

THE BRIDGE

Missouri S&T
Spring 2024 | Vol. 52

Civil, Architectural and Environmental Engineering



Academy of Civil Engineers
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ASCE Mid-America Student Symposium

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FROM THE CHAIR: Joel G. Burken, Ph.D., P.E., BCEE, F.AEESP



The 2023-24 academic year wrapped up with a “very civil” commencement (pg. 3) on May 18, celebrating 150 years since two civil engineers were in the graduating class of three. We conferred

over 210 degrees this year, a long way from three in 1874. Our civil program was ranked No. 18 nationally in the number of B.S. graduates by the American Society of Engineering Education (ASEE), and our student placement was over 99%, the highest at S&T also!

The good news did not stop there, as the civil program moved up nine spots to No. 42 nationally in the *U.S. News* engineering graduate program rankings, the biggest jump among the top 50 programs. At the 27th percentile, civil engineering is again the highest ranked engineering program in Missouri public universities.

Our students have also been amazing outside the classroom, hosting the 2024 ASCE Mid-America Student Symposium, including 18 universities, with over 500 students, faculty, and judges. The Steel Bridge Team dominated again, taking first overall for their sixth-straight Mid-America championship. (pg. 5). The team just returned from nationals in Louisiana where they finished in 14th place out of over 200 teams competing nationally -- a second-straight top-15 finish. The Concrete Canoe Team (cover and pg. 4), also had a great showing, winning the races championship and finishing third overall. Our students keep adding to our reputation, and expectations are still climbing.

Our faculty and student researchers also excelled, broadening both research topics and impact. Collectively, the CArEE faculty reached over \$11M in new awards in FY23 to support research and education at S&T, which has more than doubled from \$2.7M five years ago. Our faculty also received

awards for research, teaching and service to campus (pg. 19) and are leading campus efforts in education innovation (pg. 11). Combined with educating our next generations of Miner alumni, the impact on our profession and planet is profound, with advancements such as developing new infrastructure materials and design, while also advancing carbon management and infrastructure resilience. Much more can be viewed in our recent productivity report using this QR code.



We also celebrate alumni career excellence with 13 new members of the Academy of Civil Engineers (pg. 22). Please take a moment and read about their remarkable accomplishments and see that our Miner alumni are **Changing the World**, as we continue to lead the efforts in building a better world. Looking at the ongoing excellence of our current students, the Miner legacy of civil, architectural and environmental engineering will continue to grow, as our rise in national rankings demonstrates. I know the future is bright, with even more great things on the horizon!

This letter is also bittersweet for me, as it is my last edition of *The Bridge* as chair of the CArEE department. In September, **Dr. Mohamed Elgawady**, professor and Benavides Scholar, will become interim chair and he has my full support and that of the entire department. Serving as chair since 2015 has been an honor, and seeing our team advance has been a career highlight. I look forward to a bright future!

Stay up-to-date on all that is happening in CArEE with our real-time news feed at care.mst.edu or jump on our social media networks (below) to see how our Miners are doing and working to #ChangeTheWorld!

Go, Miners!

Dr. Joel G. Burken, “Dr. B.”

Follow us on social media



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DEPARTMENT ADMINISTRATION

Department Chair

Joel Burken, Ph.D., P.E., BCEE, F.AEESP

Assistant & Associate Chairs

Civil: **Eric Showalter**, Ph.D., P.E., LEED A.P.

Architectural: **Stuart Baur**, Ph.D., A.I.A.

Environmental: **Mark Fitch**, Ph.D.

Graduate Programs: **Magdy Abdelrahman**, Ph.D.



2024 SPRING COMMENCEMENT

Over 1,100 Missouri S&T graduates were awarded degrees during spring commencement ceremonies, with more than 100 of those being from the CA&EE Department. As part of the ceremonies, **Marsia Geldert-Murphey**, MS CE'97 (pictured at right), was awarded an honorary Ph.D. for her career accomplishments and contributions to the profession. She is currently the American Society of Civil Engineers (ASCE) national president for 2023-24.



Robert "Bob" Clark, founder of Clayco (pictured above), was the speaker for May commencement. Clark is a national leader in civil engineering and founded Clayco, a real estate development and design-build construction company in 1984 in St. Louis, his hometown. Clayco is among one of our department's top employers and had revenue of over \$5 billion in 2023 with approximately \$1 billion in real estate development. The company, now headquartered in Chicago, is among the largest builders of industrial, hyper-scale data facilities, advanced manufacturing, food and beverage, education, research, and health care projects. Clark served in the State Department in 2021 and 2022. He also served as a trustee at Saint Louis University and Washington University's School of Medicine, and was a former executive director and board member of the Central Institute for the Deaf.

NEW STAFF MEMBER

Join us in welcoming **Madison Keim**, our new office support assistant, to the team. She comes to us from northeast Missouri where she was born and raised on a farm. She was the 2017 NEMO Fair Queen and is an avid Green Bay Packers fan.



THE BRIDGE



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MISSOURI S&T HOSTS ASCE STUDENT SYMPOSIUM



Concrete Canoe and Bridge Team victorious in races and third place overall

Students from all over the Midwest traveled to Rolla to take part in the American Society of Civil Engineers (ASCE) Mid-America Student Symposium held in April. Missouri S&T cohosted the event with Missouri State University. It featured several contests, including the Concrete Canoe Competition and Steel Bridge Competition.

The Concrete Canoe Competition took place on Friday, April 19, at Little Prairie Lake. Students set up their canoes for display and raced student teams from 12 universities. The canoes, including Missouri S&T's canoe *Andromeda*, were tested in sprint races and a slalom course. Teams were judged on their race performance, as well as their project proposal, final prototype and a technical presentation.

The Steel Bridge Competition took place Saturday, April 20, in the lower gym of the Gale Bullman Building. See the next page for their results. Co-chairs Garrett Coggin and Kyle Bryan did an outstanding job organizing and hosting the event.

Other competitions included:

- Utility Engineering and Surveying Institute Surveying Competition: Students performed both field and office surveying tasks, including topographic mapping,

a construction stakeout and determining the depth of a proposed sewer line.

- Sustainable Solutions Competition: Students were challenged to incorporate sustainability principles into their proposals for a hypothetical waterfront redevelopment project.
- 3D Printing Competition: Students presented 3D-printed bridge designs, which were judged on assembly time, geometric requirements and strength requirements.
- Student Symposium Paper Competition: Students presented papers on this year's topic, ethical concerns regarding the use of AI in engineering work.



Pictured L-R: Aubrey Cox, Kellen Badgley, Jane Yates and Grant Millsap. Photo by Michael Pierce/Missouri S&T

BRIDGE TEAM WINS SIXTH CONSECUTIVE COMPETITION



Members of the bridge team, above, pose with their bridge on April 20, 2024. Photo by Blaine Falkena/Missouri S&T

The Missouri S&T Steel Bridge Design Team won first place at the American Society of Civil Engineers (ASCE) Mid-America Student Symposium for the sixth consecutive time.

Students on the team designed and built a one-tenth scale model bridge according to a real-world problem set by the American Institute of Steel Construction (AISC). In this year's competition, the bridge was designed to cross a man-made river in Lincoln Parish Park in Ruston, La. For an extra design challenge, no piers were allowed within the river either during or after construction.



Construction team finished in first place

After timed construction, the bridges were tested with weight loaded at a point determined by a die roll. Teams were judged in eight categories including construction speed, efficiency and the weight of the bridge. Missouri S&T's team placed in the top two for all eight categories.

The team traveled to the national competition May 31-June 1 at Louisiana Tech University in Ruston, La., where they finished 14th overall.

The team is advised by **Dr. Nick Libre**, associate teaching professor of civil, architectural and environmental engineering.

Team members were:

- **Seth Filipsen**, president, a senior in civil engineering from Overland Park, Kansas.
- **Hannah Butkovich**, vice president, a senior in civil engineering from Bethalto, Illinois.
- **Kyle Bryan**, lead design, a senior in civil engineering from Saint Peters, Missouri.
- **Zach Parr**, lead fabricator, a junior in mechanical engineering from Old Monroe, Missouri.
- **Katelyn Griebel**, secretary and treasurer, a junior in geological engineering from Punxsutawney, Pennsylvania.
- **Crystal Luong**, chief of public relations, a junior in civil engineering from St. Louis.
- **Aaron Antal**, a senior in architectural engineering from Saint Charles, Missouri.
- **David Barlow**, a senior in civil engineering from Knob Noster, Missouri.
- **Garrett Coggin**, a senior in civil engineering from Ozark Missouri.
- **Justice Gorsline**, a senior in architectural engineering from Oak Grove, Missouri.
- **Isabelle Hillyer**, a sophomore in civil engineering from Decatur, Illinois
- **Royce Jeffries**, junior in civil engineering from Boonville, Missouri.
- **Kathryn Kronmueller**, a senior in civil engineering from Rolla, Missouri.
- **Danielle Laurie**, a junior in civil engineering from Chesterfield, Missouri.
- **Hossein Libre**, a first-year student in ceramic engineering from Rolla, Missouri.
- **Rachel Miller**, a sophomore in civil engineering from East Prairie, Missouri.
- **Teresa Nagle**, a junior in civil engineering from Northglenn, Colorado.
- **Connor Scholl**, a first-year student in architectural engineering from Peoria, Illinois.
- **Jacob Stobie**, a senior in civil engineering from High Ridge, Missouri.

