

# IMPACT



# IMPACT

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## Contributors

**Writer and editor**  
Grant Guggisberg

**Graphic designer**  
Mandy Smith

**Production manager**  
Kelsie Jones

**Photographers**  
K-State Division of Communications  
and Marketing  
David Mayes

**Videographers**  
Cody Isern  
Michael Rencher



**Above:** Architectural engineering and construction science students tour the construction site in west Seaton Hall. The renovated spaces will open for the spring 2024 semester.  
**Front cover:** A close-up of the new living wall installed in the Engineering Hall atrium. See page 13 for more information.

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**KANSAS STATE**  
UNIVERSITY

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## From the Dean

As the fall semester continues and the calendar flips to December, it's a great time to reflect on another year for the Carl R. Ice College of Engineering.

Last month we wrapped up an on-site visit from ABET for our scheduled reaccreditation that occurs every six years. Additionally, three of our newer programs, biomedical engineering, cybersecurity and environmental engineering, are undergoing their first ABET evaluations. This is an important process for us as our accreditation from ABET demonstrates the value a K-State engineering degree holds once students leave the college and embark on rewarding careers.

Relaying to potential students the value of a K-State engineering degree has never been more important as the college joins with the rest of the university to carry out the bold vision of President Richard Linton, who this fall announced the university's Next-Gen K-State strategic plan. Two aspects of that plan are to see the university's total enrollment reach 30,000 learners and to secure \$300 million in annual research expenditures.

Our faculty continue to do an excellent job of securing research funding, with year-over-year gains in award amounts and a near-constant flow of new projects being approved for external funding. Melanie Derby, associate professor of mechanical and nuclear engineering, and Hongyu Wu, associate professor of electrical and computer engineering, both secured multimillion-dollar National Science Foundation grants through its EPSCoR program this year. Congrats to both of them and all our faculty for making research and solving the technical challenges facing society a priority, which in turn fulfills K-State's land-grant mission.

On the topic of enrollment, there is good news to share. We have turned the corner and have seen an increase in undergraduate enrollment in the college for the first time in seven years. Our recruitment team has done an outstanding job of getting prospective students to come to campus and see what all K-State engineering has to offer, and their hard work is paying off. Changes to our scholarship program have resulted in more than 2,000 undergraduates in the college receiving financial aid, and we are grateful for the support from alumni, friends, corporations and the state of Kansas that make that possible.

We also have sad news to share in this space, as Don Rathbone, the college's longest-tenured dean and the impetus for much of the college's growth at the end of the 20th century, passed away



in April. It was a privilege to meet and interact with him when I arrived on campus in 2020, and the college and all its success is a large part of his ongoing legacy.

We were glad to officially welcome President Linton back to campus last month after he successfully completed his cancer treatment. In his stead, senior vice president for executive affairs, university engagement and partnerships and chief of staff Marshall Stewart did a great job representing the university this fall. The president's cabinet continues to take shape as President Linton builds the right team of executive leaders to reach his vision for the university, and Stewart's additional leadership is a valuable asset. He has expressed to me that the college will be key for advancing the university as this strategic plan is enacted, and we are ready and willing to help bring this vision to life.

Matthew J. O'Keefe, Ph.D.  
Dean and LeRoy C. and Aileen H. Paslay Chair

# Building strong, building better

Investment from the construction materials company Dolese lays a strong foundation for success.

Just as any construction project requires strong materials to be successful, building a bright future for engineering students requires robust investments.

A decade ago, Dolese Bros. Co. — Oklahoma’s largest supplier of ready-mix concrete, crushed stone, gravel and sand — donated all of its nonvoting stock to the university foundations of Kansas State University, Oklahoma State University and the University of Oklahoma. The three portions of stock were valued at roughly \$70 million each and were made with one goal in mind: to increase the number of engineering graduates at each institution.

“The gift from Dolese has impacted every undergraduate student in the college,” said Matt O’Keefe, dean of the Carl R. Ice College of Engineering. “These funds support scholarships, student organizations and teams, our Scholars Assisting Scholars tutoring program and our facilities, like Fiedler Learning Commons. These gifts have been foundational to our retention efforts and are a key component of the college’s increased graduation rates over the last 10 years.”

At K-State, the Dolese gift has enhanced student recruitment and retention efforts in many ways. The fall 2022 incoming class was 15% larger than the previous two years, thanks in part to the increase in scholarships awarded. Additional



*Morgan Woodsmall, senior in biomedical engineering, speaks at Dolese Bros. Co. headquarters for the gift celebration with Kansas State University, Oklahoma State University and University of Oklahoma representatives in July.*



“Private gifts allow us to be bold in charting our own future.”

— Matt O’Keefe

outreach efforts through on- and off-campus activities have helped grow and diversify the student body.

K-State’s College of Engineering has increased the annual number of graduates by more than 100 since receiving the Dolese gift, and the freshman-to-sophomore retention rate has increased by 12.8% since 2012. This growth is due in part to programs such as Scholars Assisting Scholars tutoring, Women in Engineering mentoring and first-year instruction programs, all supported with Dolese funds.

“The Dolese funds have allowed our Carl R. Ice College of Engineering to continue to focus on what matters most to us: our students,” K-State President Richard Linton said. “Through increased recruiting opportunities and expanded support programs sustained by these funds, our engineering program is prepared to offer students the high-caliber experience worthy of today’s and tomorrow’s innovators.”

O’Keefe said philanthropy plays a vital role in the success of the college and its faculty and students.

“Investments by companies like Dolese help us graduate the next generation of diverse and inclusive engineers who are ready to meet the increasing demands of society,” O’Keefe said. “Without philanthropic support from corporate partners, we would not be able to accomplish many of our student-centric goals. Private gifts allow us to be bold in charting our own future, from the students we recruit with scholarships, to the facilities those students have access to on a daily basis.

“It would not be possible to continue building on our long history of past success without the help of generous donors who see the value in what we do.”

