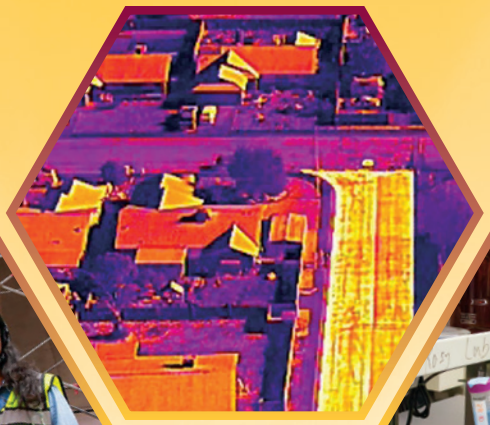
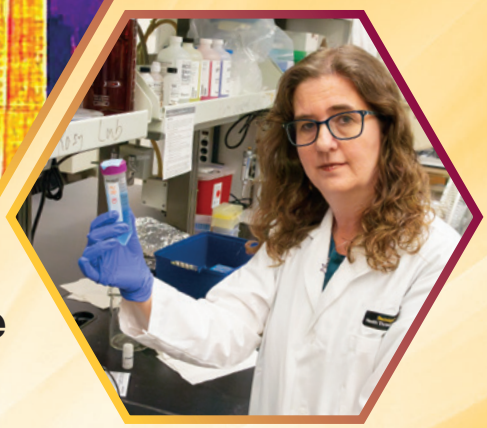
SCHOOL OF Sustainable Engineering and the Built Environment





Sustainable horizons

Nurturing minds

Empowering change

ASU Ira A. Fulton Schools of Engineering
Arizona State University

The year in review **2024**

The Ira A. Fulton Schools of Engineering at Arizona State University offers

Ira A. Fulton Schools of Engineering
Arizona State University

27 undergraduate programs and 50 graduate programs in its eight schools

SSEBE

School of Sustainable Engineering and the Built Environment

Ram Pendyala, Director

SCAI

School of Computing and Augmented Intelligence

Ross Maciejewski, Director

ECEE

School Of Electrical, Computer and Energy Engineering

Stephen Phillips, Director

SEMTE

School for Engineering of Matter, Transport and Energy

Anthony Waas, Director

SBHSE

School of Biological and Health Systems Engineering

Heather Clark, Director

TPS

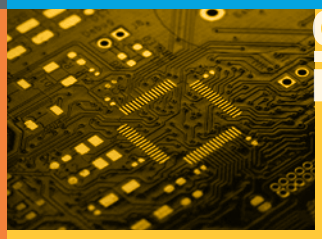
The Polytechnic School

Kurt Paterson, Director

SMSN

School of Manufacturing Systems and Networks

Binil Starly, Director



SIE

School of Integrated Engineering

Shawn Jordan, Interim Director

ASU named #1 in innovation for 10th consecutive year.

#1 in the U.S. for innovation

ASU ahead of MIT and Stanford
— U.S. News & World Report, 10 years, 2016–25

BEST COLLEGES U.S.News MOST INNOVATIVE 2025

Research Centers

National Science Foundation Engineering Research Centers (ERCs)

Center for Bio-mediated & Bio-inspired Geotechnics (CBBG)

NEWT NANOTECHNOLOGY ENABLED WATER TREATMENT SYSTEMS

- Arizona Center for Algae Technology and Innovation (AZCATI)
- Biodesign Center for Environmental Health Engineering
- Biodesign Center for Health Through Microbiomes (BCHTM)
- Center for Carbon Efficient and Advanced Manufacturing of Materials and Structures (CAMMS)
- Center for Hydrologic Innovations
- Center for Negative Carbon Emissions (CNCE)
- Center for Teaching Old Models New Tricks (TOMNET) - a USDOT Tier 1 University Transportation Center
- Metis Center for Infrastructure and Sustainable Engineering
- National Center for Infrastructure Transformation (NCIT)
- National Center of Excellence on SMART Innovations
- Southwest Pavement Technology Consortium (SPTC)
- Swette Center for Environmental Biotechnology
- Water & Environmental Technology Center (WET)
- Science and Technologies for Phosphorus Sustainability (STEPS)

What's Inside

School of Sustainable Engineering and the Built Environment

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ssebe.engineering.asu.edu

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ASU Charter

ASU is a comprehensive public research university, measured not by whom it excludes, but by whom it includes and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.

Mission

Demonstrate leadership in academic excellence and accessibility

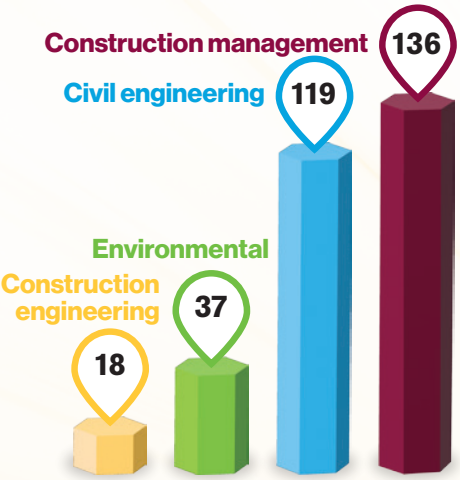
Establish national standing in academic quality and impact of colleges and schools in every field

Establish ASU as a global center for interdisciplinary research, discovery and development by 2020

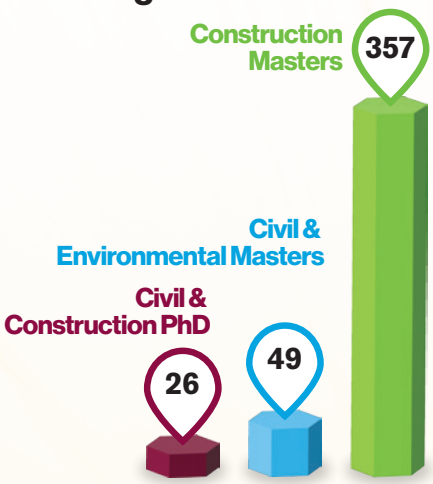
Enhance our local impact and social embeddedness

The Numbers 2024

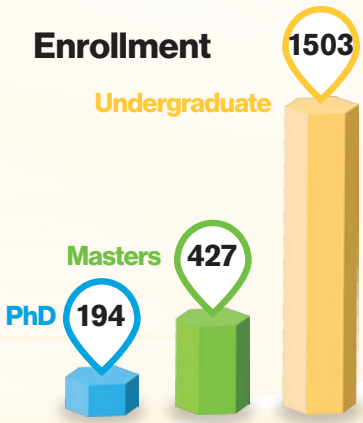
Undergraduate Degrees Conferred



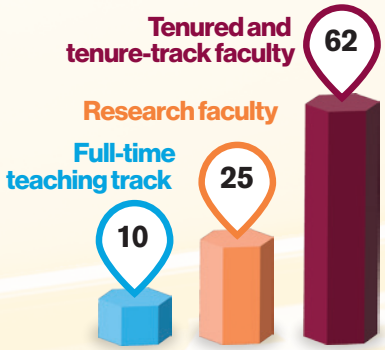
Graduate Degrees Conferred



Enrollment



Faculty



Scholarships and fellowships awarded 2024

$389,887

Research expenditures 2024

$30,690,270

National Academy of Engineering Members

Edward Kavazanjian, Jr.
Bruce Rittmann
Paul Westerhoff

National Academy of Construction Members

Samuel T. Ariaratnam
William Badger (emeritus)
G. Edward Gibson, Jr. (emeritus)

ASCE Distinguished Members

Samuel Ariaratnam
G. Edward Gibson, Jr. (emeritus)
Edward Kavazanjian, Jr.
Bruce Rittmann

Canadian Academy of Engineering Member

Samuel T. Ariaratnam

Director's Letter

Dear Colleagues, Friends, and Partners,

It is with tremendous gratitude, pride, and optimism that I reflect on 2024 — a truly special year for the School of Sustainable Engineering and the Built Environment (SSEBE) at Arizona State University. This year marked two significant milestones in our school's journey: the **10-year anniversary of our iconic home building** and the **15-year anniversary of the formation of SSEBE** itself. These anniversaries offered a moment to reflect on how far we've come — and how boldly we are stepping into the future.

It was in this celebratory spirit that we witnessed a defining moment in our school's history: the renaming of our home to the **Paul C. Helmick Center**, made possible by an extraordinary eight-figure gift from **Mary Jo Helmick**, given in honor of her late husband, Paul, a pioneering leader in Arizona's construction industry. The Helmick family's transformational generosity will leave a lasting legacy, establishing an endowment to support our programs in perpetuity and ensuring that the building serves as a vibrant hub for experiential learning, collaboration, and innovation for generations to come. The Helmick Center stands as a living tribute to values we hold dear — hard work, integrity, community, and the pursuit of knowledge.

Throughout the year, our students, faculty, staff, and partners achieved remarkable things across every dimension of our mission. Our academic programs continue to earn national acclaim, with the **undergraduate civil engineering program ranked #16** and the **environmental engineering graduate program ranked #9 in the country by U.S. News & World Report**. In 2024, we rolled out a two-semester capstone experience that unites our civil, environmental, and construction engineering students with industry sponsors to tackle challenging real-world problems. The results have been nothing short of inspiring — with capstone showcases bringing together our academic and industry communities in celebration of student ingenuity.

We also set out to launch the development of an online Bachelor of Science degree in Construction Management and Technology, set to debut in Fall 2025. Designed to be the most comprehensive and impactful program of its kind, this initiative is expanding access to high-quality education and preparing the next generation of construction leaders to thrive in a rapidly evolving, technology-driven world.

Our research enterprise reached new heights, with total sponsored expenditures exceeding $30 million. SSEBE faculty led pioneering work on green desalination, PFAS treatment, microbiome-enabled environmental health, fiber-reinforced concrete for sustainable infrastructure, and open-source software for transportation planning. Faculty received prestigious honors, including election to national academies and awards from major scientific organizations. Our many research centers continued to serve as engines of innovation and societal impact.

Ram Pendyala

This progress would not be possible without the deep and ongoing support of our industry partners, whose engagement strengthens the fabric of our school. We are especially grateful to the Friends of Civil and Environmental Engineering (FOCE²) and the Del E. Webb School of Construction Industry Partner Circle (IPC). These two groups have elevated what it means to be industry collaborators — funding scholarships, supporting faculty and student initiatives, mentoring students, shaping curricula, and opening doors to life-changing opportunities.

Our students rose to the occasion time and again — earning prestigious scholarships, fellowships, and internships; leading student organizations; participating in national competitions; and conducting research that addresses real-world challenges. The accomplishments of our students are a testament to the culture of excellence and support that defines SSEBE.

We also welcomed a brilliant cohort of new faculty, adding depth to our strengths in sustainable construction, environmental technology, transportation systems, and infrastructure resilience. Their energy and expertise will help us chart new directions and deepen our impact.

As we look to the future, our vision is bold and inclusive. We are investing in AI-enabled infrastructure systems, weather-resilient communities, smart construction, and durable materials. We are working to cultivate a culture of excellence and access consistent with the ASU Charter — one where everyone has the opportunity to thrive and contribute.

To our faculty, staff, students, alumni, and partners — thank you for making 2024 a year to remember. Your dedication, passion, and shared commitment to our mission are what power our momentum. Together, we are not only building infrastructure systems — we are building futures, communities, and a more sustainable, resilient world.

With deepest appreciation and warmest regards,

Ram Pendyala

Ram M. Pendyala, PhD
Professor and Director
School of Sustainable Engineering
and the Built Environment

Mary Jo Helmick, second from left, cuts the ribbon in front of the doors of the newly renamed Paul C. Helmick Center with assistance from Ram Pendyala, director of the School of Sustainable Engineering and the Built Environment, far left, Kyle Squires, dean of the Fulton Schools of Engineering at Arizona State University, center, Nancy Gonzales, executive vice president and university provost, second from right, and Arlene Chin, Tempe city councilmember, far right. Photographer: Erika Gronek/ASU

Transformational gift advances vibrant hub for future success

When **Mary Jo Helmick** cut the ribbon at the front doors of the **Paul C. Helmick Center** at Arizona State University, more than 100 education leaders, faculty, staff, family and friends cheered.

"This has been a special day for me," she said. "Thank you for coming from far and near."

Mary Jo smiled, laughed, shook hands and hugged guests outside the building that was recently renamed in honor of her late husband, a business leader in the Phoenix construction industry. The mixed-use space is home to the **School of Sustainable Engineering and the Built Environment** and the **Del E. Webb School of Construction**, part of the Ira A. Fulton Schools of Engineering at ASU.

Aptly named for the prominent figure known for sharing his extensive knowledge and experience with others, the Paul C. Helmick Center is a living laboratory designed to be a hub for experiential learning and collaboration and to teach students through its unique design. Systems normally unseen in traditional construction, such as plumbing, HVAC and electrical wiring, were purposely left exposed in places to help students learn about them in action. The building includes specialized classrooms designed for learning in small groups and areas where students can work separately or together between classes.

"This building represents an embodiment of the built environment, our commitment to majors in construction engineering, construction management, civil engineering, environmental engineering and sustainable engineering," said Kyle Squires, Dean of the Fulton Schools. "It's a focal point for activities, for the ideas of the faculty, and importantly — you all are part of this — for making connections."

Then Squires turned to Mary Jo and said, "We want to thank you so much."

The Helmicks believed that the best way to alleviate most problems is to invest in knowledge and access to excellent education. The family's transformational gift to the ASU Foundation for a New American University establishes an endowment that will help to realize these goals and more.

"The generosity of the Helmick family reflects their profound trust in our vision to create smart, resilient communities and enduring built environments that will thrive for generations to come," said Ram Pendyala, director of the School of Sustainable Engineering and the Built Environment. "The Helmick family's support empowers our students, faculty, staff and partners to push forward, innovate and make an enduring impact on the world."

Tempe Councilmember Arlene Chin read a proclamation at the event declaring Nov. 13, 2024, as Mary Jo and Paul C. Helmick Day in Tempe in recognition of the Helmicks' contributions to education and the built environment.

"The naming of the Paul C. Helmick Center and the Mary Jo and Paul C. Helmick Atrium stands as a lasting tribute to Paul and Mary Jo's legacy of integrity, hard work and commitment to community enrichment," Chin said.

Mary Jo's generous gift, made in Paul's memory, is a "testament to their shared passion for improving themselves and their communities through the values of hard work, dedication and service," said Liam Quintal, development officer for engagement and outreach at the ASU Foundation.

Program Chair Updates

Civil, Environmental and Sustainable Engineering (CESE)

Kamil Kaloush, PhD, PE
FORTA Professor of Pavement Engineering
CESE Undergraduate Program Chair

2024 was another outstanding year! The *U.S. News & World Report* ranked our civil engineering undergraduate program #16 in the nation. This acknowledgment underscores our commitment to a robust engineering foundation, immersive hands-on learning and strong industry collaboration. A huge thank you to our outstanding advising staff, whose unwavering dedication and guidance help our students succeed every step of the way. To our adjunct faculty, your industry expertise, real-world insights and passion for teaching elevate our program and enrich the student experience. And to our full-time faculty, your commitment to excellence in teaching and mentorship is the driving force behind our success.

I want to express my deep appreciation to our Friends of Civil and Environmental Engineering industry members. Your invaluable support through mentorship, internships, scholarships and guest lectures, continues to empower our students and enhance their educational journey. Your dedication to shaping the next generation of civil engineers does not go unnoticed, and we are incredibly grateful!

Looking ahead, we are excited to expand our collaborations with Career Fair companies, which continue to create life-changing opportunities for our students. We will also introduce new technical elective courses that better align with the program's goals. Our commitment remains steadfast in preparing civil engineering graduates to excel in their careers and make a lasting impact on society.

We invite you to explore our program, reach out with any questions or suggestions, and connect with us—I would love to hear from you!