ASCE president and alumna receives honorary degree from S&T

Marsia Geldert-Murphey of Glen Carbon, Illinois, president of the American Society of Civil Engineers (ASCE) and a Missouri S&T graduate, was awarded the doctor of civil engineering, honoris causa, during spring commencement in May.

A civil engineer for over three decades, Geldert-Murphey is the Illinois State Director for Lochmueller Group. She has founded two consulting engineering firms and a construction business, testified before congress, is listed as one of *St. Louis Business Journal's* Most Influential Business Women, and authored a memoir published in 2023. She is also a gifted speaker who addresses a variety of audiences on leadership, entrepreneurial pursuits, public policy and the career of civil engineering. She enjoys serving as a role model for young engineers and entrepreneurs and helping them reach their goals.

Geldert-Murphey first joined ASCE in 1990 as a student, and now leads the 164,000-member worldwide organization. She is a 2016 recipient of ASCE's Edmund Friedman Professional Recognition Award for outstanding performance and dedication to the profession.

Geldert-Murphey earned a master's degree in civil engineering from Missouri S&T in 1997 after earning a bachelor's degree in the field from South Dakota State University in 1992. She was inducted into Missouri S&T's Academy of Civil Engineers in 2018, and in 2023 she was honored with S&T's Alumni Achievement Award and inducted as a chapter honor member into the Missouri S&T chapter of civil engineering honor society Chi Epsilon.



Marsia "Marsie" Geldert-Murphey, P.E., F.ASCE, ASCE 2024 President... and now Doctor of Civil Engineering honoris causa pictured with Dr. Joel Burken, chair of civil, architectural and environmental engineering.

Hail to the chief

Alumna **Marsia Geldert-Murphey** started off the year in her 2024 presidential role with ASCE sharing her voice and passion about the future of civil engineering with ASCE St. Louis Section members. She attended the group's January luncheon and gave a talk titled "Engineering Change," highlighting American Society of Civil Engineers initiatives like Future World Vision, future film *Cities of the Future*, and the impact civil engineers have on all aspects of advocacy and policy-making.



She also attended the ASCE Multi-Regional Leadership Conference (MRLC) in Kansas City with CArEE student leaders and Miner alumni.



Tarlton promotes alumna Sondra Rotty to chief operating officer

Published by Laura Lusson

Tarlton, St. Louis' largest women-owned general contracting and construction management firm, has promoted **Sondra Rotty**, LEED AP BD+C, to chief operating officer.

Rotty joined the senior-level Tarlton executive leadership team of Tracy Hart, president, and Dirk Elsperman, executive vice president. In her new role, Rotty is leading



construction operations, managing market leaders and working closely with human resources to attract and retain the industry's top talent.

A native of St. Louis and an accomplished builder with more than 20 years of construction industry experience, Rotty joined Tarlton in 2005 as a project engineer. Since that time, she has directed or been an integral part of award-winning projects including the \$90M Olin Business School expansion for Washington University in St. Louis; the East Building

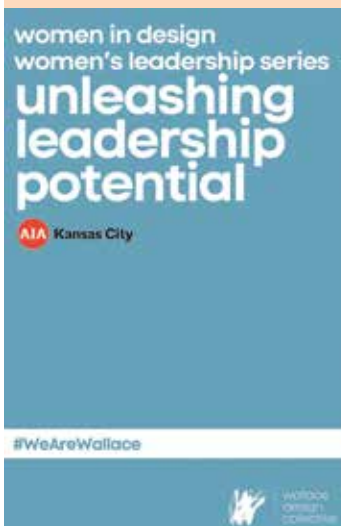
addition to the Saint Louis Art Museum; the historic renovation of the Stephen and Peter Sachs Museum at Missouri Botanical Garden; and the historic renovation of 900 N. Tucker Blvd., the former *St. Louis Post-Dispatch* building.

She also has led Tarlton projects for St. Louis Community College; the National Park Service; and the U.S. General Services Administration (including the \$90M Personnel Records Center in St. Louis).

Rotty has earned a number of local awards in recognition for her work and commitment to the industry and community, including the 30 Under 30 and 40 Under 40 awards from the *St. Louis Business Journal* and a Woman in Construction Award by the St. Louis Council of Construction Consumers.

"Sondra is a natural leader whose capabilities, talents and industry experience cultivate strong, lasting relationships that resonate both inside of Tarlton and with our clients," said Tracy Hart, president, Tarlton Corp. "She exemplifies our firm's values and company culture as she shares her expertise and passion for building every day."

Rotty holds academic degrees from Missouri S&T, including a master's degree in engineering management in 2008 and a bachelor's degree in architectural engineering in 2004. She was inducted into the S&T Academy of Miner Athletics in 2020 and the Academy of Engineering Management in 2023. She was recognized with a Civil Engineering Exemplary Young Professional Award by the Academy of Civil Engineers in 2011 and a 30 Under 30 Award in 2010.



WOMEN'S LEADERSHIP SERIES

In January, AIA Kansas City's Women in Design Committee presented a Women's Leadership Series session for those interested in climbing the ranks and building their personal leadership brand.

Darcey Schumacher, CE'02, principal at Wallace Design Collective, was among a panel of inspiring industry leaders that provided a glimpse into what it takes. The panel delved into topics such as career longevity, life-work balance, and differing pathways to leadership and talked about the steps they took to forge paths within their firms, amassing responsibility and respect along the way.

Darcey was elected to the Academy of Civil Engineers and to its Board of Directors in 2024.



S&T INNOVATION LAB OPENS

Missouri S&T celebrated the opening of and officially dedicated its 50,000-square-foot Innovation Lab on April 11, and the Academy of Civil Engineers 2024 meetings were held here on April 12.

The Innovation Lab marks the entrance to S&T's Arrival District and includes maker spaces, modular classrooms, collaborative labs and a soaring central atrium, all designed to exude the energy of a hands-on learning environment and inspire possibility thinkers, discoverers and trailblazers in their quest to transform the status quo into solutions to the problems of the future.

"The imagination and passion of our students, their creativity and possibility thinking have a new home on our campus," says Missouri S&T **Chancellor Mo Deghani**. "The Innovation Lab is a place where ideas collide, and our students will flex their entrepreneurial muscles to begin to comprehend the true power of their drive to innovate. We are profoundly grateful to everyone whose support carried the vision for this great new facility to fruition."

The Innovation Lab is the first new building on the S&T campus to realize the Kummer Institute's vision for student innovation and entrepreneurship. The Kummer Institute was established immediately following the transformational \$300M gift made to the university by the late **Fred and June Kummer** in 2020. Fred Kummer earned a bachelor's degree in civil engineering in 1955. Fred was inducted into the Academy of Civil Engineers in 1982.



Pictured above are members of the Academy of Civil Engineers inside the new central atrium and outside on the new patio overlooking campus.



Curators break ground for S&T research building expansion, new applied research center

The University of Missouri Board of Curators and university leaders broke ground on April 18 to celebrate a major expansion and renovation of a research complex on Missouri S&T’s campus in Rolla.

The board also voted to change the name of the facility from Engineering Research Laboratory (ERL) to Applied Research Center (ARC).

“This facility is an integral part of our continuous efforts to enhance Missouri S&T’s research capabilities and infrastructure,” says **Dr. Mo Dehghani**, chancellor of Missouri S&T. “The new name will embody the forward-thinking and applied research initiatives that are the hallmark of S&T’s contribution to the world of science, engineering and technology.”

The Applied Research Center (ARC) will feature state-of-the-art facilities. The Center for Intelligent Infrastructure will be housed in the renovated and expanded facilities. **Dr. Genda Chen**, CII Director and Abbott Endowed Professor of Civil Engineering, noted “The ARC will directly impact the growth of civil engineering research and innovation as we are entering the era of digital transformation in engineering design, construction and maintenance.” The ARC facility will also house multiple CArEE research activities and offer increased capacity for our faculty and students.



Dr. Kamal Khayat, vice chancellor for research and the Vernon Jones Endowed Chair of Civil Engineering, addresses the crowd at the ARC groundbreaking.

“These facilities will offer robust opportunities for myriad partnerships with sectors such as government, military, tech, health and energy.”
 — Chancellor Mo Dehghani

CRASH COURSE

Researchers bridge the gap with collision study

What do Missouri S&T researchers do when they want to study the impact of tractor-trailers colliding into bridges?

They bring the collisions to the university's campus with a massive setup that, at first glance, looks like a red roller coaster.

Over the past few years, a team of researchers led by **Dr. Mohamed ElGawady**, a professor of civil engineering and Kaplan Faculty Scholar at S&T, has constructed a railway system that is 60 feet long and 12 feet tall and transports a 7,000-lb cart that crashes into a full-size, 46-foot-long bridge girder. The project takes up a large amount of floor space in the university's Structural Engineering Research Laboratory.



"This is a unique project that will allow our researchers to obtain a wealth of data related to bridge collisions," ElGawady says. "Where else can students and researchers work on anything like this? We are conducting cutting-edge research and giving our students some exceptional learning experiences in the process."

S&T researchers are in the process of conducting 14 crashes into bridge girders with different designs. They will assess the damage caused by the crashes, consider and test different repair methods, and use computational simulations to determine the life expectancy of bridges after collisions.