*By Marisa Larson, KSU Foundation*

# POWERCAT

## motorsports

25 years of competition



Powercat Motorsports, K-State's Formula SAE racing team, has come a long way since 1997.

What started as a seven-member team alongside advisor David Pacey designing a tube-frame car for the team's first competition has evolved into something much bigger.

One of the most popular student design teams at K-State, Powercat Motorsports formed in 1997 and spent a year organizing and preparing for its first competition in spring 1999. The initial team took 60th place out of 107 teams, with many highs and lows at competitions in the years since. Many of the early K-State teams settled in the middle of the pack among the more than 100 competing teams each year.

But recent results suggest the team is on the rise. The group managed its best finish in club history at Michigan International Speedway in June 2023, taking 14th place out of 119 competing teams. This year's jump in the standings was preceded by a 39th-place finish in 2019 and a 26th-place finish in 2022.

Club president and senior in mechanical engineering Anish Srivastava said the club has even bigger goals for the future as the team prepares for its 25th year of SAE competition.

"I see this team winning the Michigan competition in the next three years," he said. "After we conquer internal combustion, the plan is to switch fully to electric vehicles. We have designs for an EV FSAE car in progress, but it is currently stalled at the design stage."

Srivastava said the group hopes to see continued growth in the number of participating students, which has been steadily increasing since 2021. The group does not limit the number of

participants and accepts interested students regardless of their background or academic major.

"The biggest change the younger class of our team is pushing for is to lower the learning curve and grow to 150 active students like the top teams in the U.S.," he said.

While the time commitment as an active member of the team is high, Srivastava said the best part about competing with the team is the community.

"We live together, work together and study together," he said. "I spend more time with my team family than I do with my real family."

The team generated some local interest this fall when it hosted and won its first-ever competition in Manhattan, Formula Wheat, at Tuttle Creek Spillway. While not an official Formula SAE competition, the event was designed to be a similar experience to give the eight competing teams the chance to practice for the real thing. K-State won the event, edging second-place Iowa State by just eight points.

"We were ecstatic with the results," Srivastava said. "Our goal was to take first place and defend our home turf, and we did exactly that. The event was logistically solid as well. We were anticipating some massive hurdles and hiccups but nothing of that sort happened."

Srivastava said the team is planning to make Formula Wheat an annual event, with the potential for other programs in Kansas to take turns hosting once it gets more established.



Check out photos throughout Powercat Motorsports' history at [engg.us/powercat](https://engg.us/powercat).



# GETTING IT DONE

*With perseverance and help from an alum, the quarter-scale tractor team succeeds at international competition.*

“We put the tractor in reverse and heard a ‘pop.’ Everybody’s hearts and jaws dropped.”

Payton Renner, president of K-State’s Helwig Farms Quarter-Scale Tractor Team, described how this year’s competition almost ended before it even began. The team had completed some practice laps of the durability course, making sure its tractor’s steering and suspension were good.

The team only needed to weld one last thing, and that’s when disaster struck — the main power shaft in the tractor’s transmission snapped in two.

“We decided we didn’t come all this way to quit now,” Renner said. “So we scrambled.”

Using a barbecue grill to heat up the shaft, the team mended it well enough to compete in the durability competition the following morning. Despite having to keep the tractor in first gear, the team tied for second.

But they would need to fix the shaft correctly so they could use both first and second gear during the pulling events.

### It plays in Peoria

The American Society of Agricultural and Biological Engineers’ International ¼ Scale Tractor Student Design Competition was in Peoria, Illinois. Luckily for the K-State team, Chuck Kuhn lived nearby.

“I have a machine shop at home and build engines as a hobby,” said Kuhn, a 1967 K-State graduate in mechanical engineering. “I told Ed, one of the team advisors, that if the team ever needed any light machine work, to give me a call.”

And Kuhn got that call.

A team member raced to Chicago to get the necessary materials, then the team headed to Kuhn’s shop to fix the shaft. After two long and nerve-wracking nights, the team once again had a fully functional tractor.

K-State took second place out of 22 teams.

“Every competition has its challenges, but for most teams, this type of setback would keep them from finishing the competition at all, much less taking second place,” said Ed Brokesh, advisor for the team and assistant professor for biological and agricultural engineering. “This level of resolve is part of why K-State has been so successful in this event over the years.”

And Kuhn was proud he could be part of the team’s success.

“I always figured if they broke something, I could help,” Kuhn said. “I’m impressed with the team members’ perseverance. They are a link back to K-State for me, and I’m happy to be connected to them.”

*By Marisa Larson, KSU Foundation*



# A DOG’S TALE OF MOBILITY

## BME seniors design 3D-printed prosthetic leg

Before they entered the workforce and began developing the next generation of medical devices or finding new ways to integrate technology into health care, a trio of biomedical engineering seniors spent a semester solving a different type of problem.

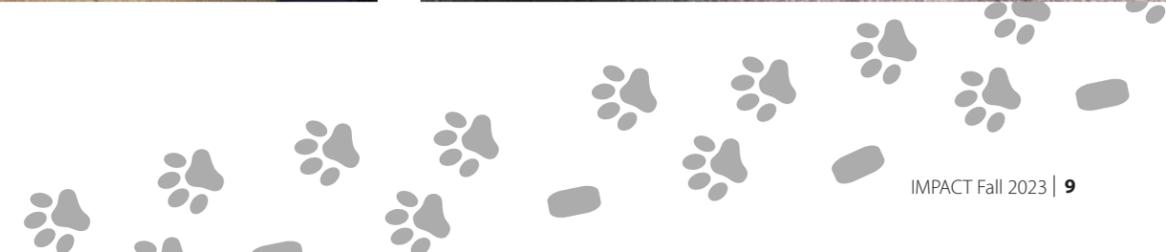
Part of the experience for undergraduate seniors within the Carl R. Ice College of Engineering is a capstone course designed to prepare outgoing students to solve real-world problems with real clients similar to the ones they’ll encounter once they start their engineering careers.