Construction Engineering (CNE)

Samuel T. Ariaratnam, PhD, PE, PEng, FCSCE, FISTT, FCAE, NAC, Dist.MASCE
Professor • Sunstate Chair of Construction Management & Engineering
CNE Programs Chair

It is my pleasure to present this year's annual report for the Construction Engineering program. Over the past year, we have made tremendous strides in education, research, and industry collaboration. Our students continue to excel in and out of the classroom, securing competitive internships, winning national competitions, and contributing to groundbreaking projects. Additionally, our graduates are gaining employment at top firms both domestically and internationally.

I would like to extend my deepest gratitude to our industry stakeholders for their unwavering support. Your mentorship, partnership, and investment in our program have been instrumental in shaping the next generation of construction engineers. Whether through guest lectures, internships, research collaborations, or sponsorships, your commitment ensures that our students graduate with the skills and experience needed to drive the industry forward. Our program continues to emphasize planning, design, and management for the construction of infrastructure systems.

As we look ahead, I remain committed to advancing construction engineering education and fostering a community of excellence. Thank you for your continued dedication to our shared mission.

Environmental Engineering (EVE)

Treavor H. Boyer, PhD
Professor • EVE Programs Chair

Greetings from Environmental Engineering (EVE) at ASU, which offers BSE and MS degrees in Environmental Engineering. Both degrees continue to grow with over 180 students enrolled in the ABET- accredited BSE degree in EVE and an expected enrollment of 20 students in the MS degree in EVE. The mission of the EVE program is to educate tomorrow's engineers to solve complex environmental problems and design systems at the human, urban, and planetary scale. To achieve this mission, the EVE program is constantly evolving to respond to industry needs, student desires, and faculty goals for the program. As a tangible example, the Environmental Engineering, Civil Engineering, and Construction Engineering programs have moved from a one-semester capstone course to a two-semester capstone experience. In the first semester, students form a team, select a design project, and get paired with an industry sponsor. In the second semester, the student teams prepare a detailed design report in consultation with their industry sponsor, and they present their final project at a newly launched capstone showcase at the end of the semester. A key element of the capstone experience is having a dedicated EVE instructor during the second-semester course. The EVE program is fortunate to have Dr. Jasmina Markovski, Senior Engineer with the Safe Drinking Water Section of the Arizona Department of Environmental Quality, serving as the instructor for the course. The two-semester capstone experience is expected to provide students with enhanced design experience including rigorous technical design as well as teamwork, project management, and technical communication. I look forward to updating you on the progress and accomplishments of the EVE program in the coming years.

Del E. Webb School of Construction (DEWSC) & Construction Management & Technology

Timothy Becker, PhD, PE
Eminent Scholar • DEWSC Programs Chair

The Del E. Webb School of Construction (DEWSC) continues to evolve and grow, supported by its legacy of excellence and the financial support of generous industry partners. Fall 2024 saw the launch of two major initiatives. First, multiple DEWSC faculty members have begun the rigorous curriculum development of an online program to earn a Bachelor of Science degree in Construction Management.

The online option will launch in Fall 2025 with the goal of being the best online construction management program on the planet.

Second, the Del E. Webb School of Construction has launched a marketing campaign specifically targeting parents of high school students. Leveraging social media outlets and signage at construction sites, we are driving parents to a recently launched web site specially designed for them. On the site visitors learn that today's careers in construction management are high-tech, high-paying and high- impact. Also, the website features three video testimonials featuring DEWSC alumni parents with their current DEWSC student daughter/son. The goal of this campaign is to increase our undergraduate enrollment by 250 students over a three-year period.

The master's degree program in Construction Management maintains a strong enrollment, exceeding 200 students in Spring 2025. To fully engage these students, the DEWSC Graduate Student Leadership Council was established in spring of 2024. The Council of eight, supported by more than 30 volunteer DEWSC graduate students, organizes networking events and service activities. Also, in Fall 2024, the Council created and sold the first-of-their kind DEWSC graduate student t-shirts and performed outreach to admitted students to increase enrollment yields.

Program Chair Updates

Graduate Programs

Narayanan Neithalath, PhD
Fulton Professor of Structural Materials
SSEBE Graduate Programs Chair

The graduate degree programs in the School of Sustainable Engineering and the Built Environment (SSEBE) encompass Civil, Environmental and Sustainable Engineering (CESE), Construction Management (CON) and Construction Engineering (Con Eng.). We offer PhD and MS degrees in CESE and CON, MS degrees in Environmental Engineering and Construction Engineering, as well as online Masters degree programs in Construction Management and Sustainable Engineering. We also have a MS degree with a SSEBE focus in Data Science, Analytics and Engineering (DSAE) and an upcoming MS program in AI with a similar focus. Our Masters enrollment in CESE has been steady after the dip during the pandemic, while the construction management Master's program has seen significant growth. The PhD programs in SSEBE has been growing over the past few years, and the Fulton Fellowship program resulted in more than 220 students in our PhD program the past year. The large number of research-active faculty in SSEBE, new hires in thematic areas, increased funding success, and a number of research centers that are part of SSEBE are contributing to this growth that we expect to continue into the future. We continue to recruit talented graduate students from all parts the globe, engage alumni and industrial partners, and contribute to research endeavors around key aspects of national and global interest including climate change, food-water-energy nexus, and infrastructure. We have continued to engage in efforts to increase the number of students from under-represented groups in our graduate program.

Our Civil graduate program is ranked #23 in the U.S. News & World Report Graduate School Specialty Rankings for 2024, and we are #15 among public universities, while our Environmental Engineering is ranked #9 (#7 among public universities). Both our Civil and Environmental graduate programs have improved their rankings from the past year, which is a noteworthy accomplishment. We expect the increase in rankings as well as the visibility of our programs to result in enhanced application and admission rates in our graduate programs. We hope that, with the support of all our constituents, well-wishers, and contributors, SSEBE will have an excellent year ahead in graduate education and research, contributing to solutions to some of the vexing problems facing humanity.

Rosa Krajmalnik-Brown

Dr. Krajmalnik-Brown was granted a patent for her work on **Microbiome Markers and Therapies for Autism Spectrum Disorders**. The patent carries a U.S. patent number of 12,084,727 and was officially granted and became available on 9/10/2024.

Paul Westerhoff

Regents Professor, **Dr. Westerhoff**, was recognized by the **Water Research Foundation** with the **Research Innovation Award**. He has led 14 WRF projects as Principal Investigator and has served on Project Advisory Committees for nine WRF projects.

Enrique Vivoni

The **American Meteorological Society (AMS)** has elected Fulton Professor **Dr. Vivoni** to become a **2025 Fellow**. The Fellow status recognizes individuals who have made outstanding contributions to the atmospheric, oceanic, and hydrologic sciences over a substantial number of years. Less than two-tenths of one percent of AMS Members are Fellows.

Kamil Kaloush

FORTA Professor **Dr. Kaloush** was appointed as the new Chair of the **International Road Federation (IRF Global)** for a two-year term. Kaloush is a globally recognized leader in sustainable engineering, pavement materials, and infrastructure systems. "Professor Kaloush's leadership will further strengthen IRF Global's role as a catalyst for industry advancements, uniting stakeholders to build safer, more sustainable, and resilient transportation systems worldwide," said IRF Chairman Emeritus His Excellency Eng. Abdullah Al-Mogbel.

New Faculty Join SSEBE

Derek Boland

Professor of Practice, Beavers-Ames Chair of Heavy Construction

MSE, Arizona State University

Expertise: Construction Engineering

Matthew Landsman

Assistant Professor

PhD, University of Texas at Austin

Expertise: Physical and chemical treatment processes

David Rosowsky

Professor

PhD, Johns Hopkins University

Expertise: Wind and Earthquake Engineering

Tiezheng Tong

Associate Professor

PhD, Northwestern University

Expertise: Desalination and water purification

Xiang "Jason" Zhang

Assistant Professor

PhD, KU Leuven (Belgium)

Expertise: Environmental building evaluation and design

Angeli Jayme

Assistant Professor

PhD, University of Illinois Urbana-Champaign

Expertise: Pavement rehabilitation and preservation

Shiva Pooladvand

Assistant Professor

PhD, Purdue University

Expertise: Construction automation and intelligent systems

Siyuan Song

Associate Professor

PhD, University of Alabama

Expertise: Construction Safety and Health

Yanbing Wang

Assistant Professor

PhD, Vanderbilt University

Expertise: Traffic flow modeling and simulation

New Research Faculty

Ahmed Ahmed

Research Assistant Professor

PhD, Arizona State University

Expertise: Water Resources Planning and Management

Jesus Moron Lopez

Research Assistant Professor

PhD, University of Alcala

Expertise: Hydrology and Water Resources Science

Nidia Rojas Robles

Research Assistant Professor

PhD, Instituto Tecnologico de Sonora, Mexico

Expertise: Environmental Engineering

Sneha Roy

Research Assistant Professor

PhD, University of Kentucky

Expertise: Transportation

Faculty Accomplishments

Klaus Lackner

Dr. Lackner has been elected as **fellow to the National Academy of Inventors (NAI)**. The NAI Fellows Program highlights academic inventors who have demonstrated a prolific spirit of innovation in creating or facilitating outstanding inventions that have made an impact on quality of life, economic development and the welfare of society. Election to NAI fellow status is the highest professional distinction accorded solely to academic inventors.

National Academy of Inventors (NAI)

Enrique Vivoni

Dr. Vivoni was selected as a new **2024 Corresponding Member of the Mexican Academy of Sciences (AMC)** for his pioneering efforts in advancing scientific development in Mexico and fostering communication and collaboration with distinguished scholars in different countries.

Mexican Academy of Sciences (AMC)

Sergi Garcia-Segura

Dr. Garcia-Segura won the **2024 AZ Water Quentin Mees Research Award**. The AZ Water Association Quentin Mees Research Award celebrates academic achievements by recognizing authors of exceptional research papers. In addition, the award is an effort to bring research in water-related technology to the level of practical use.

Mikhail Chester

Dr. Chester's new publication in *Nature Sustainable Mobility and Transport* on the rapidly changing nature of transportation systems aims to address emerging sustainability and resilience challenges. Transportation systems are rapidly integrating with cybertechnologies and into cyberphysical ecosystems.

Nature Sustainable Mobility and Transport

Samuel Ariaratnam

Dr. Ariaratnam published the fifth edition of *Horizontal Directional Drilling: Good Practices Guidelines*. This updated edition compiled insights from engineers, contractors, manufacturers, vendors, and trade associations into a comprehensive guide for successful HDD crossings. The book outlined best practices for a wide range of HDD applications, aiming to support project professionals in deciding whether HDD was appropriate for specific utility installations.

Horizontal Directional Drilling: Good Practices Guidelines

Elham Fini

Dr. Fini recently published a book in November 2024 entitled, *Bio-Based and Bio-Inspired Pavement Construction Materials*. The book demonstrates how bio-based and bio-inspired materials can be used in pavements to solve problems related to sustainability while simultaneously enhancing the mechanical properties of materials. Supply chain management, life-cycle analysis, and environmental assessment of using these materials are all covered in this volume as well.

Bio-Based and Bio-Inspired Pavement Construction Materials

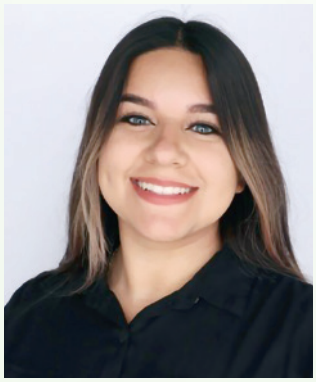
Student Honors and Awards

2024-25 Dean's Dissertation Award

Congratulations to **Gabriel Cerron** who was selected as one of the **2024-25 Dean's Dissertation Award** winners. Gabriel was selected from a highly competitive group of nominees for this award that recognized contributions of Fulton Engineering doctoral students in their dissertation work and highlighted original and innovative outcomes. Gabriel's work has clearly demonstrated the outstanding qualities we look for in our student recipients of this award.

ASHE Phoenix Sonoran Scholarship Recipient

Congratulations to **Sabrina Ross** who was a recipient of the **ASHE Phoenix Sonoran Scholarship** for $4,000! She stated the following, "I'm incredibly grateful for your guidance and for bringing this scholarship opportunity to my attention. Your support and attention to each student has played a key role in helping me continue my studies, and I truly appreciate it. Additionally, I wanted to express how much I enjoyed your course this semester. The material was both engaging and enlightening, especially through the stories and real-life connections both of you would tell."



CONACyT Scholarship Awarded

Congratulations to **Raquel Barranco**, advised by Saurav Kumar, who was awarded this honor in 2024. She stated, "**CONACyT** is Mexico's federal agency for **Science and Technology**, so receiving this scholarship is not only a great financial support but also holds significant career importance for me."

2024 Helene M. Overly/Esther Kmetty Scholarship

Congratulations to **Jolina Karam** for being awarded the **WTS Helene M. Overly/Esther Kmetty Scholarship 2024** from WTS Metropolitan Phoenix! She stated the following, "I'm grateful to WTS for recognizing my work and for their commitment to empowering women in the transportation industry. My sincere thanks to Dr. Kamil Elias Kaloush for his invaluable guidance, and my colleagues for their endless support throughout my journey at Arizona State University."

David M. Dolan Scholarship Award

Congratulations **Nusrat Khan**, a 2nd year PhD student in SSEBE, was honored with the prestigious **David M. Dolan Scholarship** for her graduate research contributions in the field of statistics, mathematical modeling, data analysis, and quantitative decision support, particularly focusing on the management of Great Lakes ecosystems. This scholarship is awarded to a graduate student whose research advances the understanding and management of Great Lakes ecosystems. The student stated the following, "I am deeply honored to have been chosen as this year's recipient of the award, which carries a value of $3,000."

Celebrating Achievement as a MCLEAPS Intern

Congratulations to **Manikanth Reddy**, a Construction Management and Technology graduate student, who is graduating this May. Manikanth shared: "I am deeply grateful for the unwavering support and incredible opportunities I received at ASU. This journey has been transformative, inspiring me to pursue excellence in all endeavors." Manikanth completed the MCLEAPS program for the second time, proudly representing ASU and his department. Through this prestigious program, in partnership with Maricopa County, he gained hands-on experience in construction procurement, management, and land development while interning with the Office of Procurement Services.

2024-2025 ASU ARCS Scholar

Congratulations to **Maya Suzuki**, advised by Dr. Bruce Rittman, who was selected to receive an **ARCS Foundation award** for the 2024-25 academic year. This recognition of her current and future contributions to scientific knowledge is a significant honor, both for you personally and for Arizona State University.

National Academy of Construction Scholarship Award

Congratulations to **Mackenzie Schmader** for being awarded a **$10,000 NAC Scholarship** for the 2024–25 academic year! Mackenzie earned her bachelor's degree in Construction Management and Technology, completing four internships with commercial general contractors. She also worked with McCarthy Building Companies, contributing to a new academic building on ASU's Tempe campus. At the Del E. Webb School of Construction, Mackenzie revitalized the Advancing Women in Construction chapter, serving as president for two years, and was vice president of the CMAA student chapter. She also led as the ASC Student Competition Chair in 2024 after serving as a team captain in 2023. After graduating in May, she plans to start as a project engineer with a commercial general contractor while pursuing her master's degree through ASU's Accelerated Master's Program.

