

# 2023 VIA REPORT

NUMBER 37



COLLEGE OF ENGINEERING  
THE CHARLES E. VIA, JR. DEPARTMENT OF  
CIVIL AND ENVIRONMENTAL ENGINEERING  
VIRGINIA TECH™





## LETTER FROM THE DEPARTMENT HEAD

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At the beginning of the fall semester, it was my privilege to address the incoming class of CEE undergraduates. The faces of our first-year students display eagerness and curiosity, but also a longing for purpose in the betterment of society. My aim was to deliver inspiring words, but I was the one who came away inspired.

Yet unprecedented challenges await at an ever-accelerating pace. These challenges include artificial intelligence, workforce demand, sustainability and resilience of civil infrastructure, water security, and social impacts.

Our faculty are inspired to address these challenges and to prepare our graduates for the future of civil and environmental engineering in a rapidly-changing world. Through curriculum innovation, impactful research, and breadth of service, the Via Department remains committed to our land grant mission.

Our faculty continue to lead their fields in innovative research and teaching. A number of faculty achievements are highlighted throughout the report. Linsey Marr was inducted as a member of the National Academy of Engineering and was also named University Distinguished Professor. Her honor as a MacArthur Fellow is highlighted on page 12. Alexander Brand was awarded a National Science Foundation Faculty Early Career Development (CAREER) award which you can read about on page 10. In addition, Gabriel Isaacman-VanWertz is currently in Ecuador as part of a Fulbright scholarship to study pollution in the Amazon rainforest.

I look forward to presenting to you the annual edition of the Via Report that recognizes our current Via scholars and the outstanding multi-mission efforts from faculty of the Charles E. Via, Jr. Department of Civil and Environmental Engineering at Virginia Tech. Among those are new faculty to our team of educators: Sami Hasnine and Adam Phillips. You can learn more about these inspiring new faculty on page nine of this report.

Our students are paving the way in experiential learning with abroad trips to Europe and South America, as well as field trips and hands-on research closer to campus. The department's steel bridge team ranked first regionally and fourth at the national competition of over forty teams from universities across the country.

The Via scholars are the highlight of this document and I hope that the biographical sketches contained in the report help you get to know them. We will be recognizing these scholars at a reception in Blacksburg. This is always a special event to honor the achievements of our Via scholars and the generosity of the Via family.

I look forward to the upcoming year in CEE and thank you for your continued support. I wish to give a special thanks to all of our alumni, friends and colleagues who have generously supported the department. Their gifts of time, talent, and treasure help us prepare a new generation of engineers to tackle new challenges and reinvent our nation's civil infrastructure.

Best Regards and Go Hokies,  
Mark Widdowson, Department Head and Professor

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**COVER PHOTO:** Civil and environmental engineering student Joe Lorrain works in a remote village in Bolivia to construct a pedestrian bridge. Photo by Jimena Macias.

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# Program Area Highlights

## Vecellio Construction Engineering Management



*Michael Garvin was named the David H. Burrows Professor of Construction Engineering.*

VCEMP awarded Vecellio Scholarships to undergraduate students Sarah Helms, Daniel Hickman, Victoria Pritchett, and Ben Wooley. The program also awarded Vecellio Fellowships to graduate students Avinash Aruon, Sherlock Banks, and Charlotte Clyde. Clay Pratt and Josh Trump were named outstanding M.S. and Ph.D. students. Wendell Grinton was recognized as one of the graduate school’s outstanding doctoral degree students and María Elena Nieves-Meléndez, was recognized as the outstanding VCEMP alumna. The 22nd Vecellio Distinguished Lecture was held October 20, 2023 and delivered by Vaughan Buckley, founder and CEO of Volumetric Building Companies. He presented “Risks and Opportunities in the Global Construction Industry.” VCEMP delivered the 34th Transportation Construction Management Institute (TCMI) in partnership with the Virginia Department of Transportation (VDOT) and the Virginia Transportation Construction Alliance (VTCA). Faculty were recognized for their accomplishments with Mike Garvin being named the David H. Burrows Professor of Construction Engineering which

is awarded to an outstanding professor in construction engineering. Mike also continued as the Director of the eastern region of the Build America Center. Tripp Shealy was on research leave with an appointment as visiting professor at the University of Strathclyde in the United Kingdom. Part of his time was spent establishing future student exchange and study abroad programs for our students across Europe. Farrokh Jazizadeh continues his research to understand how rapidly evolving AI-powered technologies can integrate into and enhance users’ daily routines. Freddy Paige continued his work on the \$1.2 million NSF BEP Equity Center project. Sunil Sinha continues to direct the Sustainable Water Infrastructure Management (SWIM) Center, which held its annual conference focused on Collaborative Water Governance in the Era of Big Data Analytics.

## Bowman Sustainable Land Development Program

The Bowman Sustainable Land Development Program completed its first year functioning as an endowed program. Along with this change, LDDI was rebranded from Land Development Design Initiative to Land Development Design Industry. It remains as the portal through which land development industry engages with students. This year, there was a record number of corporate sponsors with 46 companies, resulting in \$243,000 in sponsorships. LDDI added two new alumni, Michael Cardman and Jessie Ponce de Leon, to the LDDI Executive



*Bowman Sustainable Land Development faculty pose with ISI CEO Anthony Kane following the inaugural Bowman Sustainable Land Development Distinguished Lecture.*

# Program Area Highlights

Board. In addition, the first out-of-town field trips since 2019 occurred with students traveling to visit sites in Charlotte in April. LDDI held a practitioner recognition and celebration event in Arlington in July. They also established a Diversity, Equity, Inclusion and Belonging Committee and plan to continue using that committee moving forward.