The team of Clay Hardin, Stephen Mitchell and Tate Steele had the opportunity to build a 3D-printed prosthetic leg for a 175-pound English mastiff dog named Trace.

The project’s goal was to improve Trace’s quality of life by allowing him to move around more easily through the use of

the prosthetic leg. While this product exists on the market and could be purchased elsewhere, full-limb prosthetics for a dog this large are difficult to find and prohibitively expensive. The team’s secondary goal was to design an interchangeable and adjustable limb in three sections: the socket, the shaft and the foot.

The team went through multiple rounds of testing and fitting, ultimately arriving at a prosthetic limb that was left with Trace for full-time use. In its final report, the team wrote there were still aspects of the design that could be improved upon, but the three were happy with the final result. The project also left the door open for future classes to pick up where this team left off and continue to improve the device for Trace.





# Kim Gerard

## 2023 Alumni Fellow

When **Kim Gerard** sees a problem, her first instinct is to solve it. The 2023 Alumni Fellow for the Carl R. Ice College of Engineering credits K-State for helping develop that skill, one that has served her well over a long and successful career as an innovator and business owner.

“I left here with the discipline to see a problem through to a solution, and the logical thought process to work through,” she said. “Because everything in life is a problem, and you always have to figure out a solution. Those were two key things that I took away from K-State.”

Gerard graduated from K-State with two bachelor’s degrees, the first in engineering technology in 1982 and the second in

*“When something doesn’t feel right, figure out what will and make that change. We don’t have to set a plan and stay on it.”*

civil engineering in 1984. She entered the petroleum industry with Conoco, then went on to be a partner and vice president of operations at Petro Source.

After 20 years in the petroleum industry, she started 360 Electrical LLC, headquartered in Salt Lake City, in 2005. 360 began with a patent for rotating electrical devices and expanded to a company innovating all types of consumer and job-site power products.

“I think one of the most important things is to be willing to accept change,” Gerard said. “I went through college believing I knew what I would do with my life, and then suddenly an opportunity was presented and I totally shifted gears into something I never dreamt I would do. And that’s been the case throughout my life.

“I’ve done a lot of weird things, and a lot of different things. But when something doesn’t feel right, figure out what will and make that change. We don’t have to set a plan and stay on it.”

While Gerard’s story is filled with personal and professional success, it was far from easy. There were many obstacles in the first few years of owning her own business. Her initial idea for 360 Electrical was to make a rotating, hard-wired receptacle in the

wall, targeted to builders of new homes. The business quickly pivoted during the housing crisis in 2007.

“So here we are with a million devices we had just manufactured and no marketplace,” Gerard said. “We had to very quickly switch gears, because my patent covered a lot of different ways of designing and utilizing that rotating aspect, so we switched to more of an end-user device that could be plugged into the wall and didn’t need to be hardwired.

“We did not make any profit until 2010. I spent \$5 million starting a company that I was scared to death would fail, but by the grace of God, we’ve made it. And every year, there is a new challenge that we didn’t see coming.”

Today, 360 Electrical creates a mix of award-winning, rotating electrical products and connectivity solutions for electronic devices with more than 10 million units sold. Additionally, Gerard owns a personal fitness studio.

Gerard, who says 90% of her time these days is spent having fun with a variety of hobbies such as four-wheeling, riding motorcycles, scuba-diving and working out, encouraged current engineering students to make sure to enjoy college while they are at K-State.

“When I went to college, I was working two to three jobs, one semester I had 21 hours of engineering classes,” she said. “You found me either working or studying. I can honestly say I didn’t have fun during college, because it was too busy. I encourage people to not take that path. Find a way to enjoy this, because it should be one of the greatest times in your life.”



Visit [eng.us/alumni-fellow-23](https://eng.us/alumni-fellow-23) to watch the video interview of 2023 Alumni Fellow Kim Gerard.

# CAREER awards

Two faculty members in the Carl R. Ice College of Engineering each secured Faculty Early Career Development, or CAREER, awards from the National Science Foundation this spring. These significant milestone grants designed to reward young

and promising researchers typically involve more than \$500,000 in research funding. Below are brief summaries of each faculty member's ongoing projects awarded through this prestigious NSF grant process.



## Protein biomaterials engineering

**Won Min Park**, assistant professor in the Tim Taylor Department of Chemical Engineering, has received a \$550,000 CAREER award to develop a simple, modular and versatile technology to direct the folding and assembly of protein biomaterials using a molecular version of origami.

The five-year project, "CAREER: Modular Protein Origami to Building Genetically Programmable Biomaterials," will study the genetic programming of complex functionalities into the biomaterials created from this process and assess their capabilities in solving challenging and unique engineering problems.

Park said the project also aims to produce educational activities that will train students in protein biomaterials engineering.



## Elastic wave energy transfer dynamics

**Raj Kumar Pal**, assistant professor in the Alan Levin Department of Mechanical and Nuclear Engineering, has received a \$504,341 CAREER award to study the vibration response of architected plates for novel wave phenomena.

The five-year project, "CAREER: Guiding and Confining Nonlinear Elastic Waves in Moiré Metastructures," will examine how these plates — called metastructures — can exhibit unique physical properties, such as negative density and stiffness, defect immune transport, and wave confinement in small regions.

The findings from this study could lead to the next generation of wave-based signal processing devices for applications in mobile phones and structural health monitoring.



# cultivating health

In January 2023, a living green wall system was installed in Engineering Hall. Besides adding a splash of color to the atrium, the wall is a visual example of an engineered living system. With the automated modular tray watering system and integrated grow lights, it showcases how engineers can create more healthy spaces.

**2055** potted plants | **385** square feet | **3** stories tall

The living wall is comprised of four plant varieties:



**heartleaf philodendron**  
philodendron hederaceum



**umbrella plant**  
schefflera arboricola



**neon pothos**  
epipremnum aureum



**rubber tree**  
ficus elastica

The living wall has the yearly potential to:

produce approximately **90k** liters of oxygen

absorb approximately **225** kilograms of CO<sub>2</sub>

Research shows living walls and houseplants are beneficial for well-being and have positive effects on mental health.