2024 Scholarships

Almeida, Jovani
DeTommaso Endowment (NAMU)

Almeida, Jovani
Associated Minority Contractors Association (AMCA) NAMU Scholarship

Aponte Pineda, Lesly
Dr. Sandra L. Weber Memorial Scholarship

Aponte Pineda, Lesly
The Beavers Heavy Construction Scholarship

Archer, Mason
Briston Veteran Advancement Scholarship

Ayala, Juventino
James Fann Memorial Scholarship

Balocco, Nolan
Del E. Webb Memorial Scholarship

Banister, Natalie
Daniel and Katherine Mardian Scholarship

Banister, Natalie
James Fann Memorial Scholarship

Barajas, Antonio
Von Berg Scholarship

Barajas, Antonio
Del E. Webb Foundation Undergraduate Student Scholarship

Barrington, Zach
Del E. Webb Foundation Finance and Accounting Scholarship

Barrington, Zach
Jerry King Scholarship

Blair, Antonio
Elyse and Paul Johnson Maroon and Gold Scholarship

Boyer, Ellie
Nellie 'Jean' Randle Scholarship

Bustamante, Ariana
Del E. Webb Foundation Women in Construction Scholarship

Corrales, Zuleyka
Advancing Minorities in Construction

Danekar, Shriya Padmanabh
Martin H. Rosness Memorial Scholarship

Delfosse, Patrick
Ben C. Griggs Memorial Scholarship

Dickinson, Preston
James Grose New American University Scholarship (NAMU)

Dickinson, Preston
Von Berg Scholarship

DiLeonardo-Benavides, Vincent
Del E. Webb Foundation Undergraduate Student Scholarship

DiLeonardo-Benavides, Vincent
Samuel F. Kitchell Undergraduate Leadership Award

Duggan, Rylan
Robert H. Johnson Undergraduate Scholarship

Dwyer, Brandon
Von Berg Scholarship

Edwards, Sydney
John G. Colton Construction Study Fund

Edwards, Sydney
Stephen and Therese Pisarcik Scholarship

Edwards, Sydney
Andrew Hanneman Scholarship

Edwards, Sydney
James Grose New American University Scholarship (NAMU)

Garcia, Erica
Carl L. and Jean Wolcott Meng Memorial Scholarship

Garcia, Erica
Paragon Structural Design, Inc. Scholarship

Garcia, Erica
Olsson Scholarship

Gardnerjordan, Liv
Del E. Webb Foundation Women in Construction Scholarship

Gardnerjordan, Liv
R. Glen Schoeffler Scholarship

Gardnerjordan, Liv
D. L. Withers Construction Scholarship

Gehrmann, Alexander
Frank M. Chandler Memorial Scholarship

Gehrmann, Alexander
Robert H. Johnson Undergraduate Scholarship

Gonzalez, Macy
Daniel and Katherine Mardian Scholarship

Gonzalez, Macy
Von Berg Scholarship

Gonzalez, Macy
Jim Bebout Scholarship

Hamblin, Cameron
Construction in Indian Country Native American Scholarship

Hamblin, Cameron
Briston Veteran Advancement Scholarship

Hayden, Kelly
Anderson Family Scholarship in Memory of Lola Ann Andrews

Hubbard, Aidan
A.G.C. Construction ASU Student Scholarship

Jimenez, Maria
Matthew Witczak Scholarship

Johnson, Jennifer
Daniel and Katherine Mardian Scholarship

Johnson, Jennifer
Del E. Webb Memorial Scholarship

Johnson, Parker
The Beavers Heavy Construction Scholarship

Kadhem, Fatem
Rod J. McMullin SRP Water Resource Scholarship

Kadhem, Fatem
Edd and Gail Gibson M&G Leaders Scholarship

Kelly, Jacob
Engineering Veterans Scholarship - Raytheon

Krause, Zachary
Charles and Nancy O'Bannon Scholarship - Civil

Lajoie, Madeline
Kaloush Family Scholarship

Le, Dylan
Terracon Scholarship

Long, Leonard
Construction in Indian Country Native American Scholarship

Longacre, Sarah
Andrew Hanneman Scholarship

Longacre, Sarah
Ron Pratte Scholarship

Longacre, Sarah
Jan Bennett Endowed Scholarship

Longoria Valdez, Gerardo
FORTA Endowed Faculty Scholarship

Manago, Lily
Dennis Conway Scholarship

Manago, Lily
Andrew Hanneman Scholarship

Manago, Lily
Richard O. Finley Scholarship

Martinez, Travis
Robert J. Wheeler Memorial Scholarship

Matamba, Renee
Charles and Nancy O'Bannon Scholarship for Construction

Matamba, Renee
The Ames Family Scholarship

Matamba, Renee
7x24 Exchange WIMCO Scholarship

Maupin, Emmy
FORTA Endowed Faculty Scholarship

Mccray, Cayden
D. L. Withers Construction Scholarship

Mccray, Cayden
Eric and Kristina Petrie Scholarship

2024 Scholarships

Mecom, Charlie
Ben C. Griggs Memorial Scholarship

Mecom, Charlie
CFMA Joseph J. Quigley Memorial Scholarship

Mecom, Charlie
Del E. Webb Foundation Finance and Accounting Scholarship

Mendez, Danny
Advancing Minorities in Construction

Meyers, Owen
Del E. Webb Foundation Undergraduate Student Scholarship

Miller, Andrew
Robert H. Johnson Undergraduate Scholarship

Miller, Andrew
Samuel F. Kitchell Undergraduate Leadership Award

Montanez, Thomas
Construction in Indian Country Native American Scholarship

Moss, William
Jan Bennett Endowed Scholarship

Moss, William
John G. Colton Construction Study Fund

Noble, Aidan
William A. Pulice Scholarship Endowment

Noel, Abby
Girls Scouts of the USA Scholarships (Renewals Only)

Nunez, Jose
A.G.C. Construction ASU Student Scholarship

Nunez-Rodriguez, Martha
Wollam Family Scholarship

Orozco, Demian
Terracon Scholarship

Orozco, Demian
Blowers Engineering Scholarship

Orozco, Demian
Structural Engineers Association of Arizona Scholarship

Paulson, Luke
Von Berg Scholarship

Pena, Anthony
Pulte Home Corporation Scholarship

Pena, Anthony
Samuel F. Kitchell Undergraduate Leadership Award

Perry, Aiden
Von Berg Scholarship

Perry, Aiden
Del E. Webb Foundation Undergraduate Student Scholarship

Prey, Haley
Stantec Scholarship

Prey, Haley
Arizona Society of Civil Engineers (AzSCE) Scholarship

Prey, Haley
FORTA Endowed Faculty Scholarship

Raiche, George
Robert J. Wheeler Memorial Scholarship

Reid, Robert
Construction in Indian Country Native American Scholarship

Reid, Robert
A.G.C. Construction ASU Student Scholarship

Reyes Nevarez, Idali
Dusan Krajcinovic and Family Scholarship

Reyes Nevarez, Idali
Matthew Witczak Scholarship

Roberts, Keaton
The Beavers Heavy Construction Scholarship

Roberts, Keaton
A.G.C. Construction ASU Student Scholarship

Rope, Jayden
Von Berg Scholarship

Rowbotham, Fredrick
Jason McElroy Memorial Scholarship

Rudinski, Christian
Del E. Webb Foundation Finance and Accounting Scholarship

Saegert, Matthew
DeTommaso Endowment (NAMU)

Saegert, Matthew
The Beavers Heavy Construction Scholarship

Sanchez, Giselle
Amy Geiser and Kent Geiser Honorary Scholarship

Sanchez, Giselle
Olsson Scholarship

Sanchez, Giselle
Scholarship

Sanchez, Giselle
Marvin Sheldon Memorial Scholarship

Schmader, Mackenzie
Erma E. and Clyde M. Easterly Jr. Construction Scholarship

Schmader, Mackenzie
PENTA Building Group Scholarship

Schroth, Shelby
Robert J. Wheeler Memorial Scholarship

Sensharma, Nikhil
Ed Denison Memorial Technology Award

Serrano, Robert
Tom and JoAnn Prescott New American University Scholarship

Soto Lopez, Noemi
Anderson Family Scholarship in Memory of Lola Ann Andrews

Soto Lopez, Noemi
Carter Opportunity Scholarship

Soto Lopez, Noemi
Rod J. McMullin SRP Water Resource Scholarship

Tang, Lenh
Excellence in Engineering Leadership Scholarship

Taylor, Wayne
Construction in Indian Country Native American Scholarship

Thomas, Justin
Team DSC Scholarship for Excellence in Craftsmanship

Torres, Sebastian
Dave Clifton Memorial and ASPE Chapter 6 Scholarship

Torres, Sebastian
Associated Minority Contractors Association (AMCA) NAMU Scholarship

Torres, Sebastian
Robert H. Johnson Undergraduate Scholarship

Trommler, Aidan
Matthew Witczak Scholarship

Trommler, Aidan
Jamal Sarsam Civil Engineering Award

Vannatta-Hamasaki, Courtney
Wollam Family Scholarship

Vass, Shane
D. L. Withers Construction Scholarship

Vass, Shane
Von Berg Scholarship

Vedder, Taylar
Jan Tuma Memorial Scholarship

Wargo, Jasmine
CFMA Joseph J. Quigley Memorial Scholarship

Wargo, Jasmine
FNF Construction, Inc. Scholarship

Wells, Aubrey
Erma E. and Clyde M. Easterly Jr. Construction Scholarship

Wells, Aubrey
Opus West Construction Corporation Undergraduate Scholarship

Woodward, Kade
Robert H. Johnson Undergraduate Scholarship

Woodward, Kade
Ben C. Griggs Memorial Scholarship

2024 Fellowships

Ali, Mohammed Arshad
Del E Webb Foundation Graduate

Arumugam, Dharan
Subby Rajan Structural Engineering Fellowship

Collins, Hannah
Phoenix/Scottsdale Groundwater Contamination Scholarship for Environmental Science

Duran, Melanie
LC Jacobson Graduate Fellowship

Fairchild, Aaron
Subby Rajan Structural Engineering Fellowship

Garza Chapa, Ana K.
Betty Hum Graduate Assistantship

Hogue, Derek
Phoenix/Scottsdale Groundwater Contamination Scholarship for Environmental Science

Jain, Shivangi
Kavazanjian Fellowship

Shah, Krisha Birenbhai
Del E Webb Foundation Graduate

Doctoral Graduates 2024

Aker, Saed N. A.
Design and Performance of Cold Recycled Asphalt Mixtures
Chair: Hasan Ozer

Alrajhi, Ashraf
Impact of Three-Dimensional Stress Pulse Confgurations and Rest Period on Permanent Deformation Characteristics of Asphalt Concrete Mixtures
Chair: Hasan Ozer

Alsanea, Anwar
The Recovery of Elemental Sulfur from High Sulfate Phosphogypsum Water using Membrane Biofim Reactors
Chair: Bruce Rittmann

Alyakoob, Ali
On the Impacts of Urban Heat on Cooling Energy Use in Hot Climates
Chairs: Oswald Chong and Ariane Middel

Cleary, Joseph
Data Driven Insights into Building Project Performance and Outcomes Through Advanced Data Analytics
Chair: Anthony Lamanna

Das, Partho
Graphite nanomaterial fertilizer additives reduce nitrate leaching through agricultural soil
Chair: Paul Westerhoff

Doll, Alisa
Optimizing Traffic Signals During Peak-Period Congestion: A Polynomial Fluid and Survival-Based Approach
Chairs: Xuesong Zhou and Kohinoor Kar

Geisbush, James
Using Reliability Centered Maintenance (RCM) Analyses to Develop Large Diameter Water Pipeline Maintenance Strategies
Chair: Samuel Ariaratnam

Karam, Jolina
Innovative Modifcation and Testing of Asphalt Crack Sealants
Chair: Kamil Kaloush

Kwon, Patrick
Experimental and Numerical Analysis for Microbially Induced Desaturation and Precipitation(MIDP) for Liquefaction Mitigation
Chair: Edward Kavazanjian

Li, Xiwei
Bio-Based Scour Mitigation for Underwater Foundation Systems
Chair: Junliang Tao

Long, Xiangxing
Heterogeneous Magnetic Submicron Particles from Biogenic and Pollution Sources
Chairs: Bruce Rittmann and Paul Westerhoff

Longyang, Qianqiu
Machine Learning-enhanced Hydrologic Modeling under Changing Climate
Chair: Ruijie Zeng

Luo Xiangyong
Strategic Planning for Scalable Electric Vehicle Charging Networks: Integrating Operational Dynamics and Spatial-Temporal Analysis
Chair: Xuesong Zhou

Mehrabi Moezabadi, Daniel
Enhancing Competence in Civil Engineering: Assessment of International Research Experiences on Graduate Students
Chairs: David Grau and Samuel Ariaratnam

Rahman, Md Nafiur
Fiber Reinforcement Technology in Developing High-Performance Asphalt Concrete
Chair: Hasan Ozer

Wei, Shiqi
Towards Sustainable Irrigation Management: a Machine Learning Approach to Monitoring and Optimization
Chair: Tianfang Xu

Yao, Chuncheng
Detection of Agricultural Drainage Infrastructure in Intensively-managed Landscape
Chair: Ruijie Zeng

2024 Outstanding Graduates

Aidan Trommler
BSE in Civil Engineering

Kamerin Calhoun
BSE in Environmental Engineering

Zachary Barrington
BSE in Construction Management and Technology

Manaswini Khadilkar
MSE in Construction Management and Technology

Landon Walker
BSE in Construction Engineering

Justin Crawford
BSE in Civil Engineering

Vishnu Kotta
BSE in Environmental Engineering

Jacqueline King
BSE in Construction Management and Technology

Ivy Shockley
BSE in Construction Engineering

Leadership and Service Awards

Haley Prey
Keaton Roberts
Matthew Saegert
Yash Mogre
Amelie Clark
Ethan Baum
Noah Butzine
Harrison Borgman
Zane Arrendale

4.0 GPA Awards

Hiilei Anderson
Ethan Baum
Antonio Blair
Natalie Blum
Thomas Brueske
Noah Butzine
Amelie Clark
Justin Crawford
Aaron Fairchild
Daisha Hill-Hurtado
Jacqueline King
Vishnu Kotta
Benjamin Makinen
Emily Marvin
Carlos Mendez Aceves
Cameron Morgan
John Murnane
Brian Navarro Carrillo
Haley Prey
Aidan Trommler

Engineer-in-Training Certification

Abishek Aryal
Simon Aswathy
Lilian Banzon
Jonathan Brown
Jordan Canales
Andrew Castaneda
Amelie Clark
Jake Cooper
Rajesh Dangi
Prey Haley
Daisha Hill-Hurtado
Jolina Karam
Patrick Kwon
Albert Ledezma
Carlos Mendez Aceves
Jesus Mendoza Pimentel
Zachary Noun
Si Thu Tun Oo
Buehler Opal
Matthew Pedersen
Easton Peterson
Jakob Pongratz
Kim Qury
Ryan Rodriquez
MonaSharaf
Aswathy Simon
Tsegazeab Tedla
Dominic Varda
Anthony Vargas
Alnuaimi Wed
Milheim Wolf
Jason Zhang
Luquette Zoe

First-Year Student Tackled Erosion Challenges Through FURI Research

Civil engineering major **Henry Nakaana** chose ASU for its strong focus on research and sustainability, which aligned with his passion for solving real-world problems through innovative, impactful solutions. In his second semester—the earliest a student could join the Fulton Undergraduate Research Initiative (FURI)—Nakaana worked with Assistant Professor **Emmanuel Salifu** on a project engineering fungi to help stabilize soil in areas prone to wildfires, erosion, and landslides due to extreme weather.

Making a splash in water professions

The Society of Water and Environmental Leaders provides ASU students with hands-on experience in the water and wastewater industry

The Society of Water and Environmental Leaders tour the South Tempe Water Treatment Plant and observe water management in action. Photo courtesy of Vishnu Kotta.

Ensuring water accessibility and quality is essential for a healthy society, and changemakers often need hands-on experience to make a difference.

Despite strong job opportunities, the Bureau of Labor Statistics projected a decline in water and wastewater treatment plant operators over the next decade, with about 10,500 openings annually, primarily in government roles.