This will help with bridge safety and maintenance, which could also lead to cost savings for the bridges as well, ElGawady says.

"Every time one of these crashes happens — and they happen far too often across the United States — bridges may lose a certain amount of their integrity when they are repaired," he says. "We are conducting this research to help avoid such losses and infrastructure delays."

The S&T team put the entire railway system together piece by piece. Many of the materials were donated by Nucor Corp.

"We fabricated everything in-house," ElGawady says. "This isn't an off-the-shelf type of roller coaster setup you can purchase for an amusement park. It took about two years of computer simulation and design."

However, the university does have a part of a true roller coaster track as well, which **Dr. Mohanad Abdulazeez**, PhD CE'20, a S&T post-doctoral fellow working with ElGawady, says the team used for considering and rehearsing how everything may work on the larger-scale setup.

Abdulazeez says the research team, which also includes collaborators from the University of Idaho, plans to have the study completed in about two years. Those findings will be shared with a large group of partners who



"It will be exciting to share our results and hopefully make a difference across the country."

— Dr. Mohanad Abdulazeez

have contributed to the \$800,000-plus pooled fund used for the project. The Missouri Department of Transportation (MoDOT) serves as the pooled fund administrator, and other states involved include Texas, Ohio, Mississippi, Idaho and Alaska. The Federal Highway Administration and Mid-American Transportation Center are providing support as well.

"It will be exciting to share our results and hopefully make a difference across the country," Abdulazeez says. "We are collecting valuable data and running advanced computational models that should make a significant difference when considering future bridge collisions and repairs."

Watch
the video on
YouTube.





Missouri S&T students exhibit research to state legislators

Undergraduate students from Missouri S&T traveled to Jefferson City, Missouri, on April 4 to participate in the annual Undergraduate Research Day at the Capitol. The event, which is designed to inform Missouri’s lawmakers about research at Missouri universities, welcomes undergraduate students from all four University of Missouri System campuses. Student participants work on research projects under the direction of faculty advisors and present their research. S&T places an emphasis on providing research opportunities to undergraduate students.

Guy Timbrook, (pictured back row, far right) a senior in civil engineering, shared his research on “Modeling Climate Resilience of Rural Populations in Missouri.” The work is directed by **Dr. Daniel Oerther**, professor of civil, architectural and environmental engineering.

Invited guest lectures

Dr. Zak Kassas



Dr. Zak Kassas, professor of electrical and computer engineering at The Ohio State University, was invited by The Center for

Infrastructure Engineering Studies (CIES) and The Center for Intelligent Infrastructure (CII) to give a talk on exploiting signals of opportunity for resilient and accurate autonomous navigation in GPS-denied environments.

Dr. Ruben Borg



Dr. Ruben Paul Borg, professor of structural and materials engineering at the University of Malta and Fulbright Scholar at S&T this year,

was invited by the Missouri Center for Transportation Innovation to talk about coastal reinforced concrete structures.

Libre a leader in S&T’s effort in joining KEEN

Missouri S&T’s College of Engineering and Computing is set to take its highly ranked engineering curriculum to an even higher level, as the university is now a member of the Kern Entrepreneurial Engineering Network (KEEN). **Dr. Nick Libre**, associate teaching professor, helped prepare the proposal and lead efforts to join KEEN and attended the KEEN Nation Conference. Libre has also been an instructor in KEEN activities at S&T.

“Our students regularly see great success after graduating, in large part thanks to the experiential, hands-on learning opportunities we provide,” says **Dr. David Borrok**, GGph’95, vice provost and dean of the college. “Joining KEEN will provide them with even more resources to develop a mindset focused on creativity, curiosity and value creation. This combination of strong technical skills with the right mindset is how S&T students shape the future.”



Pictured L-R: S&T’s national conference attendees Dr. Nick Libre, Rachel Kohman, Dr. Steve Raper, Dr. David Barrok, Dr. Phil Mulligan and Madeline Lechner.



Dr. Yizhuang David Wang, a post-doctoral fellow, presents at the symposium.

Liu's research group presents at symposium

Dr. Jenny Liu, the James A. Heidman Professor in Civil, Architectural and Environmental Engineering, co-chaired the National Center for Transportation Infrastructure Durability and Life-Extension (TriDurLE) 2024 Annual Symposium Feb. 25-27 in College Station, Texas. Liu and her group attended, presenting their research during the symposium.

In a technical session on asphalt pavements, **Drs. Yizhuang David Wang** and **Jenny Liu** gave talks titled, "An Efficient and Explainable Ensemble Learning Model for Asphalt Pavement Condition Prediction Based on LTPP Dataset" and "A Machine Learning-Based Approach to Assess Impacts of Autonomous Vehicles on Pavement Roughness." Dr. Wang is a postdoctoral fellow working with Liu.

Three civil engineering Ph.D. students demonstrated their work through poster presentations. **Chuanjun Liu** placed first in the student poster competition for his poster on lab and field modulus measurement of Missouri coarse-grained soils using Zorn lightweight deflectometers. **Ping Jiang** collaborated with two students from Texas State University, and they placed first in the student solution driven competition for their work on reduction of heat absorption of pavement. **Bo Lin** also participated in the poster presentations.

Schonberg completes second Fulbright project

Dr. William Schonberg, a professor of civil engineering at Missouri S&T, is now a two-time participant in Fulbright programs for the U.S. Department of State's Bureau of Educational and Cultural Affairs and World Learning.

In his first Fulbright role in 2019, Schonberg was a Fulbright Distinguished Chair in Advanced Science and Technology and conducted research at the Defense Science and Technology Group in Australia.

More recently, Schonberg served as a Fulbright Specialist on a project with the University of Aruba in Oranjestad, Aruba, in late 2023.



"The University of Aruba has relatively new bachelor's and master's degree programs in sustainable engineering, and I was asked to offer comments and suggestions on their development, as both programs are being considered for international accreditation," he says.

"It was rewarding to use the knowledge and skills I acquired being an evaluator for the Accreditation Board for Engineering and Technology (ABET), as well as a department chair and interim dean at Missouri S&T."

Fulbright Specialists are matched with projects at institutions across more than 160 countries. Host institutions apply to the Fulbright Commission and the U.S. Embassy after determining a need, and they can either request a specific expert in the associated field or be matched with a specialist who expresses interest. These projects last a minimum of two weeks and can be up to 42 days long.

During his visit, Schonberg used his expertise to find ways to make the new programs — which are part of the university's Sustainable Island Solutions through Science, Technology, Engineering and Mathematics efforts — stronger and better prepare their students for meeting the challenges of sustainable development in the island of Aruba and elsewhere. He met with program faculty, staff, students and university administrators and visited laboratory facilities.

Schonberg says he intends to keep an eye on the university's progress toward accreditation and continue to help when possible.

"I have a keen interest in the sustainability engineering degree programs at the University of Aruba, and I will be pleased to continue working with them as they continue to develop those programs and submit them for accreditation review in the near future," he says.

White awarded 2024 Fulbright Prize

Gary White, CE'85, MS CE'87, has been announced as a 2024 recipient of the J. William Fulbright Prize for International Understanding along with Academy Award-winning writer, actor and humanitarian Matt Damon.

White is CEO of Water.org and WaterEquity, two organizations he founded with Damon, that have helped over 63 million people across four continents have safe access to water or sanitation.

According to the Fulbright website, the Fulbright Prize has been awarded since 1993 to honor "outstanding contributions toward bringing peoples, cultures or nations to greater understanding of others." The prize is named after J. William Fulbright, a longtime U.S. senator from Arkansas who created the Fulbright Program.

Four past Fulbright Prize Laureates have later received Nobel Peace Prizes. Those recipients include former South Africa president Nelson Mandela; former U.S. president Jimmy Carter; Kofi Annan, former secretary-general of the United Nations; and Martti Ahtisaari, former president of Finland.

White has more than three decades of experience working to solve the global water and sanitation crisis. He also holds a master's degree in environmental engineering from University of North Carolina at Chapel Hill. He is a member of the S&T Academy of Civil Engineers and is one of S&T's Alumni of Influence.



Watch the historic ceremony on YouTube.



Hurst-McCarthy Lecture

In this year's Hurst-McCarthy Lecture, "Latent Side Effects of Safety Interventions," Dr. Jesus M. de la Garza discussed his research findings, which could significantly influence how the construction industry approaches the development and implementation of safety interventions to offset the influence of risk compensation.

De la Garza is professor and director of the School of Civil and Environmental Engineering and Earth Sciences at Clemson University. He is the chair of the National Academies Board on Infrastructure and the Constructed Environment. He is also a subject matter expert for the American Road and Transportation Builders Association's Safety Certification for Transportation Project Professionals (SCTPP) Program.

Hurst-McCarthy professor inducted into the 2024 ISU College of Engineering Hall of Fame

Dr. Islam El-adaway, associate dean for academic partnerships and the Hurst-McCarthy Endowed Professor of Construction Engineering, was named a 2024 inductee for the ISU College of Engineering Hall of Fame and Distinguished Alumni.



He was recognized for his international leadership and innovation in construction engineering research and enhancements to academic and industry collaborations.

Distinguished Alumni is for alumni who have significant professional achievement and service in their chosen field. The awardee could be acknowledged for a successful career or could be a young alumnus who is having an exceptional impact beyond their years.

