2020 - 2021

Benchmarks

DEPARTMENT OF CIVIL, ENVIRONMENTAL AND GEODETIC ENGINEERING

THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Department of Civil, Environmental and Geodetic Engineering
The Ohio State University
470 Hitchcock Hall | 2070 Neil Avenue | Columbus, OH 43210

On the cover: the recently-renovated exterior of Bolz Hall. Learn more about the exciting transformations taking place within these walls on page 7.

TO ALUMNI AND FRIENDS

Dear alumni and friends,

Welcome to "*Benchmarks*: Kitchen Sink Edition"!

As *Benchmarks* went to press, I sat with our creative editor, Kevin Satterfield, to identify an emergent theme for this issue. He noted that it was 'sort of (everything but the) kitchen sink'. Really, there couldn't be a more fitting descriptor! Much of our lives over the past year has occurred within a very short range of a kitchen sink somewhere - taking classes, solving research problems, or attending virtual student competitions. I am proud of how our faculty worked together so quickly to provide a supportive learning environment for all of our students through anxiety, time zone and digital access challenges.

Despite the massive disruption of the COVID-19 pandemic, that shifted our whole lives to virtual interactions, you will see, throughout this issue, the hallmarks of resilience and adaptation for which civil, environmental and geodetic engineers are known.

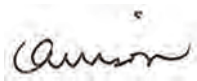
- Innovations by Dr. Zuzana Bohrerova to track community-level COVID-19 incidence in Ohio and by Dr. Alper Yilmaz to track object location using wifi in the absence of GPS.
- Hands-on experimentation with civil, environmental and geodetic concepts through labs and capstone experiences in our newly upgraded, Bolz Hall student learning spaces.
- Building careers through the application of engineering design to benefit society, as exemplified by Ruth Cathers and her grandfather, Fred Cathers, and by Jackie O'Brien.
- Advancing innovative research projects, like those of the inaugural CEGE Summer Undergraduate Research Fellows, the awardees from our first Graduate student symposium, and the recent faculty NSF CAREER Awardees.

I hope you enjoy learning more about these amazing Buckeyes and alumni, students and faculty who have been recognized with prestigious honors and scholarships.

Vaccination selfie with Brutus Buckeye, M.D. - Courtesy of Allison MacKay

In closing, I note that, while this past year has brought renewed focus to our physical and mental well-being, the Department has also had a period of focused renewal as we reviewed both our undergraduate and graduate program curricula. This includes integration of new teaching approaches we have mastered during the pandemic. I look forward to sharing updates in coming issues of *Benchmarks*.

As always, I encourage you to stay in touch - keep us posted about your accomplishments, volunteer as an industry mentor (https://ceg.osu.edu/alumni-friends/industry-mentor-program), or support our student groups and scholarships (https://ceg.osu.edu/alumni-friends/buckeyes-give).



Allison A. MacKay
Chair, Department of Civil, Environmental and Geodetic Engineering

CEGExperiences

(6) D. Vaughan Griffiths, professor, Colorado School of Mines, interacts with guests during the 2021 T.H. Wu Distinguished Lecture, February 2021. The annual event, which features prominent speakers in the field of geotechnical engineering, was held virtually this year.

(7) Demolition begins on the fourth floor of Bolz Hall, March 2020 **(8)** With framing complete, crews begin installing drywall in the Kokosing Design Studio, 4th floor, Bolz Hall, June 2020. *Photos courtesy of Ohio State FOD* **(9)** Associate Professor of Practice Anthony Massari instructs students in-person and via live stream, August, 2020.

(1) Professor of Practice Daniel Pradel (L) and Graduate Teaching Asst. Mehedy Amin (center) conduct a soil mechanics class in the CTL Engineering Geotechnical Lab, September 2020. *Photo courtesy of Daniel Pradel*
(2 & 3) "O" Marks the Spot. Students were welcomed back to a new, socially-distanced Oval for autumn semester, 2020. *Video stills courtesy of University Communications.*
4) Assistant Professor of Practice Jieun Hur promotes the Central Ohio Miniature Bridge Building Competition (COMBBC) 2021. 16 teams from Central Ohio high schools participated in the CEGE-sponsored event, February 2021. *Photo courtesy of COMBBC.*
(5) Garrett Tatum (L), graduate research fellow, and Madiha Ammari (R), graduate teaching associate, take delivery of a new concrete mixer in CEGE's Structural Engineering Laboratory, January 2020. The doctoral students collaborate with Assistant Professor Natassia Brenkus. *Photo courtesy of Natassia Brenkus.*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NEW DEAN BEGINS HER BUCKEYE JOURNEY

Ayanna Howard, PhD, became the 23rd Dean of the College of Engineering on March 1, 2021. Previously, Dean Howard served as chair of the Georgia Institute of Technology's School of Interactive Computing, as well as founder and director of the Human-Automation Systems (HumAnS) Lab.