To encourage students to enter this field, the **Society of Water and Environmental Leaders (SWEL)** offered professional development, networking, and industry experience.

Diving into Water Careers

Vishnu Kotta, SWEL president and an environmental engineering undergraduate student in the School of Sustainable Engineering and the Built Environment, was eager to get involved with others on campus as a sophomore after spending his first year learning remotely due to the COVID-19 pandemic. "The sense of community got me hooked," he said. Though primarily composed of environmental and civil engineering majors, SWEL welcomes students from all disciplines and connects them with top infrastructure firms.

Monthly meetings provide insights into water and wastewater treatment, hydrology, and public sector engineering. Collaborations with industry groups like the AZ Water Association help members secure internships and jobs.

Preparing for the Industry

SWEL equips students through resume reviews, career workshops, and facility tours. "We help expand students' understanding of industry opportunities and demystify hiring," Kotta explained. Guest speakers share technical projects and career experiences, offering valuable insights.

Beyond professional growth, SWEL fosters a close-knit community. "It connects passionate individuals making a positive environmental impact," Kotta said.

Advancing Our Future Workforce

Students pose for a photo on an Okland Construction Company, Inc. job site. The Del E. Webb School of Construction, requires students in the construction management and technology undergraduate degree program to complete two internships to prepare to enter the lucrative and rapidly growing construction industry. Photographer: Erika Gronek/ASU

Building a modern construction workforce

ASU's Del E. Webb School of Construction is preparing students for a thriving and increasingly advanced industry

Building a Family Legacy

Megan Mehas grew up assisting in her family's construction business, **Mehas Construction**, founded by her grandfather in 1985. Along with her younger brother Logan, they plan to continue the family's legacy but first, their parents insist they gain industry experience.

"I feel my ASU education was key to my success," said **Ryan Mehas**, an alumnus of the Del E. Webb School of Construction. "The foundation my kids receive will prepare them to continue what I've built."

Megan, now a junior in the construction management program, has embraced leadership roles, including serving as president of the Advancing Women in Construction student organization. Logan will begin his studies after graduating high school in 2025.

A Changing Industry

Since Ryan's time at ASU, the school has evolved to integrate technology, offer more student organizations, and attract more women to the field. CEO and alumnus James Murphy encouraged students to consider construction, citing the high demand for skilled professionals. Construction also began incorporating emerging technologies like drones, autonomous machinery, and exoskeletons, creating new career paths in digital engineering, IT, and logistics.

Career Readiness

With two required internships, nearly 100% job placement, and strong industry connections, our construction program has ensured graduates are workforce-ready.

"Del E. Webb students are highly sought after," said Jake Speck of Kiewit Infrastructure. Alumni like Colton Blakley credited ASU for preparing them with real-world skills.

Phoenix's booming construction market offers ideal opportunities, with construction management salaries averaging $104,900 annually. Our strong alumni network further supports students in securing jobs.

"The program consistently delivers top-tier graduates," said Mike Godbehere, CEO of GCON Inc. "It's one of the best in the country."

Advancing Women in Construction Club at ASU encourages women to break barriers

Women remain underrepresented in the male-dominated construction industry despite progress in gender equality.

"It's still male-dominated, but more women are joining, bringing fresh perspectives to building and management," said **Monica Perrin**, an assistant teaching professor and construction management graduate student.

Organizations like **Advancing Women in Construction (AWIC)** aim to close the gender gap and support women in the field. However, challenges persist. "You are the minority voice in meetings and on-site," said civil engineering junior **Abby Noel**.

A lack of female role models discourages many from entering construction. Perrin and junior **Megan Mehas** were inspired by their fathers in the industry. Perrin's survey of women in construction found that mentorship—both male and female—was crucial for support. "A man's voice is often heard quicker in meetings," she noted.

Confidence is key to breaking barriers. "You have to assert yourself," Noel said. AWIC fosters a supportive community, connecting members to national initiatives for gender diversity.

Ultimately, advancing women in construction requires industry-wide efforts. "Feeling welcome depends on company culture," Noel added. "Confidence comes from within."

From solar energy to water quality to art, honors graduate fulfilled many interests at ASU

Erin Burgard pursued her diverse interests—engineering, solar energy, water quality, languages, and art—while an undergraduate at Arizona State University. She graduated in May with a bachelor's degree in environmental engineering, a Spanish minor, and a certificate in environmental humanities, earning honors from Barrett, The Honors College.

As a **NASA Space Grant intern**, Burgard researched the effects of heat and pressure on perovskite solar cells under assistant professor **Nicholas Rolston** at ASU's **MacroTechnology Works**. Her honors thesis explored perovskites as a potential replacement for silicon in spacecraft and solar panels. She also spent summer 2023 at Vanderbilt University's Research Experience for Undergraduates, studying thin films for solar applications.

Beyond research, Burgard mentored first-generation and underrepresented students as an **Engineering Futures Mentor and Program Aide**. She also served as project development manager for **33 Buckets**, a nonprofit providing clean water solutions in rural Peru.

Creatively, she founded **Handmade with Love**, a custom greeting-card business featuring her paintings and calligraphy. Her designs were used in nonprofit fundraisers and donor appreciation events.

Burgard aimed to use her engineering degree and Spanish fluency to work abroad in Spain, embracing travel, cultural exchange, and new experiences.

Assistant Professor Sergi Garcia-Segura is developing interdisciplinary solutions for accessible and equitable water treatment. Photo by Erika Gronek/ASU

Engineering equitable solutions for the food-water-energy nexus

The nexus of food, water, and energy had long been the foundation of civilization and remained a key global challenge. As the population grew and climate change intensified, managing these resources sustainably became increasingly critical. **Sergi Garcia-Segura**, an assistant professor, led groundbreaking efforts to balance industrial demands for food production, water supply, and energy generation and emphasized the interconnectedness of these vital industries.

His research focused on optimizing water accessibility through nanotechnology-based electrochemical processes that removed pollutants—such as nitrates—while recovering valuable resources like ammonia. By utilizing sustainable materials, his innovative approach made these processes more cost-effective and environmentally friendly.

His work attracted significant funding from organizations including NASA, the Bill and Melinda Gates Foundation, and the National Science Foundation. He also explored the use of nanobubble technologies to enhance water treatment, prevent harmful algal blooms, and improve membrane filtration processes.

Garcia-Segura's contributions earned him international recognition, including the 2023 Emerging Investigator Award from the Sustainable Nanotechnology Organization. Within ASU, he collaborated on numerous water conservation and efficiency projects, with a particular focus on addressing Arizona's water-stressed environment. He also played a key role in the NSF-funded NEWT (Nanotechnology-Enabled Water Treatment) center, which aimed to provide clean water solutions in off-grid regions.

"Electrochemical technologies could make water treatment more accessible," he had stated. "Strengthening accessibility would empower the food-water-energy nexus and positively impact communities."

Professor Xuesong Zhou stands along a street featuring multiple modes of transportation. Zhou leads an interdisciplinary team developing open-source systems that help cities build multimodal transportation that is equitable and sustainable. Photo by Bobbi Ramirez/ASU

Tackling traffic with open-source mobility solutions

Equity and sustainability goals guide team's design of software systems for transportation modeling

Traffic congestion, poor air quality, and limited mobility were key transportation challenges in the U.S. ASU professor **Xuesong Zhou** led an interdisciplinary team that developed **CONNECT**, an open-source platform aimed at improving equitable and sustainable transportation planning.

Funded by a $1.5M NSF grant, CONNECT standardized transportation data, helping municipalities make informed infrastructure decisions. The project integrated multimodal mobility solutions, including walking, cycling, and public transit, to reduce reliance on personal vehicles and address accessibility challenges for underserved populations.

By streamlining data collection and planning, CONNECT enabled transportation agencies to act proactively rather than reactively. The platform's open-source nature accelerated the adoption of innovative models, making transportation planning more efficient and inclusive.

"This vision was for the community, by the community," Zhou said.

Engineering low-carbon building materials

New Fulton Schools research center aims to reduce greenhouse gas emissions from cement and concrete manufacturing

Cement was essential for construction but also a major source of carbon dioxide emissions, contributing to climate change. Its environmental impact threatened resources, housing, and societal stability.

To address this, ASU's Center for **Carbon Efficient and Advanced Manufacturing of Materials and Structures (CAMMS)**, led by Professor Narayanan Neithalath, aimed to decarbonize cement production, which was responsible for over 20% of industrial carbon emissions.

CAMMS explored new materials, optimized construction methods, and digital manufacturing (3D printing) to reduce cement's carbon footprint. The center also researched ways to incorporate recycled materials and improve the sustainability of reinforced concrete for infrastructure projects.

Professor Narayanan Neithalath (right), is pictured in the Advanced Cementitious Materials Laboratory on the Tempe campus with engineering doctoral students. Through research guided by Neithalath, these students and others have gained experience working with carbon-efficient cement manufacturing methods, 3D-printing of concrete and multiphysics modeling and simulations. Photo by Erika Gronek/ASU

ASU researcher Ricardo Eiris is developing an online platform to increase accessibility to valuable learning experiences

Teaching construction realities with virtual environments

Virtual field trips revolutionized construction education at ASU

Visiting construction sites once gave students valuable exposure to real-world engineering—offering sights, sounds, and scale they couldn't get from textbooks. But logistical challenges like time, safety, and limited access often made such experiences difficult.

To solve this, Assistant Professor, **Ricardo Eiris** led the development of **iVisit**, a web-based virtual reality (VR) platform. Backed by a $2 million grant from the National Science Foundation, iVisit aimed to improve technical education and workforce readiness by making immersive learning more accessible.

Unlike traditional VR tools that require headsets and technical know-how, iVisit runs on standard browsers across laptops, tablets, and smartphones. This flexibility allows students and instructors to explore interactive construction environments anytime, anywhere.

Eiris collaborated with experts from the University of Missouri and the University of Florida to develop spatial communication skills—essential for visualizing and conveying three-dimensional ideas. Students could draw, gesture, and collaborate in shared virtual spaces, enhancing learning beyond what lectures or textbooks could offer.

Built on Mozilla's open-source 3D platform and integrated with Amazon Web Services, iVisit lets users create, share, and modify virtual field trips. With input from over 140 institutions in the Associated Schools of Construction, it was tested in 16 courses and reached around 2,000 students.

Originally designed for construction education, iVisit also shows promise in STEM fields like semiconductor manufacturing and electrical engineering—anywhere immersive visualization of complex processes can boost understanding.

"This alternative lowered barriers to entry and welcomed all into the classroom," said Eiris, who sees iVisit as a long-term solution to make education more inclusive and engaging.

Climate change raises challenge to secure vital resource

ASU researchers aiding efforts to keep Colorado River Basin water flowing in U.S. Southwest and beyond

Professor Enrique Vivoni

Nobel laureate Albert Szent-Györgyi emphasized the vital role of water in sustaining life. As environmental challenges grew, technological advances became crucial to securing water resources.

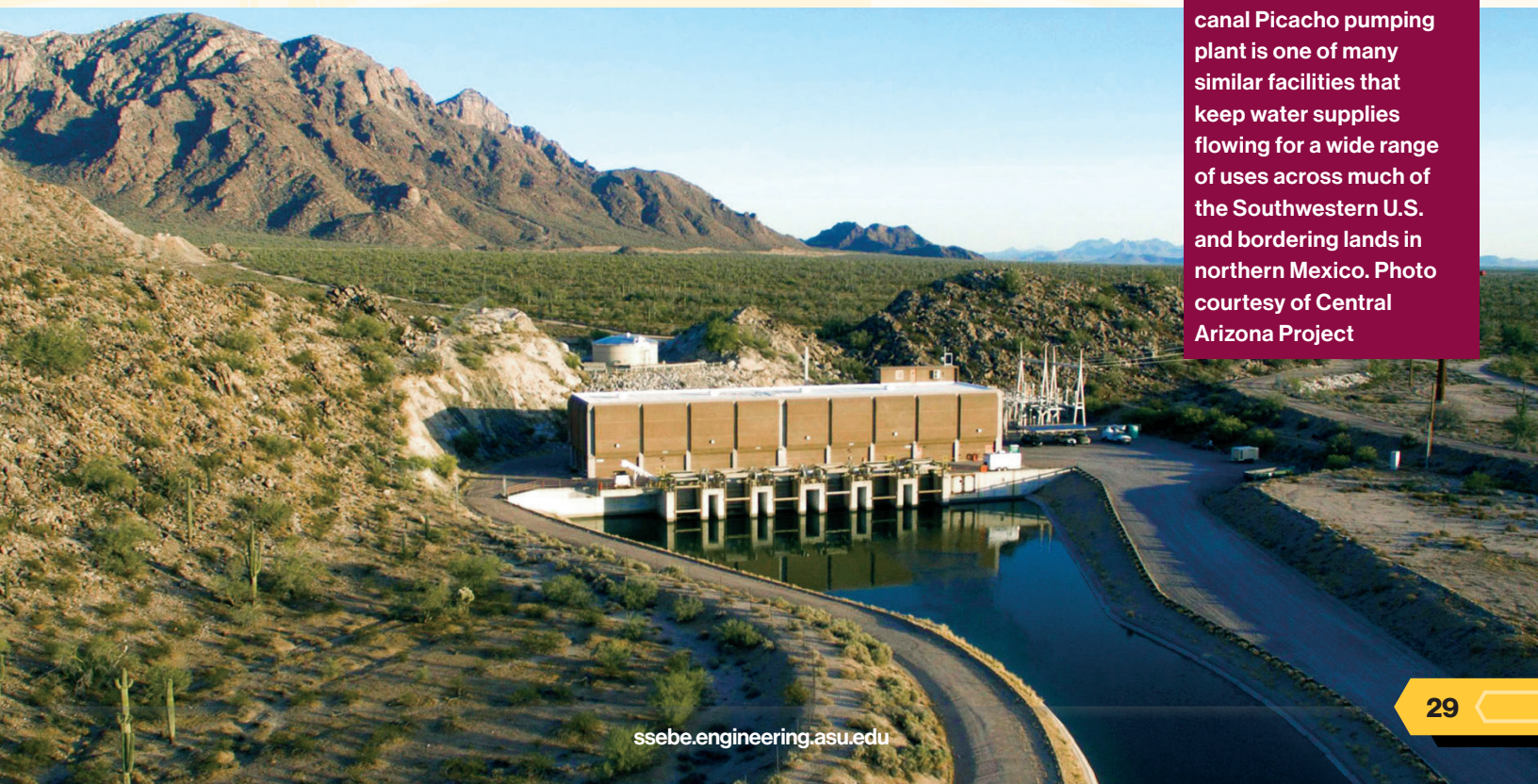
The Colorado River Basin, which supplied water to seven U.S. states and parts of Mexico, faced declining stream flows due to shrinking snowpacks. A study in Water Resources Research warned that climate change-induced shifts from snowfall to rainfall could further deplete water levels.

Researchers from ASU's Center for Hydrologic Innovations, led by professor **Enrique Vivoni**, developed hydrologic models to forecast future water supply. Their findings aimed to guide policymakers in managing this critical resource.

The project, in collaboration with NASA and the Central Arizona Project (CAP), sought to forecast the effects of future droughts on the Colorado River Basin. As Arizona faced water shortages due to prolonged drought, CAP had to reduce water deliveries.

The goal was to help CAP anticipate water conditions for the next 20 to 100 years, guiding water management for farmers, cities, and tribes. Researchers also studied how water shortages had affected farmers, suggesting adaptations like crop changes or using groundwater.

Warmer climates and reduced snowpack led to decreased streamflow, even if future precipitation increased. This understanding was essential for renegotiating water allocation rules between U.S. states and Mexico, feeding critical discussions for future water management.