El-adaway obtained his Ph.D. in civil engineering from Iowa State University after earning both his master's and bachelor's in construction engineering from the American University in Cairo. He is an accomplished researcher, educator and engineer, currently serving as

Associate Dean for Academic Partnerships, Hurst-McCarthy Endowed Professor, Founding Director of the Missouri Consortium for Construction Innovation (MO-CCI), and Director of the Civil Infrastructure System-of-Systems Interdisciplinary Laboratory at Missouri S&T. Before joining S&T, he held tenured positions at the University of Tennessee – Knoxville and Mississippi State University.

His collaborative efforts have resulted in 234 peer-reviewed papers, including 127 journal papers and 107 conference papers, published in prestigious journals and conferences. Additionally, he co-authored a book, two book chapters and contributed to two other chapters under review. His work has secured 32 funded research projects totaling around \$10M, garnering recognition from esteemed funding agencies such as the National Science Foundation, Departments of Transportation, Department of Education, Construction Industry Institute, and Sloan Foundation.

At Missouri S&T, MO-CCI started from an idea, and El-adaway was quick to take steps to bring his vision to reality. Before officially starting his current appointment in 2018, El-adaway was meeting with firms about his program idea, and in just six months the MO-CCI was established and has grown since then to have 10 member companies, comprised of top-ranked diverse stakeholders nationwide. With four research projects already completed and two underway, the activities of the MO-CCI have helped Missouri S&T introduce new opportunities and courses to better prepare students for the industry. Under El-adaway's leadership, the MO-CCI has fostered robust ties between academia and industry organizations, such as McCarthy Building Companies, Clayco, Brinkmann Constructors, Alberici,

Arco Construction, and other leading corporations in the construction domain.

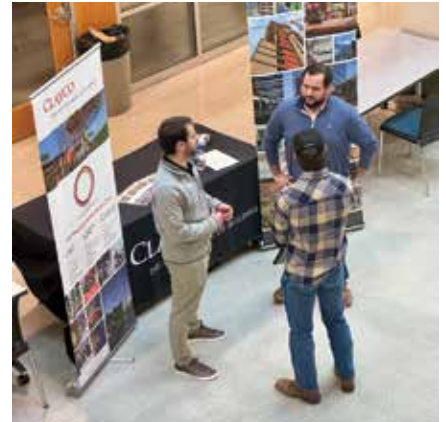
El-adaway is an innovator, integrating new technology into research processes and embracing artificial intelligence (AI) as a tool for understanding complex systems. His approach as a scholar is matched by his passion as an educator. El-adaway is an active mentor, having guided 11 doctorate students, six master's students and two undergraduate NSF scholars in obtaining their degrees, with approximately 85% of his students receiving commendations. He has also led over 60 undergraduate students in-class research activities leading to 17 peer-reviewed journal publications. Additionally, he serves as an associate editor and guest editor for various prestigious journals and is an active participant in committees and forums dedicated to construction engineering and management.

Programs being offered in St. Louis

Starting this summer S&T will offer engineering graduate courses and programs in civil, electrical, environmental, aerospace, mechanical, computer, and systems engineering, as well as engineering management. Offerings will be more robust and specifically curated to meet the needs of the St. Louis region.

For more information about S&T's offerings in St. Louis, visit stl.mst.edu or email Dr. El-adaway, associate dean for academic partnerships, at eladaway@mst.edu.

MO-CCI INDUSTRY NIGHT



Students joined construction company representatives for an evening to discuss useful career information at the Missouri Consortium for Construction Innovation (MO-CCI) Industry Night.

Congrats on 40 years!

Robert "Bob" Brinkmann, CE'71, became the first official employee at R.G. Brinkmann Co. on May 1, 1984. Recently, the company honored Brinkmann's unwavering entrepreneurial spirit that laid the foundation for its success. For 40 years and counting, Brinkmann has achieved remarkable milestones, shaping them into the people-centric, creative leaders they are today.

Bob has spoken to our graduating classes for over a decade, sharing his approach to creativity. One of our most decorated alumni, Brinkmann received an honorary professional degree from S&T in 2001. He served for many years on the S&T Board of Trustees, and as president of the board for two terms. Brinkmann is a member of the Academy of Civil Engineers, and is outgoing chair of the Missouri Highways and Transportation Commission, appointed by Missouri Gov. Mike Parson.





Inspiring minority women to join the construction industry

The future of construction engineering would benefit from more women – especially minority women – being inspired to join the field and share their perspectives, according to **Remy Haire**, a senior in civil engineering at Missouri S&T.

Haire, a civil engineering student from East St. Louis, Illinois, shared her insights as part of a Missouri S&T article series focusing on the 2024 National Engineers Week theme, which was “Welcome to the Future.”

“Construction engineering goes hand-in-hand with this year’s theme,” she says. “Society will always have a need to take something down and build something even better back up. But where we could greatly improve in the future is by having more underrepresented and sometimes underappreciated faces being involved in the processes.”

She says this will help lead to more diverse views and thought processes being brought to the table, which would lead to more potential innovations being explored.

Since arriving at Missouri S&T in 2021, Haire has been an active participant and leader in multiple organizations, including: S&T’s chapter of the National Society of Black Engineers, Society of Women Engineers and S&T’s women’s rugby club.

Since she was a child, her career path was seemingly always headed in the direction of becoming a construction engineer – even if she initially thought it was headed toward a commercial kitchen.

“At first, I thought I wanted to be a baker, and I even decided on a name for my own bakery,” she says. “I still love baking, but I eventually realized it wasn’t what I wanted to do for my full-time career. But, there are surprisingly several parallels between working as a baker and working as a construction engineer.

“In both fields, you must carefully follow the blueprints – or recipes –, and when you deviate from those plans, things may not work out how you hoped. Both require a strong attention to detail and commitment to see a process through from start to finish.”

Haire says her parents have always been her biggest supporters, but it was her father’s professional background that inspired her current career path.

“He worked in construction – in the trades,” she says. “I found the big machines he ran fascinating, and he helped open my eyes to the possibility of becoming a construction engineer.”

Haire says she appreciates how Missouri S&T has helped prepare her to enter the workforce.

As an S&T student, she has completed two internships – first with S.M. Wilson & Co. and then with McCownGordon Construction, and she says her courses and involvement with student organizations have made a significant difference as well.

“I am excited for the future,” she says. “My experiences at S&T, combined with my hands-on internship experiences, have put me in a position to be successful after graduation. I am ready to start working full-time and make a difference.”



Remy Haire, pictured far right with a group of other interns at McCownGordon.



Introduce a girl to engineering

A group of Rolla High School students and their Society of Women Engineers (SWE) chapter met up with Missouri S&T SWE representatives to tour the High-bay Structures Lab, the Advanced Construction Materials Lab (ACML), and the Green Roof during Engineers Week. The national organization DiscoverE promotes Introduce a Girl to Engineering Day as a time when volunteers, educators, and others act as role models facilitate engineering activities, and show girls how engineers change our world.



Kaylee Denbo, a senior in environmental engineering, talks with SWE members.



Missouri Green Day Tour

As part of Engineers Week, **Anne Faeth-Boyd**, GGph'02, MS EnvE'04, and **Amanda Gilbertson Derhake**, BSci'99, MS EnvE'02, PhD EnvE'06, introduced a group of students from the Missouri Green Schools Quest Program to Missouri S&T and the world of environmental engineering and sustainability. Their visit was part of a project on biodiversity and sustainable design.



Potential future Miners are ready to Change the World!



West Point professor delivers 2024 Stueck Distinguished Lecture

Col. Aaron Hill Jr. was the speaker for the 2024 Stueck Distinguished Lecture. The lecture was held on April 12, as one of the first in S&T's Innovation Lab.

Hill's lecture highlighted case studies and new methodologies and technologies that help engineers continuously improve to meet the ever-changing needs of modern society.

Hill is a professor and acting head of civil and mechanical engineering at the United States Military Academy, commonly known as West Point.

He earned a bachelor's degree in civil engineering from West Point in 1997 and was commissioned as an engineer officer. His military service has taken him to locations around the world, such as Afghanistan, Egypt and Croatia, as well as multiple stateside locations, including Fort Leonard Wood in Missouri.

He has taught courses covering steel design, structural engineering, infrastructure systems and construction management.

Hill is a Fellow of the American Society of Civil Engineers and chairs the society's Committee on Education. He is a licensed professional engineer in Virginia and is a certified project management professional.

He earned a Ph.D. in civil engineering from The University of Texas at Austin, a master's degree in civil engineering from Virginia Tech and a master's degree in engineering management from Missouri S&T.

This presentation was part of the **Neil and Maurita Stueck** Distinguished Lecture Series. Funding for the series was established by Maurita Stueck to honor her late husband, Neil, CE'43.



L-R: Academy member veterans Norm Dennis, Col. Hill, Scott Preston and Dick Elgin.

DID YOU KNOW?

Lisa Jaster, MS CE'04, a lieutenant colonel in the U.S. Army Reserve, holds the distinction as the first female reserve officer to graduate from the U.S. Army Ranger School. She is the third female to graduate the grueling combat leadership course.

Jaster is skilled in operations management, operational planning, management and contract management with experience in the energy and engineering consultant industries.



Faculty honored for outstanding teaching, research and service

Missouri S&T celebrated faculty excellence in December with awards presented by **Dr. Colin Potts**, provost and executive vice chancellor for academic affairs.