She received her BS in computer engineering from Brown University and later earned both an MS and PhD in electrical engineering from the University of Southern California. Howard also conducted research at NASA's Jet Propulsion Laboratory and is founder of Zyrobotics, a Georgia Tech spin-off company that develops educational products for children with special needs.

In addition to conducting research to benefit children and families, Howard also advocates for expanded opportunities for underrepresented groups in engineering and STEM-related fields.

"Community and inclusive excellence around students, research, and innovation are my passions," she said. "I'm of the belief that it takes a village to drive excellence, and my goal is to fully support us in that effort." Ohio State University President Kristina M. Johnson celebrated Howard's hiring by stating "Dr. Howard is an innovator whose skills and passion are a perfect fit with Ohio State's focus on convergent research and discovery."

Dr. Howard is the first woman to lead the College of Engineering and is the college's second Black dean.

COE Communications contributed to this article. | Photo courtesy of COE Communications.

COE CELEBRATES DAVID WILLIAMS

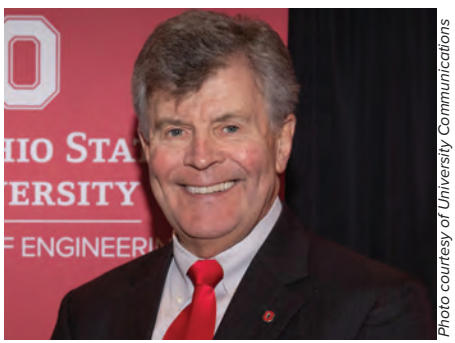


Photo courtesy of University Communications

After a decade of leadership, **David B. Williams** concluded his tenure as the 22nd Dean of Ohio State's College of Engineering on February 28, 2021. His many accomplishments include unprecedented growth in the breadth of the college's research and the size and diversity of its faculty, as well the further cultivation of relationships with alumni and industry.

In a discussion of his service as dean, Williams was quick to credit others for the college's success. "I have been privileged to be the dean of an extraordinary college, staffed by the best team I have ever led, where the brightest students are taught by talented, committed and diverse faculty and staff," he said. "Our alumni and industry partners are generous in the extreme."

Read more at: **https://engineering.osu.edu/news/2021/02/decade-impactful-leadership**

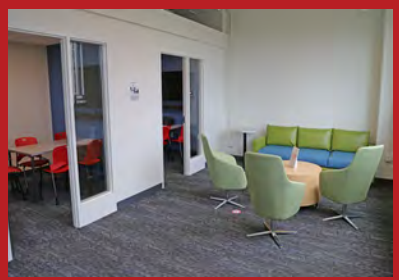
LEARNING ENVIRONMENTS

CONSTRUCTION COMPLETED ON NEW DESIGN FACILITY

Following extensive renovations, the fourth floor of Bolz Hall will serve as a new 'town center' for the CEGE community. The 14,000 square foot facility features student collaboration space, a kitchenette, graduate student offices and conference room, a student advising suite and multi-purpose design studio.

The Kokosing Design Studio includes three studios that may be utilized separately or be combined to accommodate up to 160 students. This vibrant new space is equipped with the latest technology and software and will serve as home for CEGE's capstone program and a 24/7 hub for students' project work and other collaborative activities.

While the COVID-19 pandemic precluded full use of the facility during AU20 and SP21 semesters, some capstone groups were able to use the new space. An official opening ceremony and expanded use of its amenities are forthcoming.



Photos courtesy of COE Communications

READ

Learn how alumni and donor support for this project will enhance the CEGE student experience. | Scan code at right.

SCAN ME

MATERIALS RESEARCH AND TESTING LABS TAKE SHAPE

On October 25, 2019, the department opened the Allan V. Johnson Civil Materials Research Laboratory. This newly renovated, state-of-the-art facility enables CEGE graduate students and researchers to analyze concrete and other construction materials' strength, reactivity, heat release, micron-level shrinkage and other properties.

