electrical and Computer Engineering was awarded the UK College of Engineering Staff Excellence Award in the exempt category.

I.S. Jawahir, professor and James F. Hardyman Chair in Manufacturing Systems and director of the Institute for Sustainable Manufacturing, was awarded the 2022 Society of Manufacturing Engineers (SME) Frederick W Taylor Research Medal.

Michael Kalinski, professor in the Department of Civil Engineering, was selected as president-elect of the Environmental and Engineering Geophysical Society.

Lindell Ormsbee, Raymond-Blythe Professor in the Department of Civil Engineering, received a 2022 College of Engineering Excellence in Service Award.

Alexandre Martin, professor in the Department of Mechanical and Aerospace Engineering, has been named a University Research Professor.

The Kentucky Re-entry and Universal Payload System (KRUPS) team, led by **Alexandre Martin**, received an Innovation and Technology Demonstration award at the International Space Station Research and Development Conference.

Tiffany Messer, assistant professor in the Department of Biosystems and Agricultural Engineering, received the Gale A. Holloway Professional Development Award.



Sue Nokes, professor in the Department of Biosystems and Agricultural Engineering, has been appointed as the acting associate provost for faculty advancement.

Jeffrey Seay, PJC Board of Trustees Engineering Professor at the Paducah

campus, was selected as a delegate to the United Nations Intergovernmental Negotiating Committee.

Jeffrey Seay was also selected as a Senior Fellow to the Global Council on Science and the Environment.



David Silverstein, professor in chemical engineering at the Paducah campus, received the American Institute of Chemical Engineers Gary Leach Award.

Nikiforos Stamatiadis, Raymond-Blythe Professor in the Department of Civil Engineering, received the 2022 Global Impact Award for Distinguished Faculty Achievement in International Research and Scholarship.

Nikiforos Stamatiadis also received the 2022 Global Impact Award for Distinguished Faculty Achievements in International Research and Scholarship.

Sarah Wilson, assistant professor in the Department of Chemical and Materials Engineering, was awarded the 2022 AIChE Division's Raymond W. Fahien Award.

Scott Yost, associate professor in the Department of Civil Engineering, received a 2022 College of Engineering Excellence in Service Award.

YuMing Zhang, James R. Boyd Professor in the Department of Electrical and Computer Engineering, has been named a 2023 Institute of Electrical and Electronics Engineers Fellow.

Caigang Zhu, an assistant professor in the F. Joseph Halcomb III, M.D. Department of Biomedical Engineering, has received a National Institute of

Biomedical Imaging and Bioengineering Trailblazer R21 Award.

STUDENT AWARDS AND RECOGNITION

Seun Adekunle, a student in the Department of Computer Science, received a 2022 Torch Bearer award at the 31st annual Lyman T. Johnson Awards program.

Maya Anthony, a student in the Department of Biosystems and Agricultural Engineering, received a 2021 Torch of Excellence award at the 31st annual Lyman T. Johnson Awards program.

Katye Berry, an undergraduate student in the Department of Biosystems and Agricultural Engineering, was awarded the Department of Defense Science, Mathematics, and Research for Transformation (SMART) Scholarship.

Lucas Bertucci, a senior in the Department of Chemical and Materials Engineering, has been named as the university's first Lee T. Todd, Jr. Student Innovation Scholarship recipient.

James Carmichael, a graduate student in the Department of Electric and Computer Engineering, was awarded the Department of Defense Science, Mathematics, and Research for Transformation (SMART) Scholarship.

Thomas Chaney, a graduate student in the Department of Chemical and Materials Engineering, received a National Science Foundation (NSF) Graduate Research Fellowship.

Justin Cooper, a graduate student in the Department of Mechanical and Aerospace Engineering, won the 2022 American Institute of Aeronautics and Astronautics David Weaver Thermophysics Best Student Paper Award.

Longyin Cui, a graduate student in the Department of Computer Science, received a 2022 College of Engineering Outstanding Teaching Assistant award.

Cassidy Crouch, an undergraduate student in the Department of Mining Engineering, was awarded a Copper Club scholarship.

Tyler Cultice, a graduate student in the Department of Electrical and Computer Engineering, received a National Science Foundation (NSF) Graduate Research Fellowship.