The Central Arizona Project's Colorado River canal Picacho pumping plant is one of many similar facilities that keep water supplies flowing for a wide range of uses across much of the Southwestern U.S. and bordering lands in northern Mexico. Photo courtesy of Central Arizona Project

Why chip manufacturers choose Arizona's desert environment

Researcher explains the questions surrounding water conservation innovations within Arizona's chip industry

The success of a product depended on its development and environmental impact. Manufacturers increasingly sought to balance innovation with sustainability.

Semiconductor fabrication facilities, or fabs, consumed large amounts of water, even as they expanded into Arizona's arid climate. To address this, fabs aimed to achieve net-zero water manufacturing, working with researchers and municipalities to implement zero liquid discharge, a method that recovers all water and safely disposes of residual contaminants.

ASU Regents Professor **Paul Westerhoff** highlighted how the semiconductor industry thrived in Phoenix despite water scarcity. He noted that regions with the greatest water challenges often led in conservation innovation.

Fabs purchased city tap water but had to further purify it to meet ultrapure standards. Manufacturing chips required multiple cleaning cycles using ultrapure water, as even microscopic particles could ruin production. After use, fabs treated and reused water for cooling and other processes, though direct reuse in chip manufacturing remained a challenge.

Arizona Water Innovation Initiative conducted research to advance industrial water reuse, aiming to reduce fabs' water footprints. Companies in Arizona voluntarily adopted zero liquid discharge, despite higher costs, to meet sustainability goals.

Researchers explored new methods, including harvesting ultrapure water vapor from the air and refining chemical recovery processes. Efforts to replace harmful substances like PFAS were also underway.

Sustainability challenges remained, particularly in balancing water reuse with energy consumption. However, industries recognized their responsibility to conserve resources, especially in water-scarce regions like Arizona.

Regents Professor, Paul Westerhoff, the Fulton Chair of Environmental Engineering in the School of Sustainable Engineering and the Built Environment, and member of the Arizona Water Innovation Initiative, discussed why and how the semiconductor industry has established a strong presence in the Phoenix area.

Background image: Adobe Stock

An irrigated urban green space in Gilbert, Arizona, part of the Phoenix metropolitan area. Professor Zhihua Wang, and his former doctoral students Peiyuan Li and Chenghao Wang pioneered first-of-its-kind research to understand how green spaces and irrigation systems can reduce the urban heat island effect and reduce carbon emissions. Photo courtesy Peiyuan Li

Professor Zhihua Wang poses with a portable weather station. Wang's research focuses on urban system dynamics, numerical modeling and energy-efficient water technologies. Photo by Bobbi Ramirez/ASU

How can cities go green to beat the heat?

ASU researcher explains how urban green spaces can impact sustainability practices in Phoenix and nationwide

As temperatures across the U.S. rose, researchers investigated ways to sustainably cool entire cities. Urban areas, key battlegrounds in addressing the heat island effect and climate change, had long relied on green spaces to mitigate heat and carbon emissions. However, the effectiveness of urban greenery had remained unclear.

"The goal was to use urban greening and irrigation to cool the environment and mitigate carbon emissions," said Professor **Zhihua Wang**. "But our research revealed that the process is much more complex."

A lack of data and modeling had previously hindered understanding of how green spaces affected surrounding urban areas, making evidence-based decisions difficult.

Wang's team, including doctoral students **Peiyuan Li** and **Chengchao Wang**, published groundbreaking research in *Nature Communications*. Their study was the first to explore the interactions between heat, carbon emissions, climate, and urban green spaces in the U.S.

Their findings offered guidance for cities, particularly in the Phoenix area, on designing green spaces and managing irrigation to reduce heat stress, water use, and carbon emissions, supporting urban sustainability goals.

Workers from Arizona Materials spread fresh concrete over the last section of the northern spur Phoenix Metro Valley light rail line extension. Using fiber-reinforced concrete enhances worker safety because they don't have to navigate stepping over rebar while they pour and spread the concrete. Photo by Charlie Leight/ASU News

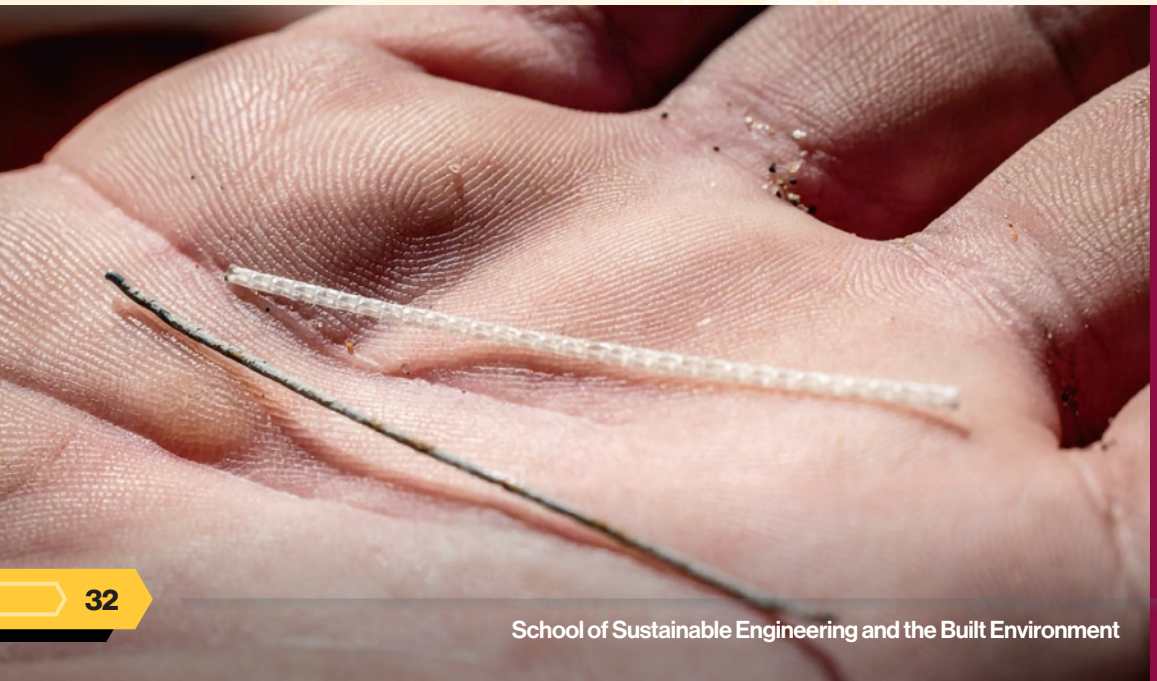
Fiber-reinforced concrete cuts time, cost on light-rail project

Looking to reduce project costs on a critical light-rail expansion project, Valley Metro—working with Professor **Barzin Mobasher**—used a new fiber-reinforced concrete (FRC) instead of traditional steel-reinforced concrete for the track slabs. The use of FRC significantly reduced the required slab thickness and made the construction process less labor-intensive, thereby decreasing construction time and costs while increasing project sustainability.

Cost Savings Needed

Valley Metro required significant savings during the development of its Northwest Extension Phase II project. The 1.6-mile extension, which opened for revenue service on January 27, expanded Valley Metro's existing 28-mile light-rail system.

During planning, the estimated costs for the extension project increased significantly, prompting a value engineering process. Reductions in materials, labor, traffic control, and construction time were evaluated. This value engineering approach resulted in 75 proposed options, of which 60 were accepted—including the substitution of FRC for traditional rebar-reinforced concrete. These changes resulted in a total savings of $60 million, representing 23% of the project's construction cost.



Thin fibers of steel and polypropylene are being used in the concrete mixture for Phoenix Valley Metro's light rail extension. Using the fibers instead of rebar cuts costs and construction time as well as decreasing the carbon footprint and increasing sustainability. Photo by Charlie Leight/ASU News

State and university collaboration to address innovative PFAS treatment options

A federal rule to reduce PFAS in drinking water had given utilities time to comply. In Arizona, the Department of Environmental Quality (ADEQ) oversaw implementation.

Dr. Treavor Boyer had advised ADEQ on treatment methods for PFAS, which were hard to detect and remove due to health risks at low concentrations. His research showed that while activated carbon was widely used, ion exchange resin removed a broader range of PFAS more effectively.

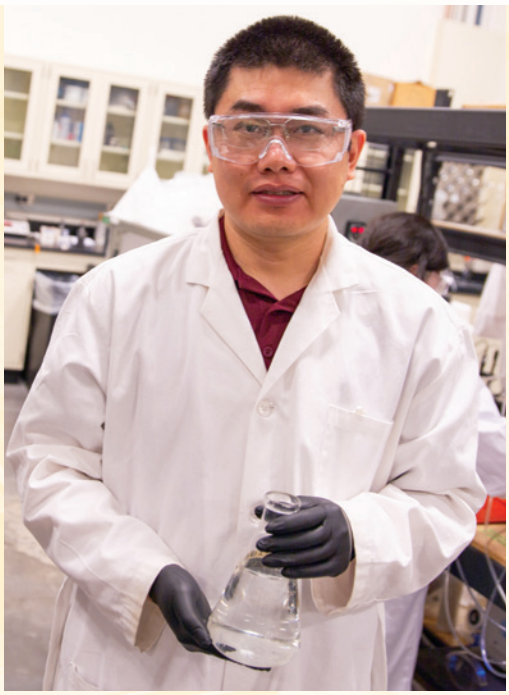
Managing the collected PFAS was a challenge. Resin could be regenerated, generating less waste, but the process was complex and required specialized chemicals.

Boyer's team conducted research tailored to Arizona's water, helping ADEQ evaluate resin regeneration and costs. He also noted that PFAS were one of many "emerging contaminants," including phosphorus, which he studied through NSF-supported research.

He emphasized the importance of working with regulators and utilities to translate research into practical solutions.

Driving green desalination

Tapping Arizona's natural power to produce clean water



Most natural water sources were unsafe to drink due to high salt content, which dehydrated the body. While desalination improved water security, it remained costly and posed sustainability challenges.

In Arizona, where water conservation was essential, communities aimed for zero liquid discharge by recovering nearly all treated water and converting waste into reusable solids.

Dr. Tiezheng Tong, an associate professor, developed inland desalination technologies to address water scarcity. With over $1.2 million from the National Science Foundation, his lab enhanced brackish water treatment by increasing recovery, cutting brine waste, and improving energy efficiency using reverse osmosis, nanofiltration, solar energy, and a heat pump-powered crystallizer.

Tong assembled a multidisciplinary team to evaluate the project's impact. Collaborator Shihong Lin highlighted its relevance amid climate-driven water shortages.

The project also offered educational benefits. Graduate student Yiqun Yao said it sharpened her research and critical thinking skills.

Tong's team pursued sustainable, community-focused solutions for Arizona's water challenges.

Rosa-Krajmalnik Brown, a professor of environmental engineering in the School of Sustainable Engineering and the Built Environment and director of the ASU Biodesign Center for Health Through Microbiomes, has adapted her microbiome research for applications across various fields. Photographer: Erika Gronek/ASU

Microbes, medicine and mentorship

Fulton Schools researcher generates new revelations in health, biology and environmental engineering

Professor **Rosa Krajmalnik-Brown** built a dynamic career by adapting her expertise across disciplines—from environmental engineering to microbiome research and human health. She began her academic path in bioremediation, using microbes to clean environmental pollutants, which led to her first patent during her doctoral studies. Though the gene patent was later invalidated, it provided valuable insights into the legal aspects of innovation.

Upon joining ASU as a postdoc nearly 20 years ago, she initiated multiple research areas, including water treatment and microbiome science. Her understanding of microbial systems eventually transitioned into human gut health research, examining the microbiome's role in metabolism, chronic illness, and autism. Krajmalnik-Brown partnered with President's Professor James Adams to explore the connection between gut health and autism. Their work revealed that children with autism lacked certain beneficial microbes. This insight led to diagnostic and treatment innovations, resulting in over 40 issued patents and the founding of **Gut-Brain-Axis Therapeutics Inc.**, which raised over $6 million.

As director of ASU's **Biodesign Center for Health Through Microbiomes**, she fostered a collaborative environment, mentoring young researchers and helping others succeed. Her blend of scientific curiosity, engineering application, and translational impact positioned her as a leading inventor and influential academic.

Paving precision: Navigating the path to pavement quality control

Professor Hasan Ozer

Creating a solid foundation has always been key to the success in both education and construction. For urban planners, roads kept communities connected and shaped traffic patterns. But before roads served the public, they had to be properly built and maintained to ensure safety.

Once plans were set, contractors laid asphalt designed to endure heavy use and harsh weather. A major challenge in paving was maintaining an even asphalt mix with consistent temperature. Poor rolling, weather, or handling led to irregular compaction, reducing pavement quality and lifespan.

Non-uniform density caused cracks, rutting, and potholes, that led to costly repairs. Final quality checks determined if roads met standards or needed rework — that impacted budgets and timelines.

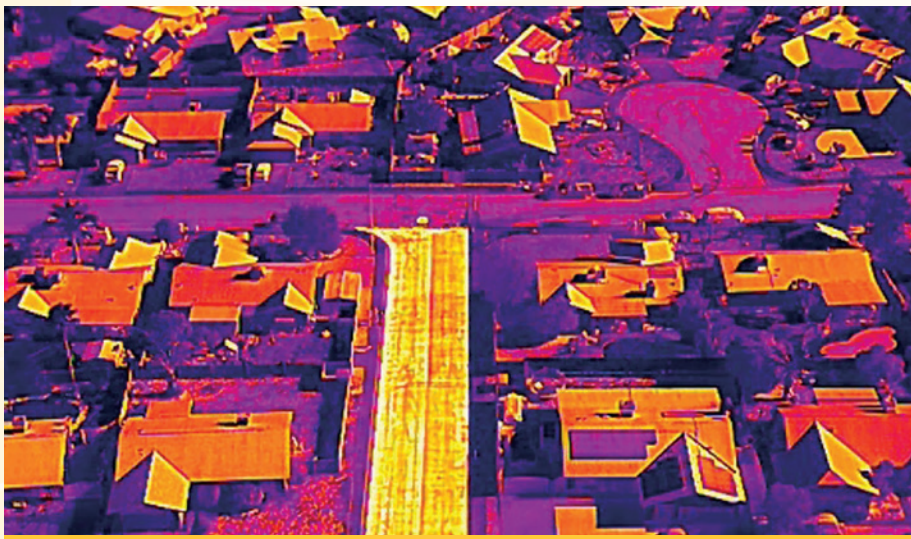
Professor **Hasan Ozer**, emphasized that transportation infrastructure is a community's most valuable asset.

Ozer and his team developed cost-effective technology to help contractors correct paving issues early. Using drones equipped with thermal sensors and AI-driven analysis, they tracked temperature variations and compaction in real time.

"Real-time feedback saved time, money, and improved quality," Ozer said.

The study, funded by the U.S. Department of Transportation, allowed crews to adjust rolling patterns and equipment methods on the spot. Industry experts like Tim Murphy praised the approach for its potential to save millions in repairs.

Following early success, Ozer's team expanded testing in Mesa, Arizona, partnering with M.R. Tanner Construction and the city's pavement management team. The project also examined the effects of extreme heat on pavement aging and tested coating technologies.



Professor Hasan Ozer is using thermal sensors to track irregularities during the asphalt paving process to advance quality control practices. Image courtesy of Hasan Ozer

Mesa officials valued the partnership, seeing it to extend roadway lifespans and improve safety. The test site would be monitored over two years.

Ozer hoped to apply the technology across other cities and states, offering students hands-on experience and accelerating real-world impact.