Allan Johnson (second from left) celebrates with Allison MacKay (L), Asst. Prof. Lisa Burris and Prof. of Practice Michael Hagenberger.

Johnson ('59 CE) was pleased to support students seeking new insights into how concrete forms structures such as tunnels and bridges. “It’s been a rewarding experience for me,” he shared during the ribbon cutting ceremony. **Watch for news about the neighboring Materials Testing Lab, coming in autumn 2021!**

ALUMNI ACHIEVEMENT

OUTSTANDING CEGE ALUMNI HONORED BY COLLEGE OF ENGINEERING

Two trailblazing, CEGE alumni were among 21 recipients honored last September with 2020 Excellence in Engineering and Architecture Alumni Awards. Presented annually, the awards recognize exceptional alumni from across the College of Engineering who have achieved distinction in their fields or through their extraordinary service contributions since graduating from The Ohio State University.

Nien-Yin (NY) Chang (PhD ’76, civil engineering) received the college's Distinguished Alumni Award for Academic Excellence. For over four decades, Professor Chang built an impressive career marked by leadership, scholarship and service to students. At the University of Colorado, Denver, he served as Chair of the Department of Civil Engineering and Interim Dean of the College of Engineering and Applied Science. Dr. Chang also served as director of the university's Expansive Soils Research Center and founded its Center for Geotechnical Engineering.

Dedicated to educating future engineers, Professor Chang contributed to enhancements of the University of Colorado's engineering curriculum, including the development of the engineering college's first doctoral program. He was also a passionate supporter of efforts to bolster the University of Colorado engineering faculty's research initiatives.

Dr. Nien-Yin Chang

Dr. Dorota Grejner-Brzezinska

Dorota A. Grejner-Brzezinska (MS ’95, PhD ’95, geodetic science and surveying) also received the Distinguished Alumni Award for Academic Excellence. A renowned scholar in theory and applications of the Global Positioning System, mapping, and navigation of autonomous vehicles, Dr. Brzezinska is a senior associate vice president for research at Ohio State and associate dean for engineering research.

She served previously as Lowber B. Strange Endowed Chair and Department Chair of the Department of Civil, Environmental and Geodetic Engineering. Dr. Brzezinska is a member of the National Academy of Engineering and was named as both University Distinguished Professor and University Distinguished Scholar in 2020 by The Ohio State University.

Candi Clevenger, COE Communications, contributed to this article.
Photos courtesy of COE Communications.

ALUMNI COMBINE PROFESSION AND PASSION

Jackie O'Brien (BS '89, environmental engineering) was named CEO of Engineers Without Borders USA (EWB-USA) in July 2020. Prior to accepting this new position, O'Brien led environmental engineering and business development initiatives for companies such as Alcoa, Arconic and Vigor. In addition to her engineering credentials, O'Brien also earned an MBA from Case Western Reserve University.

An experienced manager of global teams, she praised EWB's vast volunteer network and ability to contribute to the health of the global community. "The mission and values drew me here," she stated during an introductory statement to the organization. "The community and its vast reserves of talent provide enormous motivation and inspiration."

A passionate proponent of volunteerism thoughout her thirty-year, 'first' career, she spoke of the Buckeye notion of 'paying forward' during a conversation with Ohio State engineering students. " I wanted my second career to be focused on giving back," O'Brien said.

Jackie O'Brien (photo courtesy of J. O'Brien)

WATCH

View Jackie O'Brien's wide-ranging discussion with members of Ohio State's student chapter of Engineers Without Borders.

Recorded, January 2021. | Scan code at right.

SCAN ME

Jairo Alza (photo courtesy of J. Alza)

Jairo Alza (BS 2010, MS 2012, civil engineering) has a passion for engineering. He also loves soccer. So, it seems fitting that the project engineer would coordinate budget management for Turner Construction's integral role in bringing the new stadium for MLS' Columbus Crew to life.

Situated in downtown Columbus, the $300 milliion dollar venue is slated to welcome Alza and fellow soccer enthusiasts to its inaugural match in July 2021.

READ

Read more about Jairo's life, engineering and soccer journeys.

massivereport.com article by Thomas M. Reed. | Scan code at right.

SCAN ME

Ruth Cathers (L) and her grandfather Fred enjoy an autumn afternoon on campus, October 2020

BORN TO ENGINEER

Curiosity, community and family inspire alum

Few members of Ruth Cathers' family were surprised when she informed them that, upon graduation from high school in her native Worthington, she would make the brief trek down the Olentangy bike trail to continue her education at The Ohio State University.