Daniel Dailey, an undergraduate student in the Department of Chemical and Materials Engineering, won first place in two UK Oswald Research & Creativity Competition categories: Physical & Engineering Sciences and Social Sciences.

The Engineering Student Council received the "Best Professional Development Event" at the National Association of Engineering Student Councils Conference.

Faraneh Fathi, a graduate student in the F. Joseph Halcomb III, M.D. Department of Biomedical Engineering, has received the Halcomb Fellowship in Medicine and Engineering.

Kirsten Ford, a senior in the Department of Mechanical and Aerospace Engineering, placed second for Outstanding Student Oral Presentation at the 19th International Planetary Probe Workshop.

Ariel Gold-McCoy, a graduate student in the Department of Civil Engineering, received a University of Kentucky W.L. Matthews, Jr. Fellowship.

Madeline Halpin, a senior in the Department of Chemical and Materials Engineering, was awarded an ISPE scholarship.

Kyle Hampton, a junior in the Department of Mechanical and Aerospace Engineering, was awarded a Matthew Isakowitz Fellowship.

Samaneh Haratbar and **Mehrana Mohtasebi**, graduate students in the F. Joseph Halcomb III, M.D. Department of Biomedical Engineering, received awards in the Von Allmen Center for Entrepreneurship's fifth annual "60-second Poster Pitch" Competition.

Caleb Kennedy, an undergraduate student in the Department of Biosystems Engineering, has received an Excellent Research Ambassador of the Year Award from the UK Office of Undergraduate Research.

Daniel Kennedy, a graduate student in the Department of Mechanical and Aerospace Engineering, received a National Science Foundation (NSF) Graduate Research Fellowship.

Leighanne Lyvers, an undergraduate student in the Department of Biosystems Engineering, was awarded the prestigious 4-H Emerald Award.

Jayla McCoy, a student in the Department of Mechanical and Aerospace Engineering, received a 2021 Torch Bearer award at the 31st annual Lyman T. Johnson Awards program.

Lauren Mehanna, a graduate student in the Department of Chemical and Materials Engineering, was awarded an honorable mention for the 2022 Dr. Rena Bizios Poster Award at the Society for Biomaterials conference.

Rollie Mills, a graduate student in the Department of Chemical and Materials Engineering, received a National Science Foundation (NSF) Graduate Research Fellowship.

Austin Mitchell, a student in the Department of Civil Engineering, received a 2022 Torch of Excellence award at the 31st annual Lyman T. Johnson Awards program.

Mehrana Mohtasebi, a graduate student in the Department of Biomedical Engineering, received a 2022 Sarah Bennett Holmes Award from the UK Women's Forum.

Shafika Moni, a graduate student in the Department of Computer Science, received a 2022 College of Engineering Outstanding Ph.D. Student award.

Manh Tien Nguyen, a graduate student in the Department of Chemical and Materials Engineering, received two prestigious U.S. Department of Energy awards: the Science Graduate Student Research Program and the Energy

Efficiency & Renewable Energy's Energy Storage Internship Program.

Trisha Nickerson, a graduate student in the Department of Chemical and Materials Engineering, received a National Science Foundation (NSF) Graduate Research Fellowship.

Isaac Oluk, a graduate student in the Department of Civil Engineering, was awarded the Dr. Rengao Song Water Research Scholarship at the KY/TN Water Professionals Conference.

Steven Poore, a senior in the Department of Electrical and Computer Engineering, received the Undergraduate Student Award — Second Prize at the 2022 IEEE Power and Energy Society General Meeting.

John Schmidt, a graduate student in the Department of Mechanical and Aerospace Engineering, received a 2022 College of Engineering Outstanding Master's Student award.

The University of Kentucky ChemE Car team placed fifth out of 40 universities at the National American Institute of Chemical Engineers Chem-E-Car Competition.

Laura Waldman, a graduate student in the Department of Mechanical and Aerospace Engineering, was one of four individuals awarded a University Research Postdoctoral Fellowship.

Zach Wedding, Elliott Morgan, Chris Dawalt, Cassidy Crouch, Kyle Ressler and Anthonie Meador from the Department of Mining Engineering, took first place in the Society for Mining, Metallurgy and Exploration Metallic Student Design Competition.