In fact, spending time in a green environment may lead to:

**decreased stress** and improved mood

**15% increase in** productivity and creativity levels

# Advancing one health

*Research continues to be a priority for the faculty of the Carl R. Ice College of Engineering, with the goal of solving problems and creating new knowledge for the betterment of society. The college has four areas of emphasis when it comes to research: sustainable infrastructure, computing technologies, secure platforms and one health.*

*The idea of one health encapsulates more than just preventing or treating disease. Instead, this concept focuses on the interconnection among people, animals, plants and their shared environment with the goal of achieving optimal health on a local, regional, national and global scale.*

*This could mean using data to model the potential spread of a pathogen, or perhaps embedded medical sensors and devices that provide real-time data and treatment options. The possibilities are endless, which makes the research being done in the college all the more important.*

*What follows are two examples of the one health concept in action, one focused on ecosystem balance in bodies of water, and another on an innovative procedure to treat cancer in a minimally invasive manner.*





**Moore is leading a team that is developing a novel mobile monitoring platform to better understand and predict the emergence of harmful cyanobacteria blooms.**

## Managing harmful algae blooms

**Trisha Moore**, Peggy and Gary Edwards Cornerstone teaching scholar and associate professor in the Carl and Melinda Helwig Department of Biological and Agricultural Engineering, is leading a team that is developing a novel mobile monitoring platform to better understand and predict the emergence of harmful cyanobacteria blooms, also known as cyanoHABs or blue-green algae, in freshwater systems.

Left unchecked, these blooms cause serious ecological, economic and human health issues each summer and turn lakes and ponds into dangerous breeding grounds for cyanotoxins. Exposure in humans can result in mild rashes and skin irritation to much more severe liver or neurologic injury and even death.

“We still don’t fully understand the set of conditions that trigger cyanoHABs and what causes them to persist,” Moore said. “We hope that the data we collect through this project, and, importantly, the methods for analyzing and utilizing those data in predictive models, will help fill some of these gaps in understanding.”

Funded through a 2021 grant from the U.S. Geological Survey, the project is now in its third year as testing of the prototype

platform has ramped up. But the project isn’t without its hurdles. Supply chain issues early on made assembling the initial prototype difficult, while human interference with the deployed prototype caused a disruption in data collection.

“Our mobile monitoring platform presents other deployment challenges, too,” Moore said. “For example, right now it is limited to going out on calm days or in areas that are protected from the wind as it is difficult to maneuver in rough waters.”

In the two years since starting the project, Moore said the group has added some components to help paint the full picture of how and why cyanoHABs occur.

“One of the conditions we suspect triggers and sustains bloom formation is when the reservoir gets a fresh flush of nutrients from the landscape upstream of it,” she said. “We are in the process of adding data collection points in the streams that feed Marion Reservoir and are also developing a watershed model to get a better sense of the nutrient load that is delivered to our reservoir during storms.”

## Treating cancer from the inside out

**Punit Prakash**, recipient of the Paul L. Spainhour professorship in electrical engineering and professor in the Mike Wiegers Department of Electrical and Computer Engineering, is working on a project aimed at improving and expanding the use of thermal ablation procedures to destroy cancerous tumors without the need for surgery.

The idea of thermal ablation, essentially burning away cancerous tissue, has been around for 30 years, but Prakash’s group is developing and refining devices that can improve



**Prakash’s group is developing and refining devices that can improve the thermal ablation procedure and allow it to treat additional types of cancer, such as lung cancer.**

the procedure and allow it to treat additional types of cancer, such as lung cancer. Current thermal ablation methods use tiny needles to access the tumor from outside the body.

“One of the challenges with lung cancer is you’re poking a needle through the lung, which is essentially a bag of air, and it might collapse,” Prakash said. “There are ways to manage that and doctors doing the procedure watch out for that, but it’s a complication they’d rather not deal with if possible.”

Prakash, also a Steve Hsu keystone research scholar, and his group are working on a device that could be inserted through the mouth and into the trachea, reaching the lungs to perform the thermal ablation with less complication risk. Additionally, the recovery process from a procedure like this has the potential to be dramatically shorter than surgery and could be offered to patients in declining health that aren’t good surgery candidates.

“Currently, these are done as outpatient procedures,” Prakash said. “They come in, and assuming there are no complications, they could go home the same day, which is a big deal, especially in areas where folks have to drive two hours to go the hospital.”

Prakash and his collaborators are also working on microwave devices that specialize in directionally heating, as opposed to heating in all directions, like a flashlight as opposed to a lightbulb. This would give doctors much more control in treating smaller areas and without damaging healthy tissue.

“That’s important if the doctor is treating some tissue and there is something nearby that they want to protect,” he said.

In a similar vein, Prakash and his team are also developing a pair of microwave devices, positioned on either side of the cancerous tissue, that can communicate with each other.

“The idea is that as the tissue gets destroyed, its physical properties change,” he said. “There will be less and less signal reaching from one device to the other one, and we think we can use that as a signature to know we’ve adequately treated the tissue.”

**SS SEATON SOCIETY**  
**Carl R. Ice College of Engineering**

March 4, 2023

**HALL OF FAME CLASS OF 2023**

Induction to the hall is the highest honor bestowed on its alumni by the college. Honorees are recognized for their professional success and accomplishment, involvement with and support of the Carl R. Ice College of Engineering, dedication to K-State, and professional and public service.



**Kevin Honomichl**  
 CE '86



**Jerry J. Westhoff**  
 CE '74



**PROFESSIONAL PROGRESS AWARD**

Nominated by their respective department heads and confirmed by the dean, nine alumni were honored for significant early to mid-career success.