As a child, Ruth ('16 BS, environmental engineering) displayed a technical aptitude, tinkering for hours with models and science kits in the family garage. Her father, Tom, helped nurture her curiosity by taking her to outreach events for school-aged children sponsored by Ohio State's Women in Engineering program. He was simply doing for his children what his father, Fred, had done for him.

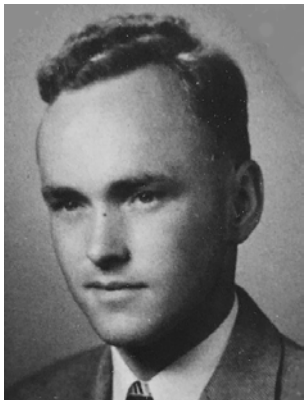
Fred Cathers graduated from Ohio State in 1951 with a degree in civil engineering. He retired from EMH&T in 1999 after a 48 year career committed to community-focused design work on water towers and other projects.

"He wanted to help people," Ruth said. "That really made an impact on me."

Fred came to his chosen profession organically, having served as his father's rodman and chainman starting at age six. His father conducted surveying projects in the Marion, OH area and preferred working with his son, in Fred's words "because I quickly learned what I needed to do for him before he asked for it to be done."

Fred encouraged his grandchildren to embrace that hands-on approach in their education. And he encouraged them to consider Ohio State for those endeavours.

"My grandfather vouched for the quality of the education there," Ruth recalled. Her interest in global, clean water projects drew her to environmental engineering.



F. Cathers, Ohio State senior portrait,1951

Now an engineer at Wade Trim in Asheville, NC, Ruth's passion for water-related projects still persists. "Clean water is an issue in the U.S. too. I want to fix that," she said. "I've found a good niche protecting watersheds in my local area."

She loves the collaborative aspects of engineering and sees the public service aspect of her chosen profession as a testament to her grandfather's legacy. Referring to Fred as "the pump master", she noted that many of her grandfather's initial calculations for water projects in Marion, Marietta and other Ohio communities are still in use today.

"My grandpa inspired me because he was so involved in the community," she stated.

RIGHT: Fred (L) and Ruth Cathers (R) review drawings from his previous public works projects.

FAR RIGHT: Fred and Ruth take in the sights at Triple Falls, DuPont State Recreational Forest, Brevard, NC.

Photos courtesy of Ruth Cathers

Community played a pivotal role in shaping Ruth's undergraduate experience on campus. As a commuter student, various groups inside and outside the classroom helped Ruth build life-long skills and friends alike.

Recalling her days working with her capstone team, Ruth emphasized the lessons those peer-to-peer collaborations taught her about project management. "I had no idea how important communication was until that project," she said. "I now apply those lessons every day in my job."

Various campus-based, extracurricular activities like Ohio State's Outdoor Adventure Center provided a support network of experiences and friends that would help Ruth find what she called a 'deep-rooted why'.

"Student origanizations help you find your 'why'. You get to define what you want your life to look like," she offered. Those bonds also helped Ruth persevere when times got tough. "Having a 'why' can get you through more than you can imagine," said Ruth.

"School wasn't always easy for me," she recalled. "I knew I wanted to help people. I wanted to make my grandpa proud. So, I buckled down and did it."

On a quiet morning in October 2020, a proud grandfather and his granddaughter walked from Hitchcock Hall to Mirror Lake, then back again.

"We took Grandpa back to his roots," Ruth said. "He was a proud Buckeye."

That time spent together reminded Ruth of her years as a Buckeye and the many lessons her grandfather shared with her. "He taught me about loyalty," she stated. "He taught me to the get the most out of your opportunities, to always be present."

Editor's note: Fred W. Cathers, 94, died on November 28, 2020. The entire-CEGE community expresses its deepest sympathy to his family and friends for their loss.

STUDENT ACHIEVEMENT

NEW RESEARCH INITIATIVE ENTERS SECOND

Undergraduate Summer Research Fellows play pivotal role in CEGE research

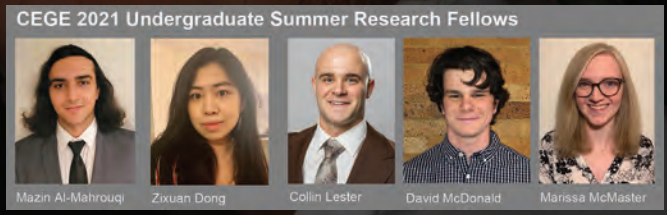
Thanks to the generosity of committed donors, several CEGE undergrads will spend their summer seeking methods to improve mass transit and flood protection systems, reducing vehicle emissions, better determining how buildings collapse and disinfecting the water we drink.