Dr. Hongyan Ma, associate professor, received a Faculty Excellence Award recognizing his sustained excellence in teaching, research and service.

Dr. Mark Fitch, associate professor, received a Faculty Service Award recognizing his sustained service to the university and his profession.

Dr. Dimitri Feys, associate professor, and **Dr. Daniel Oerther**, professor, received a Faculty Teaching Award recognizing excellence in teaching and teaching-related activities.



Dimitri Feys and Colin Potts



Mark Fitch and Colin Potts



Hongyan Ma and Colin Potts



Daniel Oerther and Colin Potts

Enhance proposal selected for funding

CArEE's proposal on reviewing and revising department policies and practices to promote equity and build community culture was selected for funding through S&T's ADVANCE Program. The project will enhance department culture by establishing a leadership team that will serve as the department's diversity, equity and inclusion committee. It will also have a second focus on improving annual evaluation practices.

Faculty researchers include:

- **Dr. Joel Burken**, Curators' Distinguished Professor and Mathes Endowed Chair
- **Dr. William Gillis**, associate teaching professor
- **Dr. Jenny Liu**, James A. Heidman Professor
- **Dr. Bill Schonberg**, professor.



Benavides: Miner Mentor

We were thrilled to host **Francisco "Frank" Benavides**, CE'70, with the Society for Hispanic Professional Engineers (SHPE) for a talk on his career and building of Penta Engineering. A native of Peru, he came to Rolla and the U.S. for his undergraduate degree. He founded PENTA Engineering Corp. and continues to work as the principal consultant of the PEC Consulting Group subsidiary. He is a member of the Society for Mining, Metallurgy and Exploration. He also initiated the Francisco M. Benavides Faculty Excellence Award for the department, which honors high-achieving professors. "The research going on at Missouri S&T is truly remarkable," Benavides says. "I appreciate that I can contribute to faculty members' efforts and still be connected to the wonderful people in Rolla, Missouri, over 50 years after finishing my undergraduate degree."

Myers chairs international conference

Dr. John J. Myers, professor of civil engineering and director of the Missouri Center for Transportation Innovation, served as chair of the 16th International Fiber Reinforced Polymer Reinforcement Concrete Structures Conference held in March in New Orleans. The conference had more than 400 registered attendees, a record-setting number of participants from 19 countries. In addition to organizing this conference over the last two years, Myers presented two technical papers titled “Review and Analysis of FRP Bond Lengths from Pull-out Testing Database with Reduced Embedment Lengths” and “Flexural Strength and Behavior of Inverted-T Precast Concrete Beam Reinforced with Modified Smooth CFRP Bars.” He also served as editor and author of the American Concrete Institute Special Publication 360 with 52 peer-reviewed manuscripts as part of the event along with the organization of a student poster session.



Dr. John Myers (second from left), professor of civil engineering, and the chairs of the 16th International Fiber Reinforced Polymer Reinforcement Concrete Structures Conference pose for a photo with American Concrete Institute president, Dr. Antonio Nanni (center).

Yan delivers keynote in Hong Kong



Dr. Grace Yan, associate professor of civil, architectural and environmental engineering, gave a keynote speech at the Distinguished Workshop of Climate Change and Zero Carbon Future in December.

Through her talk titled “High-fidelity Hazard Models for Facilitating Climate Change Adaptation,” she shared her passion on tornado resilience, coastal resilience and climate change adaptation. Attendees included individuals from Hong Kong, the U.S., Canada, China, Japan and Korea.



ACI honors Nanni

We would like to congratulate former professor **Dr. Antonio Nanni**, for a great job representing the American Concrete Institute (ACI) around the globe.

He visited 18 countries in his tenure as president, meeting with industry leaders, connecting with ACI members and chapters/partners, and hosting and attending various seminars and technical symposiums. His excursions included stops in Guatemala, El Salvador, Costa Rica and Panama.



Khayat congratulates Nanni.



Oerther promotes work-force, licensure, certification

Dr. Daniel B. Oerther, professor of environmental engineering, was part of a delegation visiting Washington, D.C., to promote workforce development, licensure and certification of engineers and scientists.

“It was my pleasure to advocate on behalf of environmental engineers and scientists who care for the planet and human welfare. Licensure of professional engineers is important to protect the health, safety, and welfare of the public,” says Oerther.

While in D.C., he met with representatives of the World Bank to promote workforce opportunities for environmental engineers in the United States and globally, and he took part in the annual awards’ celebration and conference of the American Academy of Environmental Engineers and Scientists, which was hosted at historic Howard University.

Oerther currently serves as president of the Council of Engineering and Scientific Specialty Boards, which accredits and certifies more than 21,000 of America’s engineers and scientists. Also, he is the executive director of the American Academy of Environmental Engineers and Scientists, which offers specialty board certification to environmental professionals.

Ph.D. students receive honors

Seven students received the Dean’s Ph.D. Scholar Award, which recognizes scholarly contributions among the most productive Ph.D. students. Three students received the Dean’s Graduate Educator Award, which recognizes excellence in teaching by graduate students.

“Missouri S&T is home to some of the nation’s best Ph.D. students, and the students receiving these awards are among the best of the best,” says **Dr. Francisca Oboh-Ikuenobe**, CEC’s associate dean for academic affairs. “These students have demonstrated excellence in their fields, either through their scholarship or skills in the classroom, and they should be commended, as well as their advisors.”

Award winners were selected after a two-tier process. First, each of the nine CEC departments selected up to three nominees. Then, a committee selected the winners.

This year’s Dean’s Ph.D. Scholar Award award winners, from our department were:

- **Tamima Elbashbishy**, civil, architectural, and environmental engineering, nominated by **Dr. Islam El-adaway**, Hurst-McCarthy Professor of Construction Engineering and Management and CEC’s associate dean for academic partnerships.

- **Pengfei Ma**, civil, architectural and environmental engineering, nominated by **Dr. Genda Chen**, Robert W. Abnett Distinguished Chair in Civil Engineering.

Selection committee members included Drs. Doug Bristow, professor of mechanical engineering; Kelly Liu, professor of geophysics; Hongyan Ma, Benavides Scholar and associate professor of civil engineering; and R. Joe Stanley, professor of electrical and computer engineering.



L-R: Dr. Islam El-adaway, Tamima Elbashbishy and Dr. Franca Oboh-Ikuenobe



L-R: Dr. Genda Chen, Pengfei Ma and Dr. Franca Oboh-Ikuenobe

2024 Academy Inductees

Thirteen professionals with ties to Missouri S&T were inducted into the Missouri S&T Academy of Civil Engineers during an induction ceremony held in Rolla. The academy recognizes outstanding alumni for their professional achievement and success.

New members are:

Pete Burton



Pete Burton of Kansas City, Missouri, retired senior associate geotechnical engineer and geotechnical department manager for Burns & McDonnell, earned a bachelor's degree from Missouri S&T in 1985 and a

master's degree from the University of Texas at Austin in 1987, both in civil engineering. Burton began work as a geotechnical engineer for Burns & McDonnell in 1988 and completed 33 years of service before retirement. He provided support and expertise for all aspects of geotechnical engineering on projects in all the company's practice areas. His expertise included foundation systems, geotechnical structures and geotechnical site services. Burton provided geotechnical expert witness and legal services and for the last nine years of employment, he was the geotechnical department manager, overseeing geotechnical operations with over 25 direct-report employees. A member of the Burns & McDonnell Principal Group, he provided senior-level leadership and mentorship throughout the company, authored and co-authored technical papers for publication in journals and conference proceedings and provided presentations at associated conferences. He has prepared and provided presentations for undergraduate and graduate classes, seminars and ASCE chapters at several regional universities and the KC ASCE Geo-Institute chapter. As a student, Burton played on the rugby team and played classic rock-n-roll on Friday afternoons as a DJ for KMNR radio station. He holds several positions at Stilwell United Methodist Church. Burton and his wife, Cindy, a 1984 S&T chemical engineering graduate, have two daughters,

Rachel and Anna. He enjoys skiing, hiking, camping, canoeing, playing pinball and darts, and good beer.

Paula Hart



Paula Hart of St. Louis, principal and owner of Hart Engineering, earned a bachelor's degree in civil engineering from Missouri S&T in 2000. After working for several St. Louis area firms, she founded

Hart Engineering, LLC in 2007. The company has expertise in a variety of aspects of civil engineering design and has successfully completed many projects in the St. Louis area for a variety of clients, including MoDOT, municipalities, Metropolitan St. Louis Sewer District, Missouri American Water Co., developers and individual residents. Hart Engineering's culture was featured in a December 2019 APWA Reporter article titled "A Workplace Revolution: Creative Employment at Any Stage of Life." Hart is quoted saying "an entire demographic of employees exists out there with underutilized skills." She has created a unique culture – a workforce comprised of primarily part-time employees who seek flexibility with balancing work and personal life. Her creative organizational model provides for a diverse workforce and inclusive environment. Hart carries her desire to lift people up into her volunteer activities by tutoring, mentoring, coaching and serving her profession through active involvement in the American Public Works Association, Engineers Club of St. Louis, and Missouri S&T. She was named Young Engineer of the Year by the Engineer's Club of St. Louis in 2012 and the Missouri S&T Civil Engineering Exemplary Young Alumna in 2019. She received the Exceptional Performance in Diversity Award by the National American Public Works Association (APWA) in 2020, was named Professional Engineer of the Year for Missouri APWA in 2020 and currently serves on the St. Louis County Planning and Zoning Commission. Hart and her husband, Shawn, a 2001 Missouri S&T civil engineering graduate, have two teenage children.