**Justin Zeh**  
 CNSM '04

**Bryan Anderson**  
 CHE '05

**Kyle Grabill**  
 IE '03, '05

**Jennifer Jacka-Taylor**  
 CE '04

**Jason Wollum**  
 ARE '96

**Jonathan Feldkamp**  
 CMPEN '03

**Cade Schoonover**  
 BAE '98

**Brad Kaufmann**  
 CS '04

**Keegan Odle**  
 EE '03

CARL R. ICE COLLEGE OF ENGINEERING

# OPEN HOUSE AND LEADERSHIP AWARDS

## 2023 Open House Awards

### Yellow Brick Award

Industrial Engineering

### Outstanding Student Organization Award

1st place – K-State Robotics Competition Team

### Degree Program Display

1st place – Industrial Engineering

### Children's Display

1st place – Mechanical Engineering

### Innovation Display

1st place – Mesh Network GPS Cattle Trackers – Jim Gant, Nick Gerhold, Dane Thompson

## 2023 Leadership Reception Awards

### Dave and Virginia Braun Innovation Award

"Valorization of Food Waste" by Erin Pearson, Gillian Falcon, Sophia Shaar, Sierra Staatz

### Tau Beta Pi Underclassman of the Year

Eleanor Braynock – *biological systems engineering*

### W. Leroy Culbertson Steel Ring Leadership Scholarship

Payton Lee – *mechanical engineering*

Lauren Stanton – *biological systems engineering, environmental engineering*

### Clair A. Mauch Steel Ring Advisor of the Year

Hosein Baboly – *teaching assistant professor of mechanical and nuclear engineering*

## SAINTS OF ENGINEERING

The honor of Saints of Engineering is a new award designed to honor up to five outstanding graduating seniors in the college who have been nominated by their respective departments in recognition of their leadership and contributions, impact on the college and K-State community, and strong record of academic excellence. The award recipients are chosen by their peers in the college through online voting.

Christopher Burrell  
mechanical engineering

Braden Funk  
computer engineering

Grace Hartman  
civil engineering

Maddy Malina  
biomedical engineering

Grace Wojcik  
mechanical engineering



# 2023 Company of the Year

The Carl R. Ice College of Engineering honored Burns & McDonnell as its 2023 Company of the Year at its career fair reception, Sept. 21, in Engineering Hall.

This annual selection is based on exhibited commitment to engineering education, as well as high standards and quality performance in the engineering profession.

Burns & McDonnell was founded in 1898 and today operates as a family of 100% employee-owned companies that includes more than 13,500 engineers, construction and craft professionals, architects, and more that design and build critical infrastructure that help cities thrive.

Headquartered in Kansas City, Missouri, Burns & McDonnell has more than 70 offices and provides its services to a wide variety of industries.

"We truly appreciate the many ways that Burns & McDonnell has invested in the college and in the lives of our students," said Matt O'Keefe, dean of the Carl R. Ice College of Engineering. "They have been a valued partner of ours for decades, and it is our privilege to recognize them as our 2023 Company of the Year."

Burns & McDonnell has an extensive history of partnering with the college to the benefit of students. The company is an Engineering Leadership and Innovation, or ELI, corporate partner in the college, taking part in the investment opportunity that includes several chances to network with students, as well as mentoring and interacting with ELI Scholars throughout the school year.

Additionally, Burns & McDonnell regularly takes on K-State engineering students as interns, and the company contributed funding for the college's Ike and Letty Evans Academic Success Center, specifically the naming of the



Collaborative Learning Laboratory where the Scholars Assisting Scholars tutoring program is housed.

"Company of the Year is a high honor, and Burns & McDonnell is pleased and proud that the Carl R. Ice College of Engineering has chosen to recognize us this year," said Warren Kennedy, senior vice president of Burns & McDonnell and 1990 graduate in chemical engineering from K-State.

Kennedy said the supply of prepared, diverse and well-rounded intern and graduate candidates at scale is vital to the company's continued success.



### Scoglio honored by university

**Caterina Scoglio**, Paslay professor in electrical and computer engineering and Steve Hsu Keystone research scholar, has become the first woman recognized as a Kansas State University distinguished professor in engineering.

Scoglio is a high-impact expert in the field of network science and contact-network models for epidemic spreading. Her research team developed a generalized epidemic modeling software tool, which has been widely adopted by other researchers and applied to simulating the spread of many infectious diseases. Scoglio and her research group produced accurate predictions of the spread of COVID-19 in Wuhan City, China, and the 2019 Ebola cases in Uganda.

Along with her transformative research, Scoglio is a proficient and dedicated educator and mentor to graduate students, and she serves as a role model to others in her profession. She has been an advisor to 42 graduate students. Scoglio's robust mentoring is also substantiated by many of her students being selected for outstanding graduate student awards in the electrical and computer engineering department.



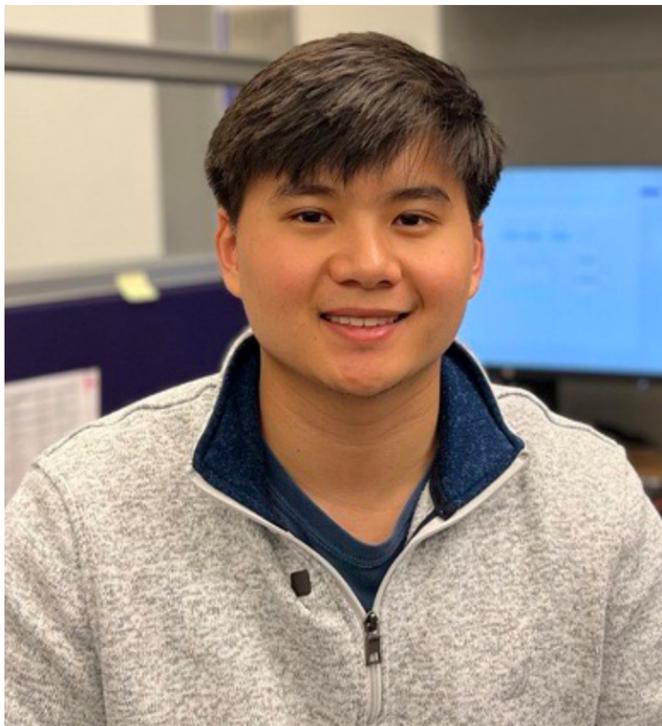
### Carter named director

**David Carter** has been named the next director of Engineering Extension at Kansas State University.

Carter previously served as the director of the Kansas Energy Program in Engineering Extension. He brings more than 35 years of experience in environmental management, regulatory interpretation and enforcement, and environmental and energy management assessments to the job. In addition to his work at the Kansas Energy Program, Carter also spent 10 years at the Pollution Prevention Institute, another Engineering Extension program.