While all CEGE undergraduate students are encouraged to explore research opportunities in the department, the Fellowship gives some students the opportunity to conduct research with faculty members, on a full-time basis, during June, July and August.

Fellows fulfill certain time, reporting and presentation requirements and receive a stipend in exchange for their efforts. Students who have already completed at least one year of research activities are given preference during the selection process.

In 2021, three of the Fellows will address transportation-related research:

- **Marissa McMaster**, working with Professor **Mark McCord** and Ohio State's Campus Transit Lab (CTL), will address ways that data derived from automatic sensors on mass transit systems can be better analyzed and inform recommendations for future improvements of bus system performance around the world.
- **Mazin Al-Mahrouqi** will investigate the concept of progressive collapse in structures including bridges. Collaborating with structural engineering faculty member **Halil Sezen**, Mazin will investigate whether extreme events such as fire, earthquake or impact will cause failure of structural members.
- **Zixuan Dong** and associate professor **Benn Coifman** will use light detection and ranging (LIDAR) data processing to collect data from combustion, electric and hybrid engine vehicle acceleration in real-time traffic. The collaborators seek new sustainable, avenues of research devoted to reducing vehicle emissions.



Other projects will utilize geographical information service (GIS) and address and an emerging method for water treatment:

- **Collin Lester** and Associate Professor **Ethan Kubatko** as intend to improve current scientific models that predict storm surges which result from hurricanes and can cause injuries, fatalities, as well as significant damage to infrastructure and the economy.
- **David McDonald** will assist Assistant Professor **Natalie Hull** in her research focused on the use of ultraviolet (UV) light as a more accessible, sustainable water treatment solution.

These opportunities help students cultivate skills they can utilize in their future professional and educational activities. The awards also represent another way in which alumni can engage with students in the department, which Department Chair Allison MacKay stated was vital to CEGE's mission of training Buckeye engineers.

"I am grateful to our alumni donors who were open to new ways of supporting undergraduate student success via this research Fellowship program," said MacKay.

Read about 2020's inuaugural cohort of Undergraduate Summer Research Fellows at: **https://ceg.osu.edu/news/2020/08/undergraduates-spend-summer-exploring-world-cege-research**

CEGE STUDENT RESEARCHERS AWARDED FELLOWSHIPS

With her bachelor's degree in hand, new CEGE grad **Dora de Melo** will soon embark on doctoral studies as a National Science Foundation (NSF) Graduate Research Fellow. Beginning in fall 2021, de Melo will attend the University of California, Davis, where she will pursue a PhD in geotechnical engineering.

The NSF Graduate Research Fellowship Program recognizes and supports outstanding graduate students who are pursuing research-based master's and doctoral degrees at accredited US institutions. The five-year fellowship includes three years of financial support including an annual stipend and education allowance.

The Brazil native and Maryland resident's honors thesis research focused on applying Carbon Capture and Storage (CCS) to isolate CO2 from the atmosphere and geothermally heat it in deep saline aquifers to produce geothermal energy and generate electricity. This approach may help mitigate climate change by addressing two problems for energy systems: reducing CO2 emissions from existing facilities and increasing utilization of renewable energies.

Research played an integral role in de Melo's growth as a Buckeye engineer. "Participating in research with professors from a variety of backgrounds broadened my understanding of how theoretical lessons could be applied to solve real problems," she said.

Dora de Melo (photo courtesy of Dora de Melo)

In addition to her work with Associate Professor Jeffrey Bielicki's Energy Sustainability Laboratory, de Melo also collaborated with Professor of Practice Daniel Pradel on soil mechanics research. She credits this experience for igniting her passion for geotechnical engineering and opening the door to graduate school.

And, while she may be leaving campus, Ohio State will remain close to de Melo's heart. "I have been blessed with amazing friendships, unforgettable memories, and unexpected accomplishments," she recalled. "It truly takes a village, and I am so grateful that the Buckeye community was mine."

Sarah Haines (L), PhD candidate in environmental science and researcher in CEGE's Indoor Environmental Quality (IEQ) Lab, was named a Presidential Fellow for 2020 - 2021 at The Ohio State University. Haines was one of 20 university students to be awarded this distinction, considered to be the most prestigious awarded by the Graduate School.