Otto Lynch



Otto Lynch of Nixa, Missouri, vice president and head of power line systems for Bentley Systems in Madison, Wisconsin, earned a bachelor's degree in civil engineering from Missouri S&T in 1988.

In 2000, he started Power Line Systems, serving as owner, president and CEO until 2023. Lynch has served in the American Society of Civil Engineers on the Industry Leaders Council, the Committee on America's Infrastructure, the Public Policy and Practice Committee, and the Energy, Environment and Water Policy Committee. He is currently chair of the SEI Electrical Transmission Structures Committee and vice chair of the ASCE "Minimum Design Loads for Structures Supporting Overhead Power Lines and Wired Telecommunications Infrastructure" and of the ASCE 10 "Design of Latticed Steel Transmission Structures." He is also current chair of the Changes to the NESC Working Group. Lynch has authored numerous papers and articles, participated in several interviews and podcasts, and delivered many lectures in his field of expertise, including conducting overhead line design training sessions for over 8,000 engineers. He received ASCE's Walter P. Moore Jr. Award, was elected ASCE fellow; was elected fellow of the Structural Engineering Institute and received the ASCE Gene Wilhoite Innovations in Transmission Life Engineering Award. Lynch and his wife, Johnna, have been married for over 33 years. They have a son who is a junior at S&T and a daughter who is a senior at Oklahoma Baptist University.

Robert Markland



Robert Markland of Columbia, South Carolina, former Distinguished Professor emeritus of management science at the University of South Carolina, earned a bachelor's degree in civil engineering from

Missouri S&T in 1963. He also earned a

master's degree and a Ph.D. in math from Washington University in St. Louis. Markland held faculty positions ranging from instructor at Washington University and progressing through professor at Arizona State University; associate dean and director of graduate studies at the University of Missouri-St. Louis; chair of academic affairs, director of graduate studies, professor of management science and associate dean at Moore School of Business; and management science chair and associate dean at the University of South Carolina. Markland has served the USC Business Partnership Foundation as executive director, vice president, president and program chair of the Decision Sciences Institute, and vice president of the Institute of Management Sciences Publications. A longtime United Way volunteer, he also volunteers with the food bank and the zoo's horticulture and gardens in Columbia, South Carolina. Through his church, Markland took six humanitarian and relief trips for hurricanes Sandy and Katrina to rebuild homes and provided humanitarian relief in repairing and rebuilding homes in West Virginia, Kentucky and other Appalachia areas. He authored or co-authored over 130 publications on mathematical programming, production scheduling, manufacturing and service operations management and received the AMOCO Excellence in Teaching Award, the Best All-Around Professor Award and the Alfred G. Smith Excellence in Teaching Award and was named Decision Sciences Institute fellow. Markland and his wife, Mylla, have been married 58 years. They have two sons and 10 grandchildren. He enjoys horticulture and landscaping and volunteering in his community. An avid sports fan, he enjoys golf, tennis, skiing and long-distance running, and he has completed three marathons.

Kenneth William McDonald



Kenneth William McDonald of West Point, New York, professor of engineering management at the U.S. Military Academy at West Point, earned a master's degree in engineering mechanics and a Ph.D. in geological engineering, both from Missouri S&T. He holds a bachelor's degree in civil engineering from the United States Military Academy as well as master's degrees in character education,

Christian ethics, geography, and city and regional planning, and an MBA in information systems. After graduation, McDonald began a 28-year Army career deployed to combat zones including Kosovo, Iraq and Afghanistan and was awarded the Bronze Star and Purple Heart. Notable assignments include deputy commander and chief of staff for the New York District of the U.S. Army Corps of Engineers; deputy commander and provincial liaison of the South District, Gulf Region in Basrah, Iraq; and deputy commander of base operations for the 19th Theater Support Command in South Korea. McDonald served at the Army Engineer School at Fort Leonard Wood, directed the Center for Nation Reconstruction and Capacity Development and was a military academy deputy department head. He studies capacity development, planning and consequence management, and engineering ethics and has brought in over \$1M in research, published over 70 technical articles and reports, given over 20 conference presentations, and written or edited 10 books or books chapters. He was a commissioner for the ABET Engineering Accreditation Commission and an executive board member for the Society of American Military Engineers and the American Society for Engineering Management. His honors include Fulbright Scholar/Specialist, National Society of Professional Engineers Federal Engineer of the Year, David E. Grange Best Ranger Competition – Best Team, Federal Executive Board Award for Valor. McDonald and his wife, Col. Deborah J. McDonald, have two children also in the military, Maj. Anna E. Mendoza and Capt. Joshua G. McDonald.

Jonathan Robison



Jonathan Robison, principal engineer at GeoEngineers Inc., earned a bachelor's degree in civil engineering in 1997 and a master's degree in civil engineering with a geotechnical emphasis in 2003, both

from Missouri S&T. As a student, he was active in Pi Kappa Alpha fraternity, intramural sports and other campus activities. A licensed professional engineer in 15 states, Robison is internationally recognized for his work in trenchless engineering, particularly with the direct pipe and horizontal directional drilling (HDD) construction methods. He has authored or co-authored over 20 peer

reviewed papers and publications about trenchless and geotechnical engineering and construction. Robison chairs the American Society of Civil Engineers (ASCE) Trenchless Installation of Pipelines (TIPs) Committee and chaired the MOP Committee for the recently published Direct Steerable Pipe Thrusting MOP #155, leading an international group of engineers, geologists, contractors, equipment manufacturers and academics in the development and writing. He serves on the board of the Trenchless Technology Center at Louisiana Technical University. Robison's work includes geotechnical evaluations and trenchless engineering for many long and otherwise industry-significant trenchless crossings of sensitive features and other obstacles such as the Mississippi, Missouri, Illinois, Delaware, St. Clair, Rio Grande, Niger and other rivers; U.S. Army Corps of Engineers regulated levees; lakes; wetlands; railroads; highways; landfalls in the Gulf of Mexico, Atlantic and Pacific Oceans; and others. Highlights include leading the design and construction engineering teams for the MO-ACEC Grand Conceptor Award-winning I-84 directional microtunneling crossing in Pike County, Pennsylvania, and the first direct pipe permitted by the Corps of Engineers to cross beneath a regulated levee in Port Arthur, Texas. Robison also leads over 30 engineers, geologists and other staff in offices throughout the U.S. in GeoEngineers' Pipelines Discipline.

Paul Rydlund



Paul Rydlund of Rolla, Missouri, earned bachelor's and master's degrees in geological engineering from Missouri S&T in 1994 and 1996, respectively. He has held multiple roles in the U.S. Geological

Survey at local, regional and federal levels. Rydlund is a national leader in hydrologic studies and GPS survey technology used to study flooding and flood inundation mapping across the United States. The federal liaison officer for FEMA Mission Assignments, he works within the USGS Water Hazards Program and Hydrologic Networks Branch in advisory and technical roles among USGS national programs. Rydlund oversees flood studies and activities for the USGS Central Midwest Water Science Center in Illinois, Iowa and Missouri, and he has overseen studies in smaller, underserved rural Missouri communities. He specializes in hydrology,

2024 Academy Inductees continued...

hydraulics and geodetic surveying and has authored many publications in these disciplines. He is also active in professional organizations on committees that make national impact in shaping technical policy and methods. Rydlund is also a member of the Missouri Floodplain and Stormwater Managers Association board of directors and is licensed as a Certified Floodplain Manager and Professional Land Surveyor in Missouri. Active with the CAR EE department, he helps coordinate research work for students, provide internships and strengthen collaboration between Missouri S&T and the USGS. He has been active in student mentoring, generating opportunities at USGS and publishing with faculty and students. Rydlund is a certified professional personal trainer and group exercise instructor and is certified in fitness nutrition, sharing his expertise through local health facilities. He is also a leader in the Kiwanis International Club of Rolla, Camp David of the Ozarks and the Rolla Multisport Club.

Robert Schiffer



Robert Schiffer of Saint Charles, Missouri, a construction manager with the U.S. Department of State, earned a bachelor's degree in civil engineering from Missouri S&T in 1998 and a Master of

Building Construction degree from Auburn University in 2020. A dedicated public servant, he has answered the nation's call by serving both domestically and overseas with the U.S. Army Corps of Engineers and the U.S. Department of State Overseas Buildings Operations. Schiffer has earned numerous distinguished honors from the U.S. Department of the Army and the U.S. Department of Defense. His published research on mental health and suicide in the U.S. construction industry combined with his work with the Associated General Contractors of Missouri and other national organizations has helped raise awareness and identify areas where additional efforts are needed to provide effective mental health treatment and suicide prevention programs. As president of the St. Charles Junior Baseball/Softball Association for 10 years, Schiffer led efforts to provide affordable, inclusive youth baseball and

softball to all children in his community. He also as a judge for the eCYBERMISSION STEM Competition and volunteered during National Engineers Week. Schiffer and his wife, Sarah, have been married for 23 years. They have two daughters, Isabella and Olivia, and have called Missouri home for the last 25 years. In their free time, the Schiffers camp in Missouri's state and federal parks and enjoy spending time with their pets. Schiffer enjoys playing golf, hunting and shooting sports, an interest that began as an active member of the Missouri S&T Trap and Skeet Club.