Matthew Wirasakti, a senior in the Department of Computer Science, was recognized as "Best Networker" at the National Association of Engineering Student Councils Conference.

Aleksander Zibitsker, a graduate student in the Department of Mechanical and Aerospace Engineering, won Best Student Paper Award at the 11th International Conference of Computational Fluid Dynamics.

CLASS NOTES

Michael B. Baker (BSME 1999, MSME 2002) was promoted to colonel of the U.S. Air Force. Baker is the Deputy Commander of the 412th Operations Group, which conducts developmental tests and evaluations of nearly every aircraft and weapon in the U.S. Air Force inventory.

Muralikrishna (Krishna) Chelupati (MSCE 2005), senior associate at Stantec, was selected for the American Academy of Environmental Engineers and Scientists 40 Under 40 Recognition Program. Chelupati has also been selected as an Engineering News Record Midwest Top Young Professional for 2023.

Elaine Duncan (BSME 1974), president of Paladin Medical Inc. and adjunct professor in the F. Joseph Halcomb III, M.D. Department of Biomedical Engineering, received the Society for Biomaterials Award for Service at the 2022 Annual Meeting in Baltimore, Maryland.

Sarah Fay (BSMNG 2019) has been selected as the director for the Out for Undergrad (O4U) 2023 Engineering Conference. Fay is a project engineer for RESPEC in Kentucky, focusing on abandoned mine land projects.

Jon Gasser (BSME 2012, MSME 2014) and **Carrie Kelty (BSME 2007)** were selected as recipients of the Consulting-Specifying Engineer 2022 40 Under 40 award. This award is given annually to 40 nonresidential building industry professionals ages 40 and younger who stand out in a mixture of personal and professional aspects of their lives.

Cody Giles (BSCE 2017) has been named head distiller at Lexington's James E. Pepper Distillery. Giles has been working at James E. Pepper Distillery, DSP-KY-5, since it recommenced distillation at the historic property in 2017.

Jay T. Hornback (BSCS 2004) received a 2022 Distinguished Service Award from the UK Kentucky Alumni Association. Hornback is an out-of-state representative on the Leadership Advisory Council and has served one term on the UK Alumni Association Board of Directors. He has also volunteered with the UK College of Engineering Career Development Office, conducting resume reviews and mock interviews.

Michael L. Marberry (BSCHE 1981, MSCHE 1983) was appointed to the American Water Board of Directors. Before his recent retirement, Marberry served as president and CEO of J.M. Huber Corporation since 2009. Marberry is also chairman of the Board of Directors at AdvanSix Inc., a publicly traded leading manufacturer of Nylon 6 resin and other related chemical intermediates and important by-products.

Col. David S. Lalonde (BSME 1986) was honored for his retirement in a Kentucky Air National Guard ceremony on May 14. During the ceremony, Lalonde was presented with the Legion of Merit, a presidential certificate of appreciation, and his certificate of retirement by Col. Robert Hamm, former commander of the 123rd Operations Group.

Brian Mallory (BSME 1992), executive director of supplier quality for GE Appliances, a Haier company, was selected as the 2022 Louisville Business First Volunteer of the Year for his work with Seven Counties Services and Bellewood & Brooklawn.

J. Russell Maney (BSCE 1984) has been appointed director of Global "Net Zero" and Energy Practices at Partners in Performance, based in London, UK. Maney has 36 years of experience in energy and telecommunications line management and consulting and was previously based in North America and Australia.

James R. Miller (BSCE 1974), founder and CEO of J.R. Miller & Associates, was selected for the Solid Waste Association of North America annual Professional Achievement Awards. Miller has more than 45 years of experience with a focus on the planning and design of solid waste processing facilities.

Bharat Kumar Peddu (MSCE 2005) received an Engineer of the Year award from the American Council for Engineering Companies in recognition for his pioneer work in designing railway tracks and expertise in project management. Peddu has been the project engineer for Gannett Fleming Inc. in Maryland for the past two decades.