Ms. Haines' research addresses the role moisture plays in microbial growth and chemistry in the indoor environment. She is also involved in IEQ's development of a rapid, smartphone-based application that tests house dust for allergens which commonly cause asthma.

RESEARCH

NO GPS? NO PROBLEM.

CEGE professor's research seeks 'infrastructure-less' approach to locating persons and objects

Alper Yilmaz's research has helped NASA track astronauts during spacewalks and assisted the U.S. Department of Defense in locating clandestine operatives. Now, the professor of geoinformatics and his research team are applying their novel approach to geolocation services where GPS doesn't exist or is compromised, to commercial endeavours.

Whereas NASA tracked its team's return to the International Space Station after deployment of experimental equipment in orbit, doctors and other health care professionals can track critical care assets such as ventilators and hospital beds without the existence of satellite-dependent GPS.

Yilmaz's patented technology, which utlizes anonymous video analysis positioning technology in tandem with tag technology and machine learning, can also help autonomous navigation systems better function under bridges or in tunnels, where GPS signals are usually greatly diminished, if not absent altogether.

"Our goal would be to have an autonomous vehicle without any visual input, still figure out how to get from point A to point B," he stated during an Ohio State video interview in the summer of 2020. He praised CEGE's collaborative environment and his dedicated research team for their efforts in bringing this technology to life. " This would not be possible without department support and the support of my graduate students," he remarked.

Dr. Alper Yilmaz

In 2016, with assistance from Ohio State's Technology Commercialization team, Yilmaz began engaging investor support for Ubihere. The startup company offers products based on Yilmaz's positioning analytics to customers in medical, retail, manufacturing and military sectors.

As Ubihere's stable of investors and clients expanded, the tech' community took notice. Ubihere was noted as a top startup in *Columbus Business First*'s 2020 Biz-Tech Awards and Yilmaz was named Ohio State's 2020 Innovator of the Year. The latter award, sponsored by the Office of Research and Office of Corporate Engagement, recognizes Buckeye researchers who work to promote commercialization of university intellectual property.

Learn more at **https://ceg.osu.edu/people/yilmaz.15**

A RISING WEAPON AGAINST THE CORONAVIRUS? SEWAGE.

To understand how deeply researchers and policymakers want to protect you from the coronavirus, consider this: They're diving into our sewers.

That's right, they're studying your feces.

The Ohio Water Resources Center (Ohio WRC), a federally authorized and state-designated Water Resources Research Institute located at Ohio State, recently received a research award for wastewater COVID-19 surveillance, as part of the Coronavirus Relief Fund through the Ohio Environmental Protection Agency (EPA) and U.S. CARES Act.

The Ohio WRC will be coordinating a statewide effort to analyze wastewater, starting with the largest cities, to potentially detect COVID-19 outbreaks days, even weeks, early so communities could be warned, hospitals could mobilize and resources could be prepared.

"There is research all over the world showing the ability to detect this virus in the wastewater, both symptomatic and asymptomatic cases," said **Zuzana Bohrerova**, associate director of Ohio WRC and lead on the wastewater project.

"You could never test everyone every week in all of Ohio. So this is another piece of the puzzle, but an important piece, to give an idea of the spread so informed decisions can be made early."

Wastewater-based epidemiology, according to the Ohio WRC website, "represents an unbiased snapshot of the population's health and lifestyle habits." It has been used in the past for tracking infectious diseases, vaccination efforts, drug use, antibiotic resistance and more. In Europe and parts of the United States, wastewater analysis has even been used to track COVID-19.

A single treatment plant captures the waste of the entire community it serves, which can be more than a million people.

"It's not information on an individual, but it's broader information you get in addition to all the other clinical data you have that can help you make more informed decisions," Bohrerova said.

Dr. Zuzana Bohrerova

The project requires pulling raw sewage samples at wastewater plants; analyzing them quickly; and getting the information to health officials and policymakers who can make critical public health decisions.

The Ohio Department of Health and Ohio EPA are leading a network of researchers at the U.S. EPA, Ohio State, the University of Toledo, Kent State University and the University of Akron. The team is working with wastewater treatment plants throughout the state to coordinate sample collection.

The project requires many disciplines, according to Bohrerova, including statisticians, modelers, analytical microbiologists and wastewater treatment specialists, among others.