"David brings a wealth of knowledge and experience to this vital leadership position," said Stacy Hutchinson, associate dean for research and graduate programs for the Carl R. Ice College of Engineering. "I am confident he will do great work to advance the mission of engineering extension, which is to bring engineering-related technical assistance, training and outreach to the citizens of Kansas."

Carter replaces Bruce Snead, who retired in June after a 41-year career with Engineering Extension.



### Duong receives research award

**Kevin Duong**, computer science, was the recipient of the 2023 University Award for Distinguished Undergraduate Student in Research.

Duong worked as an undergraduate research assistant in the K-State Laboratory for Knowledge Discovery in Databases and was an integral part of the lab's research efforts in the domains of autonomous agents and reinforcement learning. Duong's research explores hyperbolic discounting functions and learning over multiple horizons, while training reinforcement learning agents that can learn new behaviors from past actions by interacting with the environment.

As part of his research experience, Duong has contributed to research ideas, implemented code, set up code repositories, conducted experiments on high-performance clusters, and collected and analyzed results.



Watch this video to hear more about Duong's research.



### K-State ASCE hosts symposium

The Kansas State University Student Chapter of the American Society of Civil Engineers, or ASCE, served as hosts for the Mid-America Student Symposium in April. The weekendlong event in Manhattan featured 15 student chapters from around the region.

The Kansas State University Concrete Canoe and Steel Bridge teams both took second place at their regional competitions. The Steel Bridge team went on to participate in the American Institute of Steel Construction, or AISC, National Steel Bridge Competition in June on the campus of the University of California at San Diego.



To view highlights of the event, watch this short video.

## College awards

- Charles H. Scholer Faculty Award** | Hongyu Wu | ECE
- Clair A. Mauch Steel Ring Advisor of the Year** | Mohammadhosein Ghasemi Baboly | MNE
- Sue Barsamian Engineering Award for Excellence in Diversity and Inclusion** | Julia Keen | ARE-CNS
- Robert R. and Lila L. Snell Excellence in Undergraduate Teaching Award** | Julia Keen | ARE-CNS
- Larry E. and Laurel Erickson Public Service Award** | Gary A. Clark | DOE
- Myers-Alford Memorial Teaching Award** | Behrooz Mirafzal | ECE; Arslan Munir | CS
- Dean's Award of Excellence – Teaching** | Lisa Wilken | BAE

- Dean's Award of Excellence – Service** | Katie Loughmiller | ARE-CNS
- Frankenhoff Outstanding Research Award** | Pascal Hitzler | CS
- Engineering Staff Award of Excellence** | Mandy Smith | DOE; Cathleen Stotts | DOE
- Outstanding Assistant Professor Award** | Chuancheng Duan | CHE; Jeongdae Im | CE; Raj Kumar Pal | MNE; Vaishali Sharda | BAE
- Engineering Award for Excellence in Undergraduate Teaching** | William Hageman | ECE
- Engineering Distinguished Researcher Award** | Hayder A. Rasheed | CE

## College earns trio of diversity awards

The Carl R. Ice College of Engineering was recognized at the bronze level by the American Society of Engineering Education, or ASEE, Diversity Recognition Program. The award recognizes the college's commitment to making significant, measurable progress in increasing diversity, inclusion and degree attainment outcomes with its programs. Additionally, this award places the college among the nation's leaders in inclusive excellence.

The college's Scholars Assisting Scholars tutoring program received the 2023 Inspiring Programs in STEM Award from INSIGHT Into Diversity magazine, the largest and oldest diversity and inclusion publication in higher education.

This award honors institutions that encourage and assist students from underrepresented groups to enter the fields of science, technology, engineering and mathematics. The college's Scholars Assisting Scholars program will be featured, along with 79 other recipients, in the September 2023 issue of the publication.

The Diversity, Equity, Inclusion and Belonging, or DEIB, unit in the Carl R. Ice College of Engineering is the recipient of K-State's 2023 University Outstanding Department or Unit Award for Enhancing Diversity. The award, established in 2003, recognizes exceptional efforts undertaken by a unit or department to enhance diversity at K-State.



## Promotions, tenure and sabbaticals

- Sanjoy Das** | ECE | granted sabbatical leave for fall 2023
- Mustaque Hossain** | CE | granted sabbatical leave for fall 2023
- Bin Liu** | CHE | granted sabbatical leave for 2023-2024
- Dunja Perić** | CE | promoted to full professor
- Punit Prakash** | ECE | promoted to full professor
- Ajay Sharda** | BAE | promoted to full professor
- Donghai Wang** | BAE | granted sabbatical leave for fall 2023
- Chih-Hang Wu** | IMSE | granted sabbatical leave for fall 2023
- Bill Zhang** | ARE-CNS | promoted to full professor
- Meng Zhang** | IMSE | promoted to associate professor with tenure

## New Faculty

- Ursula Emery McClure** | ARE-CNS | teaching professor
- Xinyi (Abby) E** | BAE | professor of practice
- Jack Cunningham** | CE | instructor
- Safia Malallah** | CS | teaching assistant professor
- Marty Kump** | ECE | teaching professor
- Tim Sobering** | ECE | senior professor of practice
- Mike Helwig** | IMSE | teaching professor
- Daniel Karkle** | DOE | professor of practice

## Looking back

Fifty years ago, **Donald E. Rathbone**, former head of the department of electrical engineering at the University of Idaho, accepted the position of dean of engineering at K-State. K-State President James A. McCain announced the appointment in 1973.