John C. Smith III



John C. Smith III of St. Louis, vice president and market leader at Alberici Constructors Inc., earned bachelor's and master's degrees in civil engineering from Missouri S&T in 1997 and 2001, respectively. A member

of the Alberici staff for 16 years, he leads the Energy and Renewables markets at Alberici, as well as Integrated Project Support Services. Smith began his professional career 26 years ago at HNTB Corp. as an engineer focused on delivering critical infrastructure throughout the Midwest. He led projects of up to \$200M including roads, bridges and the Metrolink cross county extension. Throughout his career, Smith has participated in over \$3 billion of completed construction projects across the U.S., including the \$200M Meldahl Hydroelectric Project in Foster, Ky., and Alliant Energy's \$35M Ottumwa Bottom Ash project. He currently oversees the \$495M Wichita Northwest Water Treatment Facility in Kansas. Smith enjoys sharing his knowledge with the next generation of builders, especially recent Missouri S&T alumni. He has participated in numerous career fairs to meet with Miners and discuss the careers and fields available at Alberici and in the construction industry. He has also a guest speaker for S&T chapters of ASCE and AGC. A member of the Missouri S&T Board of Trustees, Smith serves on the S&T Career Development Council, Missouri Consortium for Construction Innovation board of directors and the National Center for Construction Safety at the University of Kansas. He and his wife, Alicia, live in Edwardsville, Illinois, with their sons

Kyle, Ryan and Drew. He enjoys spending time with his family, attending sporting events and coaching youth baseball.

Deanna Venker



Deanna Venker of St. Louis, St. Louis County chief operations officer, earned a bachelor's degree in civil engineering from Missouri S&T in 1994. Her career journey began with internships

at the Missouri Department of Transportation (MoDOT), where she gained experience during the floods of 1993 and 1994. After graduation, she began a 22-plus-year career at MoDOT, becoming the youngest area engineer in the state at 29. Venker contributed significantly to high-profile projects in St. Louis, including the new Interstate 64, the new Mississippi River bridge, the City Arch River 2015, and the Seismic Retrofit of the I-64 double-deck bridge. As commissioner of traffic for the city of St. Louis, she managed a \$10M budget, implementing innovative measures like the city's first traffic calming policy and a program to replace 55,000 streetlights with LEDs to enhance pedestrian safety. Venker joined St. Louis County government in 2019, eventually becoming chief operations officer under county executive Sam Page. She manages 11 departments and focuses on alignment, efficiency and effective collaboration to achieve departmental goals. Venker is as a costume director for productions with New City School and KTK productions. She also extends her dedication to community improvement with her family through their property management company, with support from her father, Stephen Venker, a 1970 Missouri S&T mechanical engineering graduate, and her mother, Linda Venker. Venker is married to Chief Sam Dotson III, Amtrak's chief of police, and their daughter, Delaney Venker, is a sophomore at Visitation Academy of St. Louis. Venker enjoys softball, white water rafting, zip-lining, and skiing. She and her husband share a passion for flipping and renovating properties.

Judy Wagner



Judy Wagner of Hillsboro, Missouri, director of public works for the city of Arnold, Missouri, earned a bachelor's degree in civil engineering from Missouri S&T in 1991. She began her career

as a maintenance intern with the Missouri Department of Transportation as a student. After graduation, she was hired full time as a construction inspector and was eventually promoted to resident engineer, the first woman to hold this position in St. Louis area. From 2002 until her MoDOT retirement in 2019, Wagner served as Franklin and Jefferson County area engineer, leading a large team on projects that include developing over \$100M in cost-sharing partnerships to construct large highway projects with local and state funding. She planned, prioritized and developed projects in the area. Wagner worked on the new Highway 21, Interstate 55, Highway 50 and Highway 100 widenings. She is most proud of leading a new major bridge over the Missouri River on Route 47 in Washington, Missouri. A member of Transportation Engineers Association of Missouri (TEAM) Programming Committee since 2011, she was elected TEAM Governing Board president-elect in 2022 and became president in 2023. Wagner co-founded the Jefferson County Safety First Coalition. A member of the American Public Works Association, she created a roadway asset management plan and led the rebuilding of the Public Works Complex. She is responsible for city facilities, fleet, streets and stormwater infrastructure. She assists and supports all departments and manages several grant projects. Wagner enjoys spending time with friends and family boating, traveling, four-wheeling, camping and relaxing around their pool. She volunteers for the KMA (Keeping Memories Alive) Foundation and other community fundraisers through the Festus Elks Club. She has been married over 32 years and has two grown successful children.

HONORARY MEMBER

Dr. Bobby G. Wixson



Dr. Bobby G. Wixson of Springfield, Missouri, earned a bachelor's degree in geology and a master's degree in biology from Sul Ross State University in 1960 and 1961, respectively, and a Ph.D. in aquatic

biology from Texas A&M University in 1966. He served and was discharged as a Captain of the U.S. Marine Corps. in the Korean War. Wixson was professor emeritus of environmental health and civil engineering and dean emeritus of international programs at Missouri S&T, where he was a faculty member from 1967 to 1987. In 1987, he moved to Clemson University, serving as professor emeritus of biological sciences and dean emeritus of the College of Sciences until 1996. Wixson held positions in the International Society for Environmental Geochemistry and Health, Partners of the Americas, the U.S. National Academy of Sciences, and the U.S. Department of State as the Scholar-Diplomat in Technology (Environmental and Scientific Affairs). Sul Ross State University awarded Wixson a Distinguished Alumni Award, Texas A&M entered him into the Academy of Distinguished Former Students and Missouri S&T presented him with the Outstanding Teaching Award and the Alumni Merit Award for Outstanding Teaching, Service and Research. He also received the Gold Medal for Interamerican Partners Program from the State of Para, Brazil, the Outstanding Leadership Award from the Society for Environmental Geochemistry and Health, and the Julian J. Chisolm Jr. Award for Leadership. Wixson served as a reviewer and consultant for the National Science Foundation, U.S. Environmental Protection Agency, the U.S. Agency for International Development and the United Nations Environment Programme, and has published eight books, 11 book chapters and 148 publications on topics ranging from heavy metals in the environment to aquatic pollution and hazardous waste management.

POSTHUMOUS MEMBER

Ron Rolfes



The late **Ron Rolfes** of Town and Country, Missouri, former senior vice president of operations for Clayco Construction Co., earned a bachelor's degree in civil engineering from Missouri S&T in 1987.

Before joining Clayco, Rolfes served in project management roles at Wachter Construction Co., Di Carlo Construction Inc. and J.S. Alberici Constructors. He joined Clayco in 2004 as a project director then transitioned into an operational oversight role. As senior vice president of operations, Rolfes oversaw Clayco's projects. He also led young operations talent for over five years, identifying promising project engineers and offering them career development and training guidance. Rolfes was deeply involved in the Construction Career Development Initiative, a 501(c)(3) non-profit organization founded by Clayco in 2015 in response to the events in Ferguson, Missouri, and was one of the first team members to engage with students in the construction cluster, providing insights into career pathways in the industry, from trades to college degrees and facilitating job shadow visits. He was also instrumental in organizing CCDI's inaugural job fair event in 2016. Rolfes began working with Pedal the Cause, which raises funds for cancer research, in 2010 when Clayco formed a team. In 2011, he joined Team Clayco with a goal of getting in shape and supporting the quest to find a cure for cancer. Little did he know that in 2012, he would be diagnosed with cancer himself. Despite the challenges of his own cancer diagnosis in 2012, Rolfes continued to raise funds and participate in the event for another decade. He died in March 2022. Rolfes coached youth sports, served on the Cellphones for Soldiers committee and was in the M Club at Missouri S&T. Rolfes and his wife, Julie, have four children, Tripp, Tanner, Tessa and the late Thomas.

Academy Weekend 2024



Members of the Academy of Civil Engineers gathered over a weekend in April to celebrate the induction of its new members. This select group, made up of recognized community leaders and role models, partners with the department to strengthen students' dedication to and understanding of civil engineering through their personal and professional example.

Dick Jaquay with Miner students



Academy of Civil Engineers 2024



ACE board members



Student ambassadors and awardees



Werner retires, career to celebrate

Jeannie Werner began her career at Missouri S&T in September 2005 with residential life and also worked in academic affairs before joining the CA&EE team in 2014. As a graduate student support specialist in our department, she assisted graduate students from the time they arrived to the day they graduated — managing their applications, hiring them as graduate research assistants and teaching assistants, and processing their paperwork.

She's been a great part of the department staff, supporting hundreds of students and helping build a great culture in the CA&EE Advising Center and department overall.

Werner says what she enjoyed most about working at S&T is "the people." Her advice is to take time to get to know the people who surround you every day. She says she's also proud of the friendships with people she has worked with throughout the years.



Honorary Knight Brad Hornburg



Honorary Knight Mike McEvilly

HONORARY KNIGHTS

Two alumni with ties to our department were among the eight named 2024 Honorary Knights of St. Patrick.