Jeff Sartaine (BSCE, BSMNG 1981), a senior vice president, financial advisor and CFP in Morgan Stanley's wealth management office, has been named to the firm's Century Club. The club is an elite group composed of the firm's top financial advisors.

Jagannathan Ramachandran (MSMSE 2003) has been named vice president of manufacturing for global snacks and confections maker PIM Brands LLC. Prior to PIM, Ramachandran spent 11 years with the Campbell Soup Company in Operations and Continuous Improvement Leadership roles.

Michelle Tucker (BSBAE 2010) won the University of Calgary Faculty of Veterinary Medicine International Equine Symposium \$10,000 grand prize for giving the Best Platform Presentation. Tucker is an assistant professor of large animal surgery at Purdue University College of Veterinary Medicine.

Yajie Zhao (Ph.D. CS 2018) has been named interim director of the Vision & Graphics Lab at the University of Southern California Institute for Creative Technologies. Zhao started at USC Viterbi in July 2022. Her research interests are human face modeling, tracking, AR/VR related face appearance synthesizing.

BE INCLUDED

Please send class notes to alumni@enr.uky.edu



Johné Parker Named Acting Associate Dean for Diversity, Equity and Inclusion

Johné Parker, associate professor in the Department of Mechanical and Aerospace Engineering, has been appointed acting associate dean for diversity, equity and inclusion in the University of Kentucky College of Engineering. Her appointment began on November 1, 2022.

Parker received her B.S., M.S. and Ph.D. in mechanical engineering from the George W. Woodruff School of Mechanical Engineering at the Georgia Institute of Technology.

Parker is currently a leader of the Louis Stokes Alliance for Minority Participation Program (LSAMPP), an NSF-funded program at UK. LSAMPP aims to diversify the nation's STEM workforce by increasing the number of degrees awarded to historically underrepresented populations.

Outside of UK, Parker serves as vice chair on the Volunteer Orientation and Leadership Training (VOLT) Executive Committee and the General Awards Committee for the American Society of Mechanical Engineers (ASME). She has previously served on the AMSE Committee on Government Relations, the Nominating Committee and several awards committees. In addition, she was selected as an ASME Congressional Fellow serving in the Office of Senator Byron Dorgan (D-ND, retired).



L. Sebastian Bryson Named Chair of the Department of Civil Engineering

L. Sebastian Bryson, Hardin-Drnevich-Huang Professor of Civil Engineering with a joint appointment in the Department of Earth and Environmental Sciences, has been named chair of the University of Kentucky Department of Civil Engineering. Bryson has taught at UK since 2006 and has served as director of graduate studies for civil engineering since 2021.

Bryson received his Ph.D. from Northwestern University in 2002, his Master of Engineering degree from Howard University in 1992, and his Bachelor of Science degree from Florida A&M University in 1987.

Before receiving his doctoral degree, Bryson worked as a design manager and project manager for CH2M HILL, Inc. (now Jacobs Engineering Group Inc.), an international engineering consulting firm. Before CH2M HILL Bryson was a Highway Research Fellow for the Federal Highway Administration's (FHWA) Turner-Fairbank Research Center and was a research engineer at the Los Alamos National Laboratory.

Bryson was named a Fellow by the ASCE Board of Direction in the fall of 2021. Also, in 2021 Bryson received certification as Diplomate Geotechnical Engineer (D.GE) by the Academy of Geo-Professionals (AGP) of ASCE in recognition of his specialized knowledge and skills, professional ethics, commitment to lifelong learning and continued professional development in the field of geotechnical engineering.



Y. Charles Lu Named Director of the College of Engineering Paducah Campus

Y. Charles Lu, the H.E. Katterjohn Professor in Engineering, has been named director of the University of Kentucky's College of Engineering Paducah Campus. Lu has taught at UK since 2006 and served as director of undergraduate studies since 2021.

Lu received his Ph.D. in mechanical and materials engineering from the University of Western Ontario in 2000 and has master's degrees in mechanical engineering, materials engineering and mathematics.

Lu is the associate editor of the Society of Automotive Engineers (SAE) International Journal of Materials and Manufacturing and the SAE International Journal of Aerospace. He is the author of 10 edited books and over 160 technical papers in referred journals, book chapters and conference proceedings. He held the research scientist position at the Air Force Research Laboratories, Branch of Composites and Hybrid Materials.