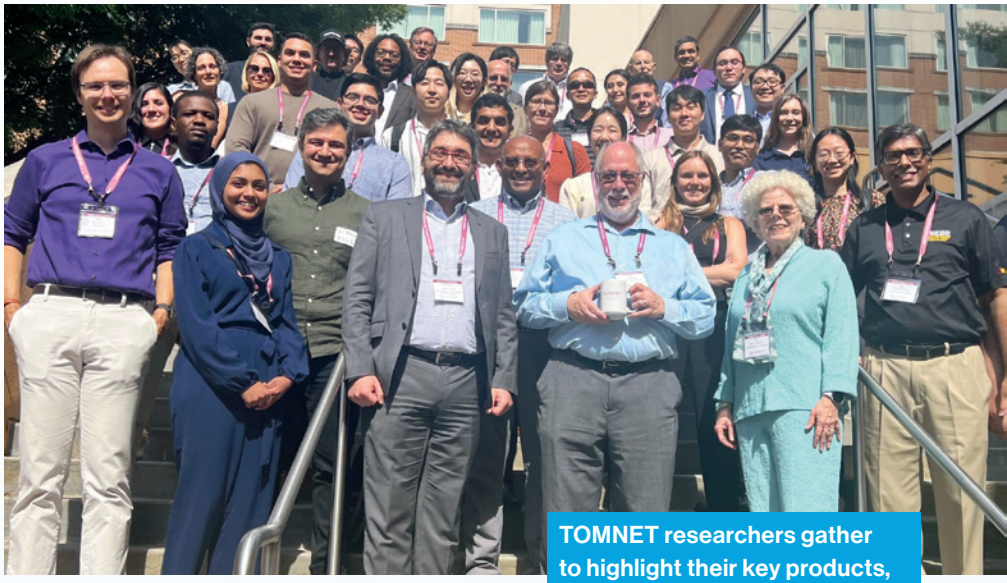
M.R. Tanner's Dominick Martinez called the technology a valuable tool, reinforcing their commitment to quality. The research also became part of contractor training programs in several states.

Ozer credited ASU's innovation ecosystem for supporting the project's development and potential commercialization. Talks with contractors and manufacturers aimed to advance the technology further.

"The collaboration showed that working together leads to better outcomes," Martinez said. "It's our job to deliver the best for our communities."

TOMNET builds a legacy of data, innovation and student success

ASU travel behavior research provides insights on the future of transportation



TOMNET researchers gather to highlight their key products, including 60 research projects, dozens of publications, more than 50 webinars and a web presence with resources, seminar recordings and presentations to share center findings generated by the U.S. Department of Transportation tier 1 University Transportation Center at the TOMNET Grand Finale Event. Consortium member Georgia Tech hosted the May 2024 event. Photo courtesy TOMNET

TOMNET's Legacy: Advancing Transportation Research and Workforce Development

After seven years of research and innovation, the Center for Teaching Old Models New Tricks (TOMNET) concluded its work, releasing tools, data sets, and dashboards to improve transportation planning. TOMNET is a U.S. Department of Transportation Tier 1 University Transportation Center funded by the Fixing America's Surface Transportation Act. Partner institutions included Georgia Tech, the University of South Florida, and the University of Washington.

During the grant, TOMNET completed 60 research projects, generated dozens of publications, conducted over 50 webinars, and built a web presence offering many resources, seminar recordings, and presentations to share findings. The center also facilitated transdisciplinary collaborations, built networks, and disseminated results, according to Steven E. Polzin, a research professor with the TOMNET Center.

Key Contributions to Transportation Planning

TOMNET developed four major open-source tools:

- **Time Use, Travel, and Telework Dashboard** – Analyzed time use trends and travel behavior using American Time Use Survey data.
- **Wellbeing Platform** – Identified inequities in activity-travel well-being across populations.
- **Transformative Transportation Technologies Survey** – Examined the impact of emerging mobility technologies on travel choices.
- **COVID Future Survey** – Provided data on pandemic-induced travel behavior shifts, informing policy adjustments.

These tools helped policymakers address inequities and enhance transportation sustainability. TOMNET's research on pandemic impacts, led by Associate Director Deborah Salon, gained national recognition.

Shaping the Future of Mobility

Beyond research, TOMNET played a key role in workforce development, supported students through funding, mentorship, and networking opportunities. ASU researchers presented findings at the **May 2024 TOMNET Grand Finale Event** at Georgia Tech and are set to showcase their work in Washington, D.C., in August.

Looking ahead, ASU researchers will continue their work through the National Center for Understanding Future Travel Behavior and Demand, funded by the DOT. With a five-year research award, the team remains dedicated to advancing sustainable and equitable transportation systems.

Image: Adobe Stock

Professor Samuel Ariaratnam, chair of the construction engineering program, leads a $4.3 million DOE project.

DOE program aims to enhance, protect America's power grid

ASU awarded $4.3M to improve power grid reliability, resiliency and security

The institution received a U.S. Department of Energy (DOE) grant through the $34 million **GOPHURRS** program, which focuses on modernizing the power grid with high-speed undergrounding technologies. ASU's project, led by Professor **Samuel Ariaratnam**, a construction engineering professor, is developing a water-jet underground construction tool to deploy medium-voltage electrical cables and conduits simultaneously, reducing costs and construction times by up to 50%.

Ariaratnam explained that this new technology would eliminate the need for a hard drill bit and provide enhanced safety, stability, and reliability for communities. ASU's award totals $4.3 million over three years. The project aims to strengthen the power grid by making underground installation faster and more cost-effective, and it could also improve grid security by reducing vulnerabilities to weather-related damage.

The DOE's Advanced Research Projects Agency-Energy (ARPA-E) funds this effort, part of 12 projects designed to modernize the U.S. power grid. The partners include Vermeer Corp and Brierley Associates. The project aims to support the development of new equipment and techniques for trenchless underground construction, improving resilience in critical infrastructure.

The project also contributes to increasing awareness of underground power distribution as a reliable and resilient solution to the challenges posed by climate change and extreme weather. Undergrounding power lines reduce the risk of outages caused by weather and improves the security of the grid by eliminating above-ground components, making systems less susceptible to damage.

The overall goal of these projects is to develop cost-effective, high-speed, and safe undergrounding technologies that will contribute to a clean electrical grid by 2035.

Background image: Adobe Stock

Navigating uncharted waters: ASU drives solutions for water resilience

In the Southwest, water exists in two conflicting states: abundance and scarcity. While turning on a faucet may seem to provide an endless supply of water, ongoing drought, extreme heat, reduced precipitation, and high demand have strained the region's water resources.

The Southwest has been in the grip of a megadrought since 2000—the driest period in the last 1,200 years. In a region already known for its arid climate and extreme heat, a secure water supply is vital for survival and development.

Regents Professor **Paul Westerhoff** advanced the **Arizona Water Innovation Initiative**, which focused on providing actionable, evidence-based solutions to strengthen water security in the state. The initiative has successfully patented technologies, empowered communities, and enhanced understanding of Arizona's water challenges.

ASU's newly launched **Water Institute**, part of the **Julie Ann Wrigley Global Futures Laboratory**, works across academic disciplines to develop research, education, and communication projects that benefit communities worldwide.

Water resilience faces numerous challenges—it is essential for life, agriculture, energy, and technology. From food production to cooling systems for desert heat, water impacts nearly every aspect of human life. Addressing these challenges requires diverse expertise, strong collaboration, and creativity.

In the face of this unprecedented challenge, ASU has led efforts to secure a thriving water future for Arizona and beyond. By acting as a testbed for transdisciplinary solutions, ASU has positioned itself at the forefront of innovation in water resiliency.

Sinking cities: How land subsidence is affecting Arizona

Arizona Is Sinking: How Groundwater Pumping Fuels Land Subsidence


Professor Edward Kavazanjian

Arizona may have lacked rising sea levels, but it faced another serious geological challenge—land subsidence.

Over 3,000 square miles of the state were sinking due to excessive groundwater extraction, according to the Arizona Geological Survey.

Professor **Edward Kavazanjian**, a geotechnical engineering expert, explained that while subsidence could be slowed or halted, it could not be reversed. As land compacted, it lost its ability to absorb water effectively, increasing the risk of fissures that could damage roads, utilities, and infrastructure.

The best way to combat subsidence was to reduce groundwater pumping, but that required alternative water sources. Some Arizona cities, like Scottsdale, were already exploring direct potable water reuse.

Kavazanjian also advocated for expanding groundwater management areas to impose stricter regulations on water use. Without intervention, Arizona's sinking landscape could have posed increasing risks to urban infrastructure and long-term water sustainability.


A scientist studies an earth fissure in the greater Phoenix area.


Earth fissure in the metro Phoenix area.

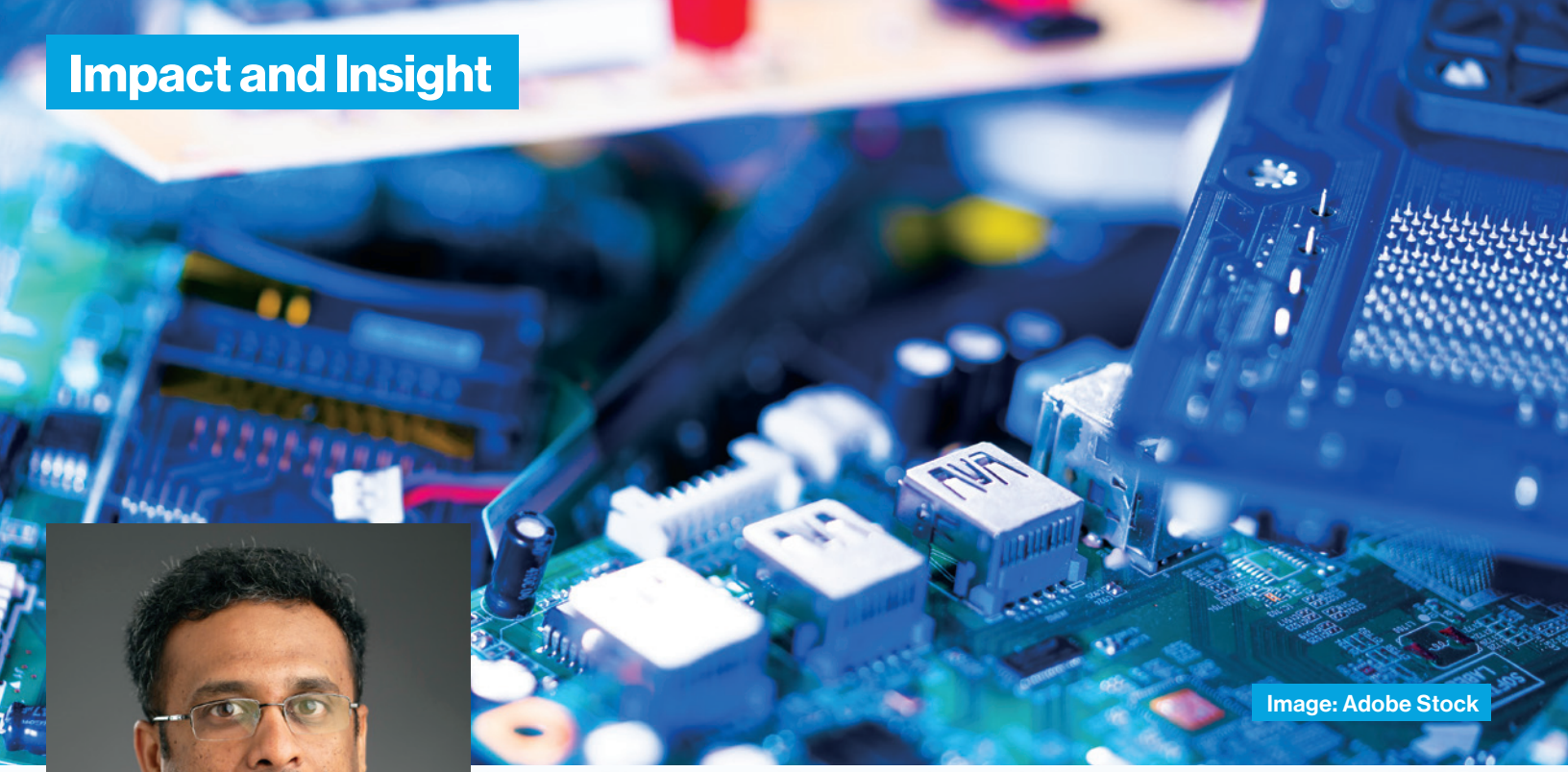


Image: Adobe Stock

Professor Dwarak Ravikumar

Arizona's Role in E-Waste and the Circular Economy

In 2023, the world produced over 137 billion pounds of e-waste, equivalent to 685 fully-loaded Nimitz-class aircraft carriers.

Less than a quarter of this e-waste was recycled properly, leaving valuable materials like precious metals to end up in landfills. As Arizona became a tech hub with companies like Intel and TSMC expanding, the demand for valuable resources such as copper and lithium continued to grow. With the increasing production of electronic devices, proper e-waste recycling became more important than ever.

Professor **Dwarak Ravikumar** emphasized the need for a "circular economy," where manufacturers reclaimed old devices and recycled their materials for new ones instead of sending them to landfills.

Improper disposal of e-waste could release toxic substances like heavy metals into the environment. The circular economy offered significant economic opportunities, including job creation in recycling and material reuse.

Ravikumar also highlighted that mining materials like copper and lithium could be toxic and harmful to both the environment and human health, especially when not handled responsibly. In Arizona, proposed lithium mines raised concerns about environmental damage and impacts on tribal communities. Globally, some materials, such as cobalt, were mined under hazardous and unethical conditions.

Ravikumar advocated for "design for circularity," where products were created to be both easily repaired and recyclable at the end of their life. He also supported the Right to Repair movement, which pushed for laws requiring companies to provide replacement parts and repair manuals.

To support the circular economy, Ravikumar suggested consumers buy from companies with closed supply chains and take advantage of trade-in programs that encouraged recycling. Companies like Apple and Best Buy offered free recycling services for old devices.

Overall, Ravikumar stressed that adopting sustainable practices and focusing on a circular economy could help reduce e-waste production, benefiting Arizona's economy and environment, and having broader positive effects beyond the state.

Inspiring new environmental engineering insights

ASU Students Gain Global Insights on Water and Environmental Challenges in China

Just before the fall 2024 semester, six of the institution's students and a faculty member from the Ira A. Fulton Schools of Engineering traveled to Tongji University in Shanghai, China, for an international exchange on environmental engineering. Joined by students from Georgia Tech and Rutgers University, the group explored innovative approaches to water management, sustainability, and environmental science.

Professor Teresa Wu emphasized the value of global collaboration in tackling environmental challenges, while Regents Professor **Bruce Rittmann**, a longtime research partner with Tongji, played a key role in organizing the summer school program. Over five days, participants learned from Tongji researchers about urban water and sewage management, renewable energy, and environmental contaminant removal.

Participants of the 2024 Tongji University Environmental Science & Engineering Summer School program pose with a sign welcoming new students to the university's College of Environmental Science and Engineering. The Ira A. Fulton Schools of Engineering worked with Tongji University to create a new global experience to foster collaboration and the exchange of ideas about engineering solutions to common environmental challenges. Photo courtesy of Mackenzie Boyer

The trip provided our students with new perspectives on global environmental issues. Master's student Riley Berg appreciated seeing how water challenges are addressed outside the U.S., while mechanical engineering junior Ethan Sheard gained insights on sustainable water treatment methods. Computer science senior Siddhant Jain explored ways to integrate AI and predictive modeling into water treatment processes.

By exchanging ideas with international researchers, our students broadened their understanding of environmental challenges and explored innovative solutions that could shape the future of sustainable engineering.

Gerardo Flintsch announced as 2024 recipient of the Wilbur S. Smith Award

The ASCE Transportation and Development Institute was pleased to announce Dr. **Gerardo Flintsch, Ph.D., P.E., F.ASCE**, of Virginia Tech, as the 2024 recipient of the **Wilbur S. Smith Award**. The award was established to honor contributions to the enhancement of the role of the civil engineer in highway engineering.