Impact 1998 | Donald Rathbone stands beside the sign designating the hall formally named for him.



Impact 1981 | Donald Rathbone turns the first shovelful of earth making Durland Hall, Phase II ready for construction.

Alumni recognitions

1975

Andrew Schuler III (EE) retired in May 2023 after 47 years with the AT&T Company, most recently working as a senior technical project/program manager within the network planning and engineering group at the company's headquarters in Dallas. His work primarily helped develop the company's advanced 5G wireless networks, high-speed internet access and enhanced 911 public safety automatic location identification.

1979

Carl R. Ice (IE) was inducted into the Kansas Business Hall of Fame in a ceremony held Oct. 4, 2023, on the campus of Emporia State University. Ice retired as president and CEO of BNSF Railway in 2020 after 42 years with the company. He currently serves on the Kansas Board of Regents.

1983

Mitch Snyder (EE) retired in April 2023 as president and CEO of Bell Flight after seven years leading the company.

His tenure included investments in digitally focused manufacturing, advanced design and simulation facilities and securing a multi-decade contract to manufacture the U.S. Army's Future Long-Range Assault Aircraft.

1994

Anita Ranhotra (IE, MEM '01) received a 2022 STEMMy Groundbreaking Leadership Award from the Central Exchange of Kansas City, recognizing her as someone who has made significant contributions to the science, technology, engineering, mathematics and medicine community throughout her career.

2002

Cameron McGowan (CE) was named the 2023 Engineer of the Year at the 72nd annual Engineering Week luncheon, Feb. 23, in Kansas City, Missouri. The event is co-hosted by the Eastern Chapter of the Kansas Society of Professional Engineers and the Western Chapter of the Missouri Society of Professional Engineers.

In memoriam

1960

James R. Grier III (CE), Wichita, died June 27, 2023. He spent 55 years working for Eby Construction, retiring as chairman of the Wichita-based construction company. In 1993, he was inducted into the College of Engineering Hall of Fame and held season tickets to K-State football for more than 60 years. He is survived by his wife, Carolyn, and children Michael, Kurt and Jennifer.

1961 | Faculty

Gary L. Johnson (EE, M.S. '63), Canon City, Colorado, died Jan. 29, 2023. He spent 28 years in the electrical and computer engineering department where he taught mostly introductory undergraduate courses and received several teaching awards. After he left K-State, he spent time working as a consultant in the wind energy sector until his retirement. He is survived by his wife, Jolene, and children Kirk and Janel.

1963

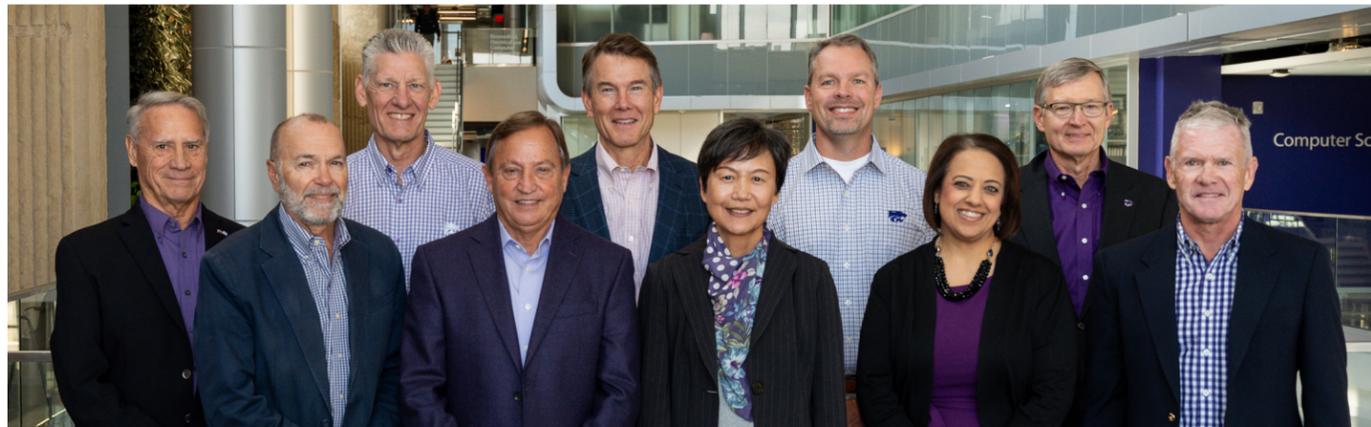
Gary W. Edwards (CE), Houston, died June 25, 2023. He spent 38 years working for Conoco Inc., retiring in 2001

as senior executive vice president of corporate strategy and development. In 1989, he was inducted into the College of Engineering Hall of Fame, later serving as chair of the college's advisory council among other active roles with his alma mater. Edwards is survived by his wife, Peggy, and two daughters, Debbie and Christy.

Faculty

Edwin C. Lindly, Manhattan, died Aug. 12, 2023. He was part of the architectural engineering and construction science department faculty for 46 years before his retirement in 1999, with several current faculty members taking his courses over the years. Lindly received the Kansas State University Award for Excellence in Undergraduate Instruction in 1978, the university's Outstanding Teacher in Engineering award in 1979, and the American Society of Engineering Education award for outstanding teaching and contributions to the engineering profession in 1982. He is survived by his wife, Jo, and children Kirk, Jay and Ruth. The E.C. Lindly Scholarship for Engineering Students has been set up through the KSU Foundation.

Carl R. Ice College of Engineering Advisory Council



- Steve Blume, BAE '79, ExxonMobil Corporation – retired
- Blake Brosa, CNSM '09, Bureau Veritas
- Chrysta Castañeda, IE '85, The Castañeda Firm
- Tim Chadwick, CNS '90, MMC Corp.
- Richard Fornelli, CE '72, M.S. '73, CH2M – retired
- Don Glaser, ME '74, Glendo LLC – retired

- Deyona “Dee” Hays, EE '89, Excellence Engineering LLC; HeelzFirst LLC
- Bryce Huschka, IE M.S. '07, ExxonMobil Product Solutions Company
- Karl Miller, ME '84, Jingoli Power LLC
- Mark Nyquist, CNS '80, DynaTen Corporation – retired
- Anita Ranhotra, IE '94, Hallmark Cards Inc.