Lu received the prestigious Excellence in Engineering Education Award in 2018 and the Ralph R. Teetor Educational Award in 2010 from SAE International for his contributions to mobility-related research and education. He was inducted as a Fellow of the American Society of Mechanical Engineers in 2019.



Michael Renfro Named Associate Dean for Faculty Affairs and Facilities

Michael Renfro, Tennessee Valley Authority Professor and the chair of the Department of Mechanical and Aerospace Engineering (MAE), has been named associate dean for faculty affairs and facilities.

Since 2015, Renfro has led the growth of MAE's faculty, staff and student numbers by 20% and its research portfolio by 300%. Under Renfro's tenure, MAE added bachelor's, master's and doctoral programs in aerospace engineering. Today, it consists of 40 faculty and over 1000 students, two undergraduate and seven graduate degree programs, two campuses and an annual research budget of over \$11 million.

Renfro's research focuses on optical diagnostics applied to power production and high-temperature systems. Currently, his research explores the development and use of laser-based measurement tools to study flame stability and propagation, ignition and extinction, sensor development for high-temperature fluid systems, and optical measurements of high-temperature coatings and thermal protection materials.

Renfro's research has been supported by the NSF, DOD, DOE, NASA, state agencies and industry with total funding of over \$18 million as the principal investigator or co-principal investigator.

Before joining UK in 2015, Renfro was a faculty member at the University of Connecticut, where he also served as associate department head and director of graduate studies. Renfro received his Ph.D. from Purdue University in 2000.

LEADING A TRANSFORMATION

Ken Seibert turned a regional consulting engineering company into the nation's leader in Net Zero Energy buildings

By Kel Hahn

In 1981, Kenneth Seibert (BSME 1983) joined CMTA Inc., a consulting engineering firm, while enrolled as a mechanical engineering student at the University of Kentucky.

Forty years later and now CMTA's president, Seibert felt an incredible sense of accomplishment when Blackstone — the world's largest private equity firm — purchased the company.

"Getting bought by Blackstone is the achievement of which I am most proud," said Seibert, who retired shortly after completion of the sale. "It changed many lives for the better."

When Seibert became president in 2006, CMTA primarily conducted regional projects within Kentucky.

"We weren't much different from any other firms our size," recalled Seibert. "We needed a way to stand out from the rest."

CMTA had become proficient at modeling energy-efficient buildings, but Seibert wanted more. He knew what the models reported, but how did the buildings actually perform once they were built? Seibert's tenacity and willingness to spend years following up with building occupants' energy costs eventually led to CMTA receiving an Energy Star Award.

As CMTA continued to design buildings that scored higher and higher in energy efficiency, it set out to design the first Net Zero Energy building in the country. Richardsville Elementary School in Warren County, Kentucky, became the first school to generate all the energy the school uses in a year through solar power.

CMTA's success with Richardsville Elementary opened the floodgates. Today, CMTA has built more Net Zero Energy buildings than anyone else. Crucially, CMTA's expertise in this area led to its expansion beyond Kentucky. As the leader in Net Zero Energy design, CMTA is involved in projects throughout the country, which attracted Blackstone's notice and eventual purchase of the company.

To honor Seibert's leadership and how he transformed CMTA from a small, regional company to what it is today, the Zweig Group awarded him the Jerry Allen Award for Courage in 2022. In 2015, the UK College of Engineering inducted Seibert into the UK College of Engineering's Hall of Distinction.

"It's a great honor to be recognized by your school for the career you've had," said Seibert.

Having formerly served on the Dean's Advisory Council of the College of

Engineering, Seibert believes in the college's mission to train engineers who will make a positive difference in the world. Toward that end, Seibert recently made a \$500,000 gift toward the modernization of the Funkhouser Building for College of Engineering.

"Ken Seibert is a service-oriented individual who has consistently shown his appreciation for the UK College of Engineering," said Rudy Buchheit, the Rebecca Burchett Liebert Dean of the College of Engineering. "In addition to this generous contribution toward Funkhouser's modernization, he has also performed an incredible service to our region and our country as an expert on the subject of high performance, sustainable buildings."