Dr. Flintsch has been the Dan Pletta Professor in Virginia Tech's Department of Civil and Environmental Engineering since 2021 and is the Director of the Center for Sustainable and Resilient Infrastructure (CSRI) at the Virginia Tech Transportation Institute (VTTI), where his work has been instrumental in the field of pavement management. He is also the Vice President and Technical Director of FM Consultants LLC.

Gerardo Flintsch

Dr. Kelvin C.P. Wang announced as 2024 Recipient of the James Laurie Prize

The ASCE Transportation and Development Institute was pleased to announce **Dr. Kelvin C.P. Wang, Ph.D., P.E., Dist.M.ASCE**, of the Western Transportation Institute at Montana State University, as the **2024 recipient of the James Laurie Prize**. The James Laurie Prize was awarded based on contributions to the advancement of transportation engineering.

Dr. Wang is a civil engineering professor and the director of the Western Transportation Institute (WTI) at Montana State University. Throughout his career, Dr. Wang has worked tirelessly to help advance pavement evaluation technology both in the U.S. and internationally.

Dr. Kelvin C.P Wang

Slessman Brothers Recognized for Innovation and Impact

Bill Slessman *(left)*, who earned a BSE in Construction Engineering in 1999 from the Del E. Webb School of Construction, was inducted into the FSE Hall of Fame alongside his brother, **George Slessman** *(right)*. The former ASU football players graduated with degrees in industrial and construction engineering. They built successful careers advancing cloud computing and data center efficiency.

They co-founded companies such as **IO Data Centers**, which pioneered modular data solutions, and continued innovating through ventures like **DCX Data Centers, GYPC Technologies**, and **CR8DL.ai**. Together, they hold multiple technology patents.

A proud Sun Devil family, both met their spouses at ASU, and Bill's sons also pursued engineering degrees at the Fulton Schools. At the Hall of Fame ceremony, the brothers credited their professors for teaching them how to learn quickly and apply knowledge with confidence—an approach they viewed as essential to innovation.

The event celebrated their achievements and reflected the Fulton Schools' growing global influence in engineering, research, and industry. The Slessman brothers stood as examples of the excellence and spirit that define ASU engineering.

More than 150 industry leaders, faculty and alumni attended the School of Sustainable Engineering and the Built Environment's Hall of Fame and Academy of Distinguished Alumni induction ceremony. The celebration honored a group of outstanding inductees who are exemplars in the profession. Photographer: Erika Gronek/ASU

Celebrating industry giants and distinguished alumni

Event honors leaders for elevating communities and shaping futures

Four outstanding alumni and two industry leaders were honored at the School of Sustainable Engineering and the Built Environment's Hall of Fame and Academy of Distinguished Alumni event on Friday, Oct. 4, 2024.

More than 150 industry leaders, faculty and alumni gathered at this invitation-only reception and celebration in the school's atrium to honor these exemplars of leadership and professional service.

"These individuals make our programs and their communities better," said **Matthew Eicher**, assistant director for student success and industry outreach for the School of Sustainable Engineering and the Built Environment, or SSEBE.

Celebrating milestones

This event also celebrated the 15-year anniversary of the founding of the School of Sustainable Engineering and the Built Environment.

The event also marked the 10th anniversary of the building in which SSEBE is housed, celebrating its place as an amazing living laboratory and learning environment, community hub for students and meeting space for industry partners, said **Ram Pendyala**, the school's director.

Phoenix construction leaders inducted into Hall of Fame

Samuel F. Kitchell and **Mary Jo and Paul C. Helmick** were the year's Hall of Fame inductees. They join 14 industry leaders recognized with this honor since its inception in 1990 for contributions to the advancement of the school, including its educational and research mission and preparation of the industry's workforce.

Samuel F. Kitchell

Samuel F. Kitchell, who passed away in 2006, introduced advanced project control systems and championed construction management at Kitchell Contractors, later renamed Kitchell Corporation. He founded the company in Phoenix and led it as president from 1950 to 1979. A key industry partner in creating ASU's construction program in 1957, he remained a strong supporter while leading the company. Kitchell Corporation, now 100% employee-owned, is a respected real estate and construction firm with offices in multiple states.

Celebrating Our Champions

As president of the Arizona Chapter of the Associated General Contractors of America, Kitchell influenced industry standards and practices. He was inducted into the Arizona Business Hall of Fame in 1992.

Known for saying, "My philosophy of life is to enjoy it," Kitchell's community service and philanthropy reflected his values. He served as Heard Museum president, founded the Phoenix Kidney Foundation, and supported the Phoenix Symphony. He also contributed to the Phoenix Art Museum, Phoenix Thunderbirds, and multiple local hospitals. The Kitchell Employee Foundation continues to support various causes today..

Mary Jo and Paul C. Helmick

Paul C. Helmick, who passed away in 2015, was a leader in the mining and equipment industry and owned the Paul C. Helmick Corporation in Phoenix. His wife, **Mary Jo Helmick**, an ASU graduate, shared that he provided scholarships to his employees, believing in giving back to the community, according to Liz Malnory of the ASU Foundation.

After years of supporting Arizona charities, the Helmicks focused their legacy on education, seeing knowledge and access to quality schools as the key to addressing societal challenges. Their financial contributions have helped attract and retain talented students, faculty, and staff at ASU.

Their transformational gift will support student success, leadership, industry engagement, faculty excellence, and state-of-the-art learning environments in the School of Sustainable Engineering and the Built Environment. In recognition, the College Avenue Commons building was renamed the **Paul C. Helmick Center**, and its atrium now bears the name Mary Jo and Paul C. Helmick Atrium.

Prominent graduates added to the Academy of Distinguished Alumni

Tim W. Anderson, Mike Godbehere, Kelvin C.P. Wang and Guy F. Wollam were the year's inductees to the Academy of Distinguished Alumni. They join a distinguished group of 40 ASU graduates honored since the award's inception in 1995, exemplifying the spirit of the New American University through their professional excellence and unwavering support and compassion for their communities.

Tim W. Anderson

Tim W. Anderson, a professional engineer, is executive vice president and Western operating group manager at Terracon Consultants Inc., overseeing safety, development, growth, client experience, and financial performance for more than 1,200 employee-owners across 12 states.

He earned a Bachelor of Science in Engineering in 1987 and a Master of Science in Engineering from ASU in 1992, specializing in geotechnical engineering. With 35 years of experience, he has played key roles in major infrastructure projects, including State Farm Stadium, Verrado Master Planned Community, Chandler Fashion Center, Tempe Center for the Arts, and Salt River Fields at Talking Stick.

Anderson serves on the board of Sunrise Engineering Inc., completed the American Council of Engineering Companies Senior Executives Institute Class 25 Leadership Development Program, and earned a Professional Certificate in Sustainability Strategy from ASU in 2021.

Mike Godbehere

Mike Godbehere, chief operating officer and co-founder of GCON, Inc., earned a Bachelor of Science in construction management from ASU in 1994. With over 35 years of experience, he collaborated with diverse clients to develop custom roadmaps for their goals. Under his leadership, GCON ranked among Arizona's fastest-growing companies.

He served on the Board of Directors for Leadership West and the Arizona Charter Academy, chaired the Del E. Webb School of Construction's Executive Council, and was a member of the Arizona Finance Authority.

Committed to community support, Godbehere provided free training to nonprofits and community organizations. He was recognized as Executive of the Year by the Construction Financial Management Association and was a Sun Devil 100 and Titan 100 honoree.

Kelvin C.P. Wang

For over 30 years, **Kelvin C.P. Wang**, a professional engineer, led efforts to automate pavement distress surveying, shaping industry standards. His work formed the basis for the *American Association of State Highway and Transportation Officials standard MP 47-21*.

Wang joined the Arizona Department of Transportation in 1989, earned a doctorate in civil engineering from ASU in 1992, and began his academic career at the University of Arkansas in 1993. He later became a chair professor at Oklahoma State University and a regents professor before joining Montana State University in 2023 as a professor and director of the Western Transportation Institute.

He developed the first digital pavement data collection system, introduced 3D laser imaging for high-speed pavement analysis, and applied deep learning for automated data processing and safety assessments. His research enhanced safety evaluations of airfields, bridges, and railways, and his AI-based technologies influenced global methodologies.

Wang received the Francis C. Turner Award from the American Society of Civil Engineers (ASCE), was elected a Distinguished Member of the ASCE Class of 2021, and served as president of the ASCE Transportation & Development Institute. Since 1998, he had also been chief technology officer for WayLink Systems Corporation.

Guy F. Wollam

While attending ASU, **Guy F. Wollam** worked on concrete crews and for the U.S. Army Corps of Engineers. After earning a construction engineering degree in 1970, he served seven years in the U.S. Army Reserves and worked for M.M. Sundt Construction. He later became an advanced project engineer for ADOT and held roles from project engineer to vice president at major construction firms.

In 1986, with some cash and a pickup truck, Wollam and his wife, Lana, founded Wollam Construction, a heavy industrial civil construction company in Sandy, Utah. The family-owned business grew to employ 200 and is now led by their son, Matt Wollam, a Del E. Webb School of Construction graduate.

Wollam served on the boards of the University of Utah's Construction Management Program and the Associated General Contractors of Utah and was a member of the American Institute of Mining Engineers. The Wollams supported the Huntsman Cancer Institute, Tee it Up for Cancer, National Disability Center, Utah Tennis Association, and Big Brothers Big Sisters of Utah.

Hall of Fame and Distinguished Alumni honorees' names are permanently displayed on the fourth and fifth floors of the Paul C. Helmick Center, inspiring future generations of industry leaders.

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Friends of Civil & Environmental Engineering

Celebrating 25 years of supporting students and programs

For the past 25 years, the **Friends of Civil and Environmental Engineering (FOCE²)** at the School of Sustainable Engineering and the Built Environment at Arizona State University has demonstrated the value of industry and academia working together to elevate and educate tomorrow's civil and environmental engineering workforce. FOCE² members help close the gap between classroom and workplace that helps make it possible for engineering students to be prepared for industry by creating internship opportunities to interact with industry professionals. Membership in FOCE² provides an opportunity that facilitates meaningful connections with ASU students, faculty, administrators, staff and friends. It makes a profound public statement regarding your support of initiatives that advance the excellence and mission of the university we love.

FOCE²

2024 FOCE² Members

Black & Veatch Corporation, Bowman Consulting, Burgess & Niple, Carollo Engineers, CivTech Inc., Colliers Engineering and Design, Consor Engineers, Inc., Coreslab Structures, Dibble, Entellus, Inc., Gannett Fleming, GHD, Inc., HR Green, Hazen and Sawyer, Kimley-Horn & Associates, Langan Engineering, Meyer Borgman Johnson, Olsson, Speedie & Associates, Stanley Consultants, Terracon, Tetra Tech, Water Works Engineers, Wood, Patel & Associates, Inc., Y.S. Mantri & Associates

The Del E. Webb School of Construction Industry Partner Circle membership contributions are used by the Del E. Webb School of Construction to provide world-class education to construction students. There are several support opportunities for donor directed funds to make a difference.

Over the years, donors have helped the school become a leader in construction education. Some of the activities made possible by donors include awarding over 50 undergraduate scholarships each year, sending student teams to national competitions, hosting international construction conventions, and appointing endowed professors and chairs.

As of printing, the Industry Partner Circle (IPC) includes:

Gold Partners: AECOM Hunt Construction, Cannon & Wendt, CHASSE Building Team, CORE Construction, GCON, Okland, The Penta Building Group, Willmeng Construction

Maroon Partners: A.R. Mays, Arizona Chapter NECA, DPR, Edge Construction, Felix Construction Company, FR Law Group, Haydon, Holder Construction, Hunter Contracting Co., Insurica, Kiewit Infrastructure West Co., Kovach Building Enclosures, Markham Contracting, McCarthy Building Companies, Mortenson, Nox Group/ NXG Shared Services, Performance Contracting Inc., Pulice, Rosendin, Rummel Construction, Skanska, Stevens Leinweber, Sundt Companies, Suntec Concrete, WesPac Construction

Sparky Partners: ACCO Engineered Systems, Buesing Corp., J.E. Dunn Construction Company, KE&G Construction, Inc., LGE Design Build, Whiting-Turner.

Pitchfork Partners: Adolfson & Peterson Construction, Bernards, Big-D Companies, Murray Company, Southland Industries

People of SSEBE

Advising

Michael Sever . . . . . Asst Director, Academic Services
Melanie Duran . Academic Success Advs Coord *(Graduate)*
Megan Foutz. . . . . Academic Success Advisor
Megan Gorvin Short . . Academic Success Adv Coordinator
Sami Tibbetts. . . . Student Services Coordinator Associate
Eric Viney . . . . . Academic Success Adv Coordinator
Rida Imtiaz. . . . . Academic Success Advisor (Graduate)
Abby Still . . . . . Academic Success Advisor
Russell Wilson . . . . . Scheduler

Business Operations

Joseph Bezich . . . . . Asst Director, Business Services
Amisha Parshotam . . . . . Fiscal Specalist
Tyler Norman . . . . . Scholarship Business Specialist Sr
Daniela Trumbo . . . . . .Fiscal Specialist
Theresa Ysaguirre. . . . . .Fiscal Specialist

Human Resources

Grace Pratt . . . . . Human Resources Manager
Keon Askari . . . . . .HR Specialist
Shekia Jefferson. . . . . .HR Specialist Sr
Camdyn Rael . . . . . .HR Specialist

Research Advancement

Charlotte Brown . . . . . Assistant Director, Research Advancement
Megan McDevitt . . . . . .Financial Manager
Sarah Lang . . . . . Financial Specialist Sr
Zylon Williams. . . . . Financial Specialist
Cameron Poe . . . . . Financial Specialist
Juanita Morales-Castro . Research Advancement Admin Sr
Hareg Sabe-Newlon . . . Research Advancement Admin Sr
Wanpeng Xu . . . . . Research Advancement Admin
Erika Parra . . . . . Research Advancement Admin

Executive Support, Events, and Personnel Actions

Kerran Armstrong . . . . Executive Admin Support Specialist
Jessica Batista . . . . . DEWSC Administrative Associate

Information Technology, Facilities, and Laboratory Support

Jason Jedinak . . . . . Laboratory Manager
Jeffrey Long . . . . . Laboratory Manager
Kaylin Thomas . . . . . .Laboratory Coordinator
Garrett Perrea. . . . . .IT and HLMK Building Manager
Jeffrey Ahlstrom . . . . . .Systems Support Analyst
Chrystian Coleman. . . . . .Systems Support Specialist

Industry Engagement and Student Success

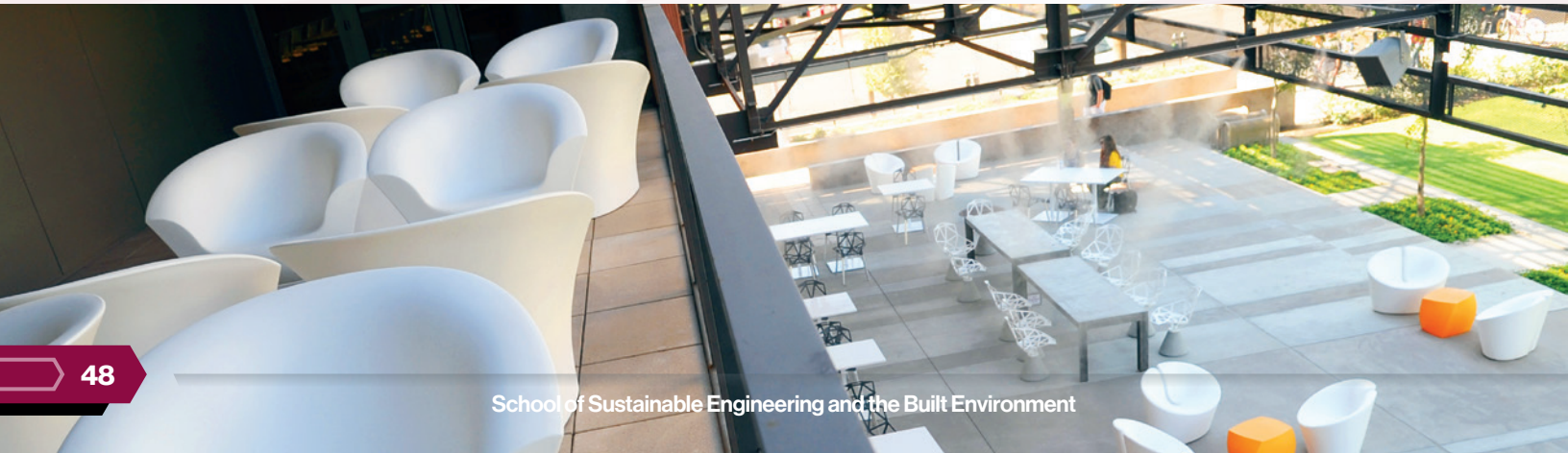
Matthew Eicher . . . . . Assistant Director
Lisa Hogle. . . . . Director, OSHA Training Institute Education Center
Chloe Fagg . . . . . .Office Supervisor
Simon Roberts . . . . . .Program Coordinator
Lixsa Barraza . . . . . .Program Coordinator
Martin Manuel. . . . . .Project Coordinator, CIIC
Sophia Sanchez . . . . . .Administrative Assistant