- David Schettler, ME '83, Tenaska Energy – retired
- Simeon Terry, IE '91, Austin Commercial
- Art Umble, CE '82, Stantec Consulting Services Inc.
- Jerry Westhoff, CE '74, J.J. Westhoff Construction Co.
- Jason Wollum, ARE '96, Henderson Companies
- Jane Zhu, IE Ph.D. '92, Veritas Technologies LLC

Former dean | Donald Rathbone

Donald Rathbone, former dean of the Carl R. Ice College of Engineering at Kansas State University, died April 11, 2023, in Manhattan. He was 94 years old.

During his 24 years at K-State, Rathbone oversaw year-over-year growth in enrollment and research expenditures while adding in-demand degree programs to the college's portfolio. He more than doubled undergraduate enrollment for the college and tripled the number of graduate students.

He also focused on increasing scholarship awards for top-achieving students, which helped K-State engineering become the premier engineering school in the state. Additionally, he helped create the college's Multicultural Engineering Program and led fundraising efforts to build Durland Phases I, II and III. Phase II of the project, Rathbone Hall, was named in his honor.

After his retirement from K-State in 1997, Rathbone remained active in both the Manhattan and K-State communities. He served as a member of the Chamber of Commerce and on the Greater Manhattan Community Foundation's board of directors.

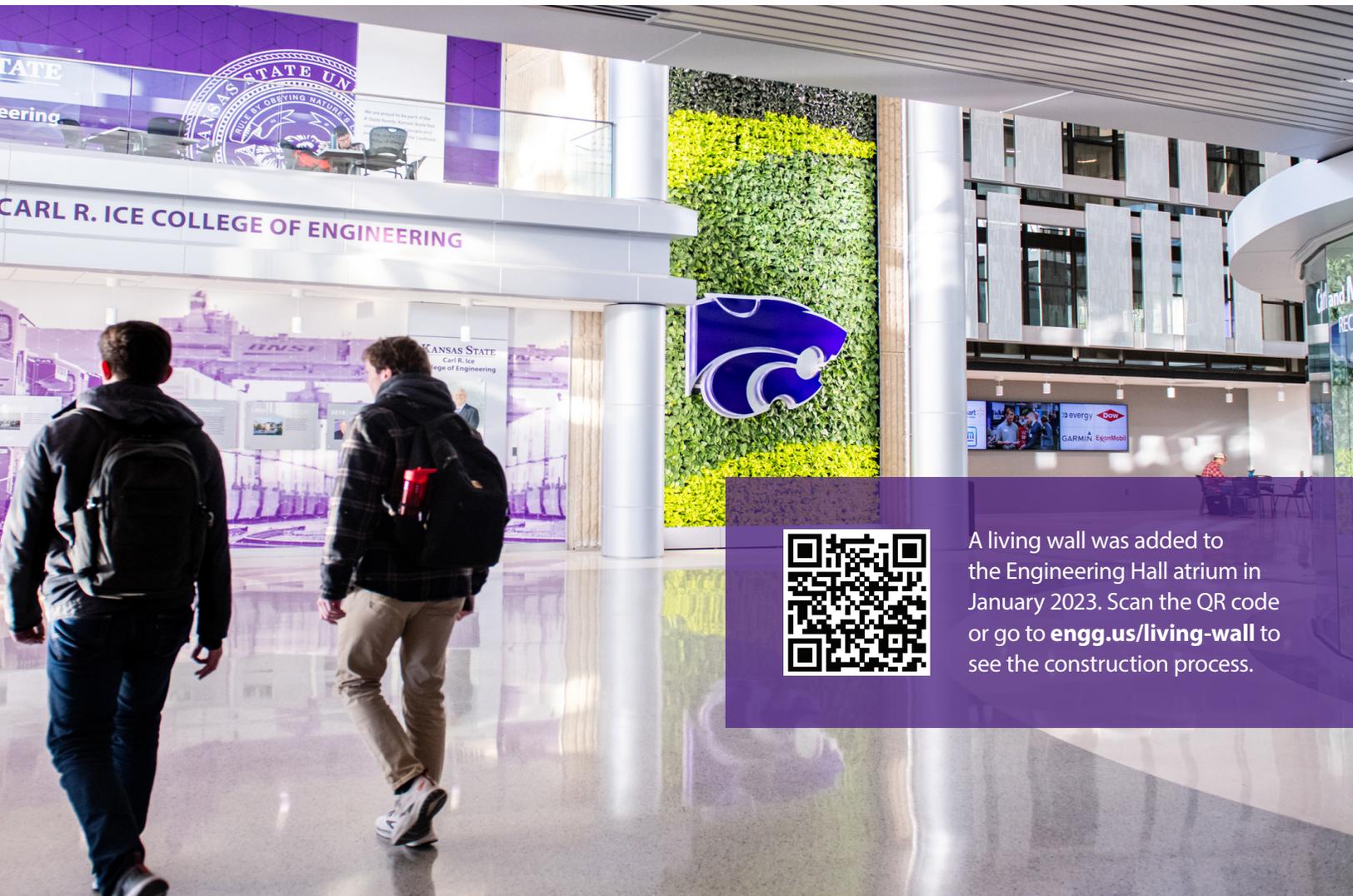


Contributions to a memorial scholarship fund in Rathbone's honor can be made at [ksufoundation.org/give/rathbone](https://ksufoundation.org/give/rathbone).

Carl R. Ice College of Engineering  
1046 Rathbone Hall  
1701B Platt St.  
Manhattan, KS 66506-5200  
457-001

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A living wall was added to the Engineering Hall atrium in January 2023. Scan the QR code or go to [engg.us/living-wall](https://engg.us/living-wall) to see the construction process.