Working together, the group intends to develop resources and tools that states and communities can use to monitor wastewater for SARS-CoV-2 RNA. This can be used as part of an effort to develop a national wastewater surveillance monitoring system that can inform policymakers.

Adapted from a story originally posted in *Ohio State Insights*

Learn more about the OWRC's monitoring efforts at **https://wrc.osu.edu/**

FACULTY ACHIEVEMENT

LINDA WEAVERS NAMED UNIVERSITY DISTINGUISHED SCHOLAR

Dr. Linda Weavers

Linda Weavers, John C. Geupel Endowed Chair and Professor in the Department of Civil, Environmental and Geodetic Engineering, has been named a 2021 University Distinguished Scholar. Supported by the Office of Research, the award recognizes the outstanding scholarly and research accomplishments of Ohio State faculty.

The award was presented during a special, on-line, surprise event on March 24, 2021. Ayanna Howard (Dean, College of Engineering), Randy Moses (Associate Vice President, Research), Bruce McPheron (Executive Vice President and Provost), Jan Weisenberger (Senior Associate Vice Present, Research), CEGE faculty, staff and members of Dr. Weavers' family were in attendance.

LEADERSHIP NEWS

Dr. Allison MacKay

Allison MacKay was appointed as the 'at-large' member of the ASCE Department Heads Coordinating Council for a three-year term, effective Oct. 1, 2020.

The Council serves in liaison roles between the academic community and the ASCE Committee on Education and the ASCE Committee on Accreditation that sets the ABET Civil Engineering Program criteria.

In Oct. 2020, MacKay was also elected by the Board of the Association of Environmental Engineering and Science Professors (AEESP) to the position of Vice President in tha organization.

AEESP primarily serves the academic community of environmental engineers and also works closely with the American Academy of Environmental Engineers and Scientists on educational and accreditation matters.

FACULTY PROMOTIONS ANNOUNCED

Dr. Anthony Massari

CEGE is pleased to announce the promotion of **Anthony Massari** from the rank of Assistant Professor of Practice to that of Associate Professor of Practice.

The promotion was approved by The Ohio State University Board of Trustees during its May 19, 2021 meeting.

Massari earned his PhD in civil engineer- from the California Institute of Technology and served as a senior engineer at Thornton Tomasetti, working on stadium and high-rise building structures, prior to joining Ohio State's faculty in 2017.

Dr. Massari's various research interests include tall building analysis, performance and design, high performance structures and materials, and structural health monitoring.

Dr. Rongjun Qin

CEGE is pleased to announce the promotion of **Rongjun Qin** from the rank of Assistant Professor to that of Associate Professor with tenure.

The promotion was approved by The Ohio State University Board of Trustees during its May 19, 2021 meeting.

Qin earned his PhD in photogrammetry and remote sensing from ETH Zurich and joined Ohio State's faculty in 2016 with a joint appointment in CEGE and the Department of Electrical and Computer Engineering.

Qin is the director of Ohio State's Geospatial Data Analytics group, a cross-disciplinary research initiative that uses images and videos to perform accurate localization and detection of objects.

CEGE FACULTY RECEIVE NSF CAREER AWARDS

Dr. Karen Dannemiller

Karen Dannemiller received a five-year, $500,000 Faculty Early Career Development (CAREER) award from the National Science Foundation for her research on novel indicators of mold growth in homes.

The CAREER award is the National Science Foundation's (NSF) most prestigious award in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of both.

Exposure to mold in homes costs billions of dollars every year in the United States and can be especially harmful to people suffering from asthma—a leading cause of disability in children. And, existing methods used to measure that remediation was successful removal are flawed.

"Currently, visible mold growth and odor are the best indicators of mold in a building, and these are most strongly associated with health outcomes. However, these measures are subjective," she said. "We need to develop a quantitative indicator of mold growth in a home that is better than simple inspection."

Dannemiller's project will address the need to develop and validate a new quantitative measurement tool that indicates growth, while also leading to an improved understanding of fundamental microbial processes that occur in damp buildings. Her work utilizes cutting-edge DNA and RNA sequencing technologies.

Dr. Dannemiller was also recenty promoted to the rank of associate professor with tenure in the Department of Civil, Environmental and Geodetic Engineering. The promotion was approved by The Ohio State University Board of Trustees during its May 19, 2021 meeting. *Adapted from an article by Meggie Biss, COE Communications*

Dr. Andre Carrel

Assistant Professor **Andre Carrel** received a five-year Faculty Early Career Development (CAREER) award from the NSF. The $655,000 grant will support his research on urban travel behavior with the goal of incorporating a richer understanding of behavioral dynamics and long-term lifestyle shifts in traveler choice models.