The Funkhouser modernization project's estimated cost is \$110 million with 70% of the cost to be paid from state-allocated renovation bond authority and 30% from philanthropic sources. The estimated philanthropic goal to support the capital expansion is \$33 million.

Seibert said, "I'm grateful to UK for the education I received, and I continue to look for ways to give back. I am glad that future UK Engineering students will have an incredible facility like the Funkhouser Building for education and research." ■



CHAD MANLEY

June 21, 1984-April 24, 2020

Chad Manley, a talented engineer and Imagineer at The Walt Disney Company, is being honored at the Hall of Distinction for his passion and dedication to the field of engineering and his unwavering spirit in the face of adversity.

Chad was born and raised in Lexington, Kentucky. He followed in his father's footsteps and attended the University of Kentucky College of Engineering to study mechanical engineering. His dream was to one day become a Disney Imagineer. Chad often said that "dreams are meant to be chased, not wished." He chased his dream and applied for the Disney College Program while he was studying at UK. While working in Epcot, he met his wife, Maira.

After graduating from UK in 2007, Chad moved to Orlando, Florida, to be part of The Walt Disney Company's engineering professional internship. He was hired as a full-time engineer at the end of his internship. After completing his master's degree in mechanical engineering at the University of Florida in 2011, he was promoted to senior mechanical engineer.

Chad's passion for engineering grew as he traveled the world building state-of-the-art rides for Disney parks. He was a part of projects for many iconic Disney rides. He updated the tracks for Big Thunder Mountain, redesigned the boats for the Pirates of the Caribbean ride, and traveled to Asia to work on Mystic Manor and the Iron Man Experience in Disneyland Hong Kong.

In June 2018, Chad was diagnosed with colon cancer. His life motto was live, learn, explore, and he decided to not let his cancer treatment slow him down. He and Maira continued to travel, learn new things and live life to the fullest.

In 2019, Chad was promoted from engineer to Imagineer, his dream job. His last assignment was as the ride project Imagineer for Smugglers Run, the Millennium Falcon ride at Disney World's Hollywood Studios.

After becoming an Imagineer, Chad told Maira that his next dream was to get his Ph.D. and become a professor. He loved teaching and mentoring younger engineers at Disney. To



help him fulfill this final dream, Maira set up "Chad Manley's Live Learn Explore Scholarship" to help others chase their engineering dreams, just like Chad did.

"I am so proud of Chad's legacy," said Maira. "He didn't get to become a teacher, but he is still supporting the next generation of engineering students. That's what he was passionate about."

You can support Chad Manley's Live Learn Explore Engineering Scholarship Fund at <https://uky.networkforgood.com/causes/17752-chad-manley-s-live-learn-explore-engineering-scholarship-fund>



In Memoriam

Donald Anderson	Computer Science	2003
Frank Atkins	Civil Engineering	1977 / 1978
William Baker	Electrical Engineering	1959
Frank Barnett	Mechanical Engineering	1952
Kenneth Beard	Civil Engineering	1962
Henry Bennett	Civil Engineering	1956
Carl Bischof	Electrical Engineering	1958
George Blakeman	Civil Engineering	1959
Brandon Blakey	Chemical Engineering	2004
Stephen Bosley	Mechanical Engineering	1973
Clyde Carpenter	Civil Engineering	1959
Charles Cole	Civil Engineering	1954 / 1958
James Cole	Mechanical Engineering	1955
Norman Cravens	Electrical Engineering	1960
Arthur Curtis	Civil Engineering	1957
Thomas Dillion	Mechanical Engineering	1967
Donald Fugette	Electrical Engineering	1957
Richard Gatlin	Mechanical Engineering	1960
Eugene Gloss	Mechanical Engineering	1982
Sherrell Helm	Civil Engineering	1961
Harvey Helm	Civil Engineering	1977
Robert Herrick	Electrical Engineering	1963
David Hopper	Electrical Engineering	1959
Donald Johnson	Electrical Engineering	1960
Frank Jones	Civil Engineering	1952
Marcus Lackey	Mechanical Engineering	1952
Anne Lindsay	Civil Engineering	1947
William Marcum	Mechanical Engineering	1956
Harold Mays	Civil Engineering	1958 / 1960
Lewis Melton	Civil Engineering	1963
Lancie Meredith	Civil Engineering	1973
John Minassian	Civil Engineering	1964
William Nolan	Civil Engineering	1943
Frank Owens	Civil Engineering	1955
Stanley Powell	Electrical Engineering	1958
Hershel Read	Agricultural Engineering	1966 / 1969
Jerry Risk	Mechanical Engineering	1959
Brad Rister	Civil Engineering	1996 / 1999
Byron Romanowitz	Civil Engineering	1951
Daniel Schwartz	Civil Engineering	1981
B. Wayne Simmons	Civil Engineering	1963 / 1965
Don Stanfill	Mechanical Engineering	1956
Michael Swintosky	Metallurgical Engineering & Materials Science	1979 / 1980
James Toombs	Civil Engineering	1971
James Troy	Electrical Engineering	1968 / 1970
Donald Varson	Electrical Engineering	1956
Robert Walsburger	Civil Engineering	1957
James Wampler	Civil Engineering	1956
Harry Weingartner	Mechanical Engineering	1958
Donald White	Civil Engineering	1955
Mark Whitley	Chemical Engineering	1975
Mark Willis	Civil Engineering	1984
Jack Wilshire	Electrical Engineering	1983
Louis Withers	Mechanical Engineering	1951