- **Brad Hornburg**, CE'69, of St. Louis, Missouri, is CEO of Brad Hornburg Consulting, formerly Landmark Contract Management, Inc.

Hornburg served on the St. Pat's Board in 1966. He is a member of Missouri S&T's Academy of Civil Engineers. He previously received the Robert V. Wolf Alumni Service Award from Missouri S&T, and the Distinguished Service Award from Theta Xi.

Hornburg and his wife, Constance Hornburg, have seven children, Todd, Shari, Kate, John, Jennifer, Jay and Lauren, as well as 12 grandchildren.

- **Michael McEvilly**, CE'80, MS EMgt'81, of Spring, Texas, is vice president of fabrication at Morrison Energy.

McEvilly has had a successful career in the oil and gas sector, including working on two mega-deepwater offshore development projects that received the Distinguished Achievement Award from the Offshore Technology Conference in Houston. He is a member of the Missouri S&T Board of Trustees and the Academy of Engineering Management and a past president of the Miner Alumni Association. McEvilly is also president-elect of Tau Kappa Epsilon International Fraternity.

McEvilly and his wife, Mary McEvilly, have two children, Melissa and Michael, and four grandchildren, Timothy, Margaret, Abigail and August.



L-R: Connie and Brad Hornburg and Mike and Mary McEvilly



Night to Network ✨



Students took the opportunity to network with employers during the CaREE department's night to network and the spring career fair held in September. They discussed internship, co-op, and full-time job opportunities and met recruiters from hundreds of hiring companies looking to employ Miners.

The fair was accessed using the Career Fair Plus mobile app. Students filtered by major and industry to plan their route through the fair with an interactive map that gives details of each company.

S&T team partners with MU for solar decathlon



Pictured from left to right: Will Lanfersieck, a first-year student in architectural engineering, Carson Sinnard, a senior in architectural engineering, Kayla Walters, a junior in architectural engineering, and Owen Green, a senior in civil engineering.

The Missouri S&T Solar House Design Team, in partnership with the University of Missouri Architectural Studies Group and industry professionals, had a successful weekend competing in the Department of Energy Solar Decathlon at the National Renewable Energy Laboratory in Golden, Colorado. The two teams were composed of all undergraduate students, including two student athletes. The team won third place in the multifamily housing division with an eight-story comprehensive sustainable design named "LightHAUS."

For more information, visit solardecathlon.gov.

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Being her glorious self

Aspen Williams, ArchE, CE'17 signed on with The Kansas City Glory Women's National Football Conference (WNFC) in the summer of 2020. After sitting out a season due to injury, she is thrilled to be participating in her third full season with the team.

Founded in August of 2019, The Kansas City Glory set out to become the area's premier opportunity for women in football. They offer women of all sizes and all body types the opportunity to learn and play tackle football, no experience necessary. They provide a platform for women to break personal and professional barriers while empowering them both on and off the field. As members of the Women's National Football Conference (WNFC), they are committed to providing their players and Kansas City fans an immersive experience of women's full-contact, 11v11 tackle football.

The Glory plays games all over the country, and a number of their athletes also play internationally. Their reach is diverse and growing every day. They strive to put together a professional, passionate, and poised team of women to make big plays on the field and big impacts in the community.



Website: www.kansascityglory.com

FUTURE CITY COMPETITION

By Jonathan Ahl/St. Louis Public Radio

Engineers all over the world are working on how to build a sustainable city of the future that solves current and future problems while meeting the needs of a modern society.

In January, junior high school students from around Missouri presented their models and ideas to a panel of judges in Rolla, hosted by the CArEE department.

The Future City competition is an annual nationwide event that challenges sixth through eighth graders to design a city of the future. Each state holds a contest to choose the 50 finalists to compete at the national level. Each year there is a slight twist on the premise.

This year's challenge was to design a 100% electrically powered city with energy generated from sources that keep their citizens and the environment healthy and safe.

The team from St. Clair won the Missouri competition hosted by the Kaleidoscope Discovery Center and held at Missouri S&T in Rolla.

It represented the state in Washington, D.C., at the national competition. The design competition, which involves writing an essay, building a model and presenting it to judges, includes evaluation on the entire proposed city's operation.

That gives students the opportunity to imagine new ways of designing things like transportation systems.

One of the goals of the Future City competition is to build interest among middle schoolers in career paths in science, technology, engineering and math fields, and the program tries to expand on what students learn in the classroom.

"I think it's really key for them to look at how what they're learning now in math, science, chemistry, biology and some properties in physics can all be integrated into something that is real is implemented on a citywide scale," says **Dr. Joel Burken**, chair of Civil, Architectural and Environmental Engineering at Missouri S&T and one of the judges.



While many of the students say they want to pursue careers in engineering, architecture and sciences, the goal isn't universal, and Burken said the competition considers their many future paths.

"This isn't just about who can build a better building. It's about who can make a better community. We specifically ask: 'What's the culture of the city? What's the diversity of the population?' And we actually ask, 'What is the art component of the city?'" Burken says.

Changes in the Future City program in Missouri are in store for next year. The state is one of 10 in the nation that will pilot a high school version of the contest.

Website:
futurecity.org

The Missouri Future City state competition is carried out by the Rolla Kaleidoscope Discovery Center (KDC), led by Martina Hahn-Baur, president, KDC board of directors. For more information, contact info@thekaleidoscope.org.



Missouri S&T mourns the death of benefactor June Kummer



June Marie Kummer, who worked alongside her late husband and Missouri S&T civil engineering graduate, **Fred S. Kummer**, to build a general contracting business into the world's largest design-build firm for health care and financial facilities, passed away on Jan. 8, 2024, in St. Louis. She was 93.

In 2020, she and her husband donated \$300M to S&T, the largest single gift ever to any public or private university in Missouri and one of the largest ever to any university, to establish the Kummer Institute for Student Success, Research and Economic Development. The institute supports S&T's efforts to encourage more students to pursue degrees in science, technology, engineering and mathematics (STEM), elevate the university's reputation and research profile, and strengthen the economy of the Rolla region and the state.

"We have lost a true visionary and pioneer, a true champion of S&T and of the entirety of higher education," says Missouri S&T Chancellor Mo Dehghani. "The privilege of working with June Kummer and her husband to help bring their passion for advancing S&T's mission to life on behalf of all of our students has been a pinnacle of my career in higher education. June and Fred's generosity is unparalleled. Their 68-year marriage is a beautiful example of a loving partnership between two strong, ambitious and intelligent individuals. We send our sincere condolences to the entire Kummer family."

Dehghani notes that the Kummers have been among S&T's most generous donors over the years. They provided the lead gift for the Kummer Student Design Center, which houses Missouri S&T's 19 student-run design teams. They also supported the expansion in the 1990s of Butler-Carlton Civil Engineering Hall and, in the early 2000s, of Toomey Hall, which houses S&T's mechanical and aerospace engineering programs. In recognition of June's passion for landscaping and gardening, the Kummers provided a gift to name the Fred and June Kummer Garden at S&T's Hasselmann Alumni House.

June Baumer was born and raised in St. Louis, where she attended Hadley Technical High School. After earning a degree in architecture from Washington University in 1951, she worked for the William B. Ittner architecture firm before marrying Fred Kummer in 1953. In 1954 the couple moved to Rolla, where Fred earned his degree in civil engineering

in 1955 at Missouri S&T, then to Crestwood, Missouri, where, with their growing family, they established a construction firm that became the nine-division Hospital Building and Equipment (HBE) Company. In addition, they established the Adams Mark hotel chain.



In a 2021 interview with *Missouri S&T Magazine*, June explained the central role that teaching and learning played in their marriage. "I learned a lot about engineering from Fred, and he learned a lot about design from me," she said.

While June worked on HBE projects, her main focus was raising their children and pursuing her love of gardening. In addition to those that surrounded their home, the large vegetable and herb garden and various fruit trees supported her other passion: cooking. A leader in the Federated Garden Clubs of Missouri, which honored her service by naming a peach-pink lily the June Kummer Daylily, June was described by one journalist as the "eternal horticulturist." She also held leadership positions with the Missouri Botanical Garden and the National Garden Club.

Three years after donating \$300M to S&T, the impact of the Kummer gift continues to expand across the S&T community, creating opportunities for students and faculty in each of the university's three colleges. The gift enabled the establishment of the Kummer College of Innovation, Entrepreneurship, and Economic Development in 2022, the launch of research centers focused on artificial intelligence, advance manufacturing and resource sustainability, appointment of academic leaders, ongoing investment in capital projects, increased investment in undergraduate scholarships and doctoral fellowships, extended opportunities for Missouri's underserved students to learn about STEM, support for faculty research, and more.

June is survived by daughter Caroline Crosswell and son-in-law Tom Crosswell, son Fritz Kummer and daughter-in-law Tess, and daughter Melanie Brewer and son-in-law David, as well as several grandchildren and great-grandchildren.

At the family's request, memorial donations may be made to Forest Park Forever at www.forestparkforever.org/ or BJC Hospice at www.bjchospice.org.



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WOMEN LEADERS IN ENGINEERING

We are very fortunate and grateful to have wonderful women leaders in our Missouri S&T Academy of Civil Engineers – spanning all levels of our profession – from CEOs and business leaders, to presidents of international societies, to builders of U.S. embassies, to serving as lieutenant governors. Our Miner alumnae are leading change agents. These Miners are **Changing the World!**