Marketing, Communications, and Development

Elizabeth Malnory. . . . . Development Officer
Lisa Irish . . . . . Communications Specialist

Research Center Support

Dawn Takeuchi . . . . . .Administrative Director, CBBG
Emma Buchanan . . . . . Project Coordinator, CBBG
Tiffany Rybiski . . . .Project Coordinator, NEWT and STEPS
Jamie Rock. . . . . Business Operations Manager, AzCATI



Faculty Expertise

Morteza Abbaszadegan

Professor
Director, NSF WET Center
PhD, University of Arizona
Expertise: Health-Related Water Microbiology

Ahmed Ahmed

Research Assistant Professor
PhD, Arizona State University
Expertise: Water Resources Planning and Management
❖ **New Faculty**

Braden Allenby

President's Professor
Lincoln Professor of Ethics & Technology
PhD, Rutgers University
Expertise: Sustainable Engineering

Absar Alum

Assistant Research Professor
PhD, University of Arizona
Expertise: Pollution Science, Biotechnology

Jirapat Ananpattarachai

Assistant Research Professor
PhD, King Mongkut's university of Technology Thonburi
Expertise: Environmental Engineering

Samuel Ariaratnam

Professor and Construction Engineering Programs Chair and Sunstate Chair
PhD, University of Illinois at Urbana-Champaign
Expertise: Underground Construction

Irfan Batur

Research Assistant Professor
PhD, Arizona State University
Expertise: Travel Behavior, Sustainable and Equitable Transportation

Tim Becker

Interim Programs Chair, Del E. Webb School of Construction, Eminent Scholar
PhD, North Carolina State University
Expertise: Construction Engineering and Management

Derek Boland

Professor of Practice, Beavers-Ames Chair of Heavy Construction
MSE, Arizona State University
Expertise: Construction Engineering
❖ **New Faculty**

Mackenzie Boyer

Assistant Teaching Professor
PhD, University of Florida
Expertise: Water Conservation

Treavor Boyer

Professor and Environmental Engineering Programs Chair
PhD, University of North Carolina at Chapel Hill
Expertise: Water Treatment

Efthalia (Thalia) Chatziefstratiou

Associate Teaching Professor
PhD, The Ohio State University
Expertise: Engineering Education

Mikhail Chester

Professor and Director, Metis Center for Infrastructure and Sustainable Engineering
PhD, University of California, Berkeley
Expertise: Sustainable Infrastructure

Oswald Chong

Associate Professor
PhD, University of Texas at Austin
Expertise: Energy and Resource Management

Otakuye Conroy-Ben

Associate Professor
PhD, University of Arizona
Expertise: Endocrine Disruption

Faculty Expertise

Paul Dahlen

Assistant Research Professor
PhD, Arizona State University
Expertise: Hydrocarbon Remediation

Anca Delgado

Assistant Professor
PhD, Arizona State University
Expertise: Soil Microbial Processes

Ricardo Eiris

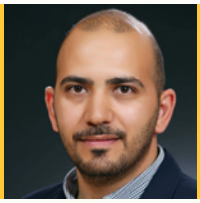
Assistant Professor
PhD, University of Florida
Expertise: Construction Work and Education

James Ernzen

Associate Professor
PhD, University of Texas at Austin
Expertise: Concrete Materials

Gamze Ersan

Research Assistant Professor
PhD, Istanbul University
Expertise: Statistical Modeling



Mahmut Ersan

Assistant Research Professor
PhD, Clemson University
Expertise: Water Treatment

Everett Eustance

Research Assistant Professor
PhD, Arizona State University
Expertise: Environmental Engineering

Elham (Ellie) Fini

Associate Professor
PhD, University of Illinois at Urbana-Champaign
Expertise: Sustainable Materials

Peter Fox

Professor
PhD, University of Illinois at Urbana-Champaign
Expertise: Groundwater Recharge

Matthew Fraser

Professor and Associate Director
PhD, Caltech
Expertise: Air Quality

Margaret Garcia

Associate Professor
PhD, Tufts University
Expertise: Water Resources

Sergio Garcia-Segura

Assistant Professor
PhD, University of Barcelona, Spain
Expertise: Electrochemical Water Treatment
❖ **FSE Top 5% Teaching Award**

David Grau

Associate Professor and Sundt Professor of Alternative Delivery Methods and Sustainable Development
PhD, The University of Texas at Austin
Expertise: Systems Engineering

Udaya B. Halabe

Teaching Professor
PhD, Massachusetts Institute of Technology
Expertise: Nondestructive Testing of Structures and Materials

Rolf Halden

Professor and Director of the Center for Environmental Health Engineering
PhD, University of Minnesota
Expertise: Water and Health

Faculty Expertise

Kerry Hamilton

Associate Professor
PhD, Drexel University
Expertise: Microbiology and Risk

Keith Hjelmstad

President's Professor
PhD, University of California, Berkeley
Expertise: Structural Engineering

Christian Hoover

Assistant Professor
PhD, Northwestern University
Expertise: Fracture Mechanics

Kristen Hurtado

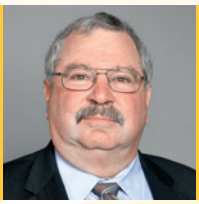
Assistant Teaching Professor
PhD, Arizona State University
Expertise: Project Management

Angeli Jayme

Assistant Professor
PhD, University of Illinois rbana-Champaign
Expertise: Pavement rehabilitation and preservation

Kamil Elias Kaloush

FORTA Professor of Pavement Engineering and Undergraduate Program Chair for Civil Engineering
PhD, Arizona State University
Expertise: Pavements and Materials



Edward Kavazanjian, Jr.

Regents Professor and Director, Center for Bio-mediated and Bio-inspired Geotechnics
PhD, University of California, Berkeley
Expertise: Geotechnical Engineering

Hamed Khodadadi Tirkolaei

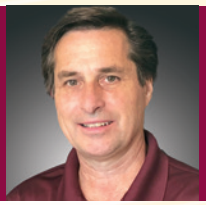
Assistant Professor
PhD, Eastern Mediterranean University, Cyprus
Expertise: Sustainable Geotechnics

Rosa Krajmalnik-Brown

Professor and Director of the Center for Health Through Microbiomes
PhD, Georgia Institute of Technology
Expertise: Microbial Ecology Management

Saurav Kumar

Assistant Professor
PhD, Virginia Tech
Expertise: Water Resources and Remote Sensing



Barry Kutz

Assistant Teaching Professor
MS, Arizona State University
Expertise: Preconstruction Delivery
❖ **FSE Top 5% Teaching Award**

Klaus Lackner

Research Professor
PhD, Heidelberg University, Germany
Expertise: Carbon Sequestration

Anthony J. Lamanna

Associate Professor and Penta Building Group Professor
PhD, University of Wisconsin
Expertise: Sustainable Construction

Peter Lammers

Research Professor
PhD, Portland State University
Expertise: Biotechnology and Bioenergy

Matthew Landsman

Assistant Professor
PhD, University of Texas at Austin
Expertise: Physical and chemical treatment processes
❖ **New Faculty**

Faculty Expertise

Jean Larson

Associate Research Professor and Education Director, CBBG
PhD, Arizona State University
Expertise: Engineering Education

Christopher Lawrence

Associate Teaching Professor
PhD, Arizona State University
Expertise: Geotechnical Engineering

Nariman Mahabadi

Assistant Professor
PhD, Arizona State University
Expertise: Geotechnical Engineering

Michael Mamlouk

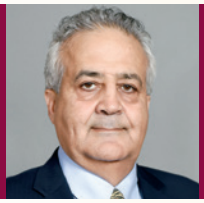
Professor
PhD, Purdue University
Expertise: Pavement Materials

Giuseppe Mascaro

Associate Professor
PhD, University of Cagliari, Italy
Expertise: Stochastic Hydrology

Jose Medina Campillo

Assistant Research Professor
PhD, Arizona State University
Expertise: Transportation and Pavement Materials



Barzin Mobasher

Professor
PhD, Northwestern University
Expertise: Composite Materials

Amin Mojiri

Assistant Research Professor
PhD, University of Science Malaysia
Expertise: Treatment of Water and Wastewater

Jesus Moron Lopez

Research Assistant Professor
PhD, University of Alcala
Expertise: Hydrology and Water Resources Science
❖ **New Faculty**

Narayanan Neithalath

Fulton Professor of Structural Materials and Graduate Programs Chair
PhD, Purdue University
Expertise: Materials Science

Hossein Noorvand

Assistant Research Professor
PhD, Arizona State University
Expertise: Pavement Materials and Characterization

Hasan Ozer

Associate Professor and Director, National Center of Excellence on SMART Innovations
PhD, University of Illinois, Urbana-Champaign
Expertise: Pavements and Sustainability

Kristen Parrish

Associate Professor
PhD, University of California, Berkeley
Expertise: Construction Management

Monica Perrin

Assistant Teaching Professor
MS, Arizona State University
Expertise: Sustainability Design and Construction Trends

Ram Pendyala

Professor and Director of SSEBE
Director, TOMNET University Transportation Center
PhD, University of California, Davis
Expertise: Transportation Systems

Faculty Expertise

Steven Polzin

Research Professor
PhD, Northwestern University
Expertise: Transportation Policy Analyses

Shiva Pooladvand

Assistant Professor
PhD, Purdue University
Expertise: Construction automation, intelligent systems
❖ **New Faculty**

Subramaniam (Subby) Rajan

Professor
PhD, University of Iowa
Expertise: Finite Element Analysis Computational and Experimental Solid Mechanics

Dwarak Ravikumar

Assistant Professor
PhD, Arizona State University
Expertise: Energy Systems, Multi-Criterial Decision Analysis

Jafar Razmi

Associate Research Professor
PhD, University of Maryland
Expertise: Structural Mechanics and Geotechnical

Bruce Rittmann

Regents Professor and Director, Biodesign Swette Center for Environmental Biotechnology
PhD, Stanford University
Expertise: Environmental Biotechnology

Nidia Rojas-Robles

Research Assistant Professor
PhD, Instituto Tecnologico de Sonora, Mexico
Expertise: Environmental Engineering
❖ **New Faculty**

David Rosowsky

Professor
PhD, Johns Hopkins University
Expertise: Wind and Earthquake Engineering
❖ **New Faculty**

Sneha Roy

Research Assistant Professor
PhD, University of Kentucky
Expertise: Civil Engineering
❖ **New Faculty**

Emmanuel Salifu

Assistant Professor
PhD, University of Strathclyde
Expertise: Bio Geotechnical Engineering

Thomas Seager

Associate Professor
PhD, Clarkson University
Expertise: Infrastructure Systems

Siyuan Song

Associate Professor
PhD, University of Alabama
Expertise: Construction Safety and Health
❖ **New Faculty**

Shahnawaz Sinha

Associate Research Professor
PhD, University of Colorado
Expertise: Drinking Water Treatment

Richard Standage

Associate Teaching Professor
PhD, Arizona State University
Expertise: Concrete Specialist
❖ **FSE Top 5% Teaching Award**

Kenneth Sullivan

Professor
PhD, University of Wisconsin
Expertise: Procurement and OCM

Faculty Expertise

Junliang (Julian) Tao

Associate Professor
PhD, Case Western Reserve University
Expertise: Bioinspired Geotechnics

Tiezheng Tong

Associate Professor
PhD, Northwestern University
Expertise: Desalination and water purification
❖ **New Faculty**

Leon van Paassen

Associate Professor
PhD, Delft University of Technology
Expertise: Geotechnical Engineering

Enrique Vivoni

Fulton Professor of Hydrosystems Engineering
PhD, Massachusetts Institute of Technology
Expertise: Hydrologic Science

Zhihua Wang

Associate Professor
PhD, Princeton University
Expertise: Urban Environment

Paul Westerhoff

Regents Professor and Fulton Chair of Environmental Engineering
PhD, University of Colorado
Expertise: Water Treatment

Avi Wiezel

Associate Professor
PhD, Technion-Israel Institute of Technology
Expertise: Human Aspects of Management

Yanbing Wang

Assistant Professor
PhD, Vanderbilt University
Expertise: Traffic flow modeling and simulation
❖ **New Faculty**

Tianfang Xu

Assistant Professor
PhD, University of Illinois at Urbana-Champaign
Expertise: Groundwater Sustainability

Ravi Kiran Yellavajjala

Associate Professor
PhD, University of Notre Dame
Expertise: Data-Driven Structural Engineering

Claudia Zapata

Associate Professor
PhD, Arizona State University
Expertise: Unsaturated Soils

Ruijie Zeng

Assistant Professor
PhD, University of Illinois at Urbana-Champaign
Expertise: Hydrologic Modeling

Xiang "Jason" Zhang

Assistant Professor
PhD, KU Leuven (Belgium)
Expertise: Environmental building evaluation and design
❖ **New Faculty**

Xuesong Zhou

Associate Professor
PhD, University of Maryland
Expertise: Multimodal Network Planning

Farewell: We thank the following faculty for their service and wish them well.

Gary Barras – Assistant Teaching Professor, left September 30, 2024 after two years.

Mounir El Asmar – Associate Professor, left May 15, 2024 after 11 years.

FSE Values

At the Fulton Schools, we:

Cultivate excellence.

Deliver innovation that matters.

Encourage bold thinking.

Foster a community of learning and collaboration.

Build a foundation for all to be successful.

Emeritus Faculty

William W. Badger, PhD

Howard H. Bashford, PhD

Allan Chasey, PhD

Apostolos Fafitis, PhD

G. Edward Gibson, Jr., PhD

Sandra Houston, PhD

William Houston, PhD

Paul Johnson, PhD

Larry Mays, PhD

T. Agami Reddy, PhD

Avinash Singhal, PhD

SCHOOL OF **Sustainable Engineering**
and **the Built Environment**

Sustainable Horizons
Nurturing Minds
Empowering Change

Repeatedly ranked #1

innovation
ASU ahead of MIT and Stanford
— U.S. News & World Report, 10 years, 2016–25

sustainability
ASU ahead of Stanford and Cornell
— Association for the Advancement of Sustainability in Higher Education, 2 years, 2023–24

global impact
ASU ahead of MIT and Penn State
— Times Higher Education, 5 years, 2020–24

Recognized globally as a leading knowledge enterprise, Arizona State University is dedicated to delivering academic excellence, advancing research-based solutions for humankind's greatest challenges, producing strong and compassionate leaders, ensuring the health of our planet and providing quality education for all learners.

ASU Ira A. Fulton Schools of Engineering
Arizona State University

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