Lordina Mensah Accepted into Patti Grace Smith Fellowship

Lordina Mensah, a first-year University of Kentucky student, is UK's first student to be accepted into the Patti Grace Smith Fellowship, a nationally competitive aerospace fellowship program.

Mensah is a dual major in the College of Communication and Information's information communication technology program and the College of Engineering's mechanical engineering program. She is also a member of the Lewis Honors College.

Mensah will intern with the software team at Venturi Astrolab in Hawthorne, California. The company currently focuses on building rovers that can be sent to the moon or Mars to further knowledge of these interstellar landscapes. Mensah said the company is small, and that this small, intimate environment where "people know people" can help her get the most experience out of her internship.

The Patti Grace Smith Fellowship, established in 2020, is a competitive program that partners prospective Black undergraduate students with an aerospace laboratory across the country. This year the fellowship was awarded to 31 undergraduate students from 22 colleges and universities across the country. As a part of the program, Mensah and the other fellows will complete a summer internship, receive a scholarship and be paired with a mentor.

UK NSBE Chapter Receives Living Legacy Award for Community Impact at MLK Legacy Luncheon



Emorie Jackson, Seun Adekunle, Jessica Howard, Bryce Grant, Jayla McCoy, Jesse Okorafor, Oluwatofunmi Oyetan and Nnaemeka Okafor

The University of Kentucky Chapter of the National Society of Black Engineers (NSBE) received the 2023 Living Legacy Award for Community Impact at the Second Annual MLK Legacy Luncheon on February 2, 2023. The luncheon serves as an intentional moment that highlights the past, reflects on the present and envisions the future of the UK Martin Luther King Center.

The Living Legacy Awards are awarded to an undergraduate student, graduate student, staff or faculty member, or student organization that embodies the spirit of King's work and the legacy that he left for all of us.

"Inscribed on the north wall of the MLK statue in D.C. is a quote from his Nobel Peace Prize acceptance speech that reads 'I have the audacity to believe that peoples everywhere can have three meals a day for their bodies, education, and culture for their minds, and dignity, equality, and freedom for their spirits,'"

said Gabriel Dadi, associate professor and advisor for UK NSBE.

The UK NSBE chapter provides leadership, mentoring and service opportunities for UK students and central Kentucky communities. For instance, UK NSBE provides food and winter clothing to the needy around Lexington through its annual Spreads the Love event, teaches digital literacy to inner city children through the semester-long MetroCATS program, and sets up STEM activities for middle school and high school kids throughout Kentucky.

"In these, and many other initiatives, UK NSBE members share the same audacity as Dr. King, improving and impacting the community through nutrition, education and service. Thus, it was appropriately fitting and well deserved to honor the incredible student leaders of the UK NSBE Chapter with the Community Impact award at the MLK Legacy Luncheon," said Dadi.

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