A key focus of Carrel's research is to investigate how a person's past experiences and habits shape future travel behavior. Leveraging detailed travel diary surveys from urban travelers, he will develop new insights into the role that traveler satisfaction, subjective well-being, and the dynamics between them play in traveler choices.

Carrel plans a team-oriented approach to his research that engages practitioners throughout the project and provides opportunities for Ohio State students in transportation engineering and city and regional planning to build critical skills.

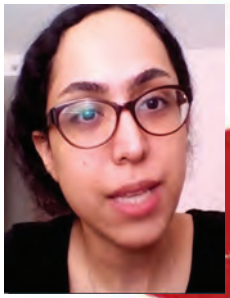
"Recruiting and training the next generation of transportation professionals and building more bridges between academia and practice are critical to solving the large challenges that lie ahead in creating more sustainable and equitable urban transportation systems," he stated.

CEGE *'FIRSTS'*

The first annual CEGE Graduate Symposium was held on Wednesday, February 3, 2021.

CEGE graduate students and advisees of CEGE faculty presented research proposals on the following inter-disciplinary research themes:

- *Smart Cities*
- *Sustainability*
- *Data Collection and Analytics*



Saba Zakeri

Yuyi Chang

Yijing Liu

Presentations were judged by department faculty using a rubric, and three awards were presented to the following presenters:

BEST OVERALL PRESENTATION

Saba Zakeri: ***Metal Organic Framework-based Indirect Evaporative Cooling*** (PhD student, CEGE, Advisor: Dr. Jordan Clark)

MOST INNOVATIVE RESEARCH

Yuyi Chang: ***Use of Time-Stack Processing in Vehicle Tracking from Roadside 3D LiDAR*** (PhD student, ECE, Advisor: Dr. Benjamin Coifman)

PEOPLE'S CHOICE AWARD

Yijing Liu: ***Ohio Coronavirus Wastewater Monitoring*** (PhD student, CEGE, Advisor: Dr. Natalie Hull)

CEGE welcomes new research staff members

Matt Fetters

Matt Fetters joined the Department of Civil, Environmental and Geodetic Engineering in March 2020. As Civil Engineering Laboratory Supervisor, Matt will support student, faculty and staff research activities in CEGE's structures, materials and geotechnical lab facilities.

Matt earned a bachelor's degree in industrial and product design from Central St. Martin's College and worked as a lighting, controls and electrical auditor and designer prior to joining Ohio State.

Jenny Penascu (not pictured) joined CEGE's Indoor Environmental Quality Lab (IEQ) as Project Coordinator in February 2021. She will assist the IEQ team's development of BREATHE-Smart, a smart phone application that rapidly detects allergens in the home.

Jenny earned both a BS in microbiology and an MS in environmental science from The Ohio State University and brings with her nearly two decades of research and management experience in university laboratory facilities.

GOOD NEWS EXTRA!

The COVID-19 pandemic precluded the College of Engineering's 23rd Annual Distinguished Faculty Awards from taking place in person.

In 2020, several CEGE faculty were recognized for their teaching, research and outreach efforts.

Scan the code at right to read about their accomplishments.

SCAN ME

UPCOMING EVENTS

Join CEGE alumni and friends for this quarterly virtual event. Connect with Ohio State faculty sharing the next research innovations to advance civil, environmental and geodetic engineering practice and benefit society.

Watch your 'in box' for details about our next event in August, 2021!

More information at: **ceg.osu.edu/alumni-friends/cege-connext**

Benchmarks

Department of Civil, Environmental and Geodetic Engineering | ceg.osu.edu
Allison MacKay, Chair | mackay.49@osu.edu
John Lenhart, Associate Chair | lenhart.49@osu.edu

Kevin Satterfield, Editor, Graphic Designer | satterfield.3@osu.edu

All photography by Kevin Satterfield except where indicated.

We welcome your comments and questions about *Benchmarks*.
Please contact: **satterfield.3@osu.edu | 614-247-7749**

Keep in touch

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THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING
Civil, Environmental and Geodetic Engineering
470 Hitchcock Hall
2070 Neil Avenue
Columbus, OH 43210-1226
Phone 614-292-2771
ceg.osu.edu

TIME AND CHANGE

Bolz Hall from 19th Avenue, 1960's
Photo courtesy of University Archives