In only its second year, the graduate program grew from three to nearly 20 students. The success of the program is due in part to the faculty who were recognized for their excellence. Kevin Young received the 2023 Dean's Award for Teaching Excellence and Claire White was promoted to Associate Professor of Practice. Holly Casey also completed her first year as Assistant Professor of Practice, teaching CEE courses in land development and also teaching courses in the Blackwood Department of Real Estate. In addition, the advanced land development course was offered in-person for the first time since 2019. This hands-on course is led by LDDI practitioners.

## Environmental and Water Resources

EWR has been busy in 2023 with faculty leading research projects in a wide range of topics. Among those are Andrea Dietrich who is aiming to improve the palatability of direct portable reuse water by removing organic odorants for human

consumption. Peter Vikesland led a group in the development of a Fralin Life Sciences Institute Center focused on technology enabled water surveillance and control. The following EWR faculty were recognized this year:

Award by the Water Research Foundation. She also co-authored a major United Nations Environment Programme Report, "Bracing for Superbugs."

Bill Knocke was inducted into both the Academy of Faculty Leadership and the Academy of Faculty Service.

Hosein Foroutan received the Junior Fellow Award from the Fralin Life Sciences Institute.

Paolo Scardina was the recipient of the COE Certificate of Teaching Excellence and the CEE Alumni Teaching Award. He was also the Engineer of the Month in June for the ASCE Virginia Section.

John Little received Phase 1 funding for a new NSF Growing Convergence Research project that is valued at \$3.6M over five years.

Mark Widdowson, Amy Pruden and Jingqui Liao are part of the team to evaluate the risk and performance of enhanced aquifer recharge in the coastal plain. This is funded by a \$2 million EPA grant.



*CEE doctoral student Robert "Mack" Pearce is researching the removal of trace levels of contaminants at the SWIFT Center.*

Linsey Marr was elected to the National Academy of Engineering and was named a MacArthur Fellow.

Landon Marston was awarded the 2023 American Geophysical Union Hydrologic Sciences Early Career Award and was named Outstanding New Assistant Professor by Virginia Tech College of Engineering.

Gabriel Isaacman-VanWertz was awarded a Fulbright Scholarship award and was recognized by the American Association of Aerosol Research.

Amy Pruden was awarded the Research Innovation

# Program Area Highlights

## Structural Engineering and Materials

The SEM group welcomed Adam Phillips, who conducts research related to net-negative carbon housing, bridge retrofit, and steel-timber hybrid structures. The group team-taught an exciting “Bridges, Builders and Society” class in the spring of 2023 for which the students traveled to Europe to visit unique bridges built by some of the world’s most famous engineers. Carin Roberts-Wollmann and Roberto Leon lead the group of 14 students to see sites in Italy, Austria, and Switzerland. Outside of classes, the SEM group has maintained a robust research program related to protecting structures from a wide range of hazards. Eric Jacques and Matt Eatherton continued their work developing fiber-reinforced polymer retrofit techniques for reinforced concrete diaphragms. Jacques also began a new VDOT-funded study with other CEE colleagues to study the deepest buried multi-cell precast box culverts in the United States. Scott Case is exploring a variety of topics related to fiber-reinforced composite materials including thermal damage, electromagnetic applications, fatigue life, and their use in space exploration cryotanks. Monica Arul is developing computational tools for enhancing disaster preparedness, early warning, and recovery after wind disasters as well as investigating facade performance during extreme wind events. Rodrigo Sarlo has expanded his work on artificial intelligence (AI) assisted bridge inspections, is investigating how mistrust of AI could impact the effectiveness

of collaborative inspections, and is developing a prototype augmented reality interface for crack documentation. Ioannis Koutromanos continues to develop computational tools for simulation of structures subjected to coupled mechanical, thermal, porous flow, and chemical reactions, as well as research into retrofit strategies for reinforced concrete shear walls.



*A group of CEE students and faculty visited bridges throughout Europe. They are pictured here in front of Wiesner Viaduct near Davos in Switzerland.*

## Geotechnical Engineering

Alba Yerro Colom received the 2022 Early Career Research Award from the United States Universities Council on Geotechnical Education and Research (USUCGER). Adrian Rodriguez-Marek delivered a keynote lecture at the International Atomic Energy Agency’s (IAEA) Technical Meeting on Geotechnical Aspects in Site Evaluation and Design of Nuclear Installations. Russell Green delivered an invited theme lecture on Lessons Learned from Recent Earthquakes, with Emphasis on Geotechnical Engineering at the Virginia Engineers Conference. Joe Vantassel co-taught a short course entitled “In-Situ Seismic Investigation Methods for Site Classification” which was held at several locations across New Zealand. Rei Hosseini organized a workshop on Numerical Modeling of Unsaturated Soils in Hamburg, Germany. Sherif Abdelaziz led a field trip in the Arctic

# Program Area Highlights



*An undergraduate student participates in a soil sampling lab.*

for a project funded by the Defense Resiliency Platform (DRP). Joe Vantassel and Alex Brand also participated in this field trip and collected in-situ data on permafrost and concrete infrastructure in Alaska. The preliminary findings from the field testing will be presented at the International Conference on Cold Regions Engineering in 2024. Bernardo Castellanos completed a laboratory testing program for the Dow Harris Reservoir and was named the Chair of the ASTM D18.03 subcommittee on Texture, Plasticity and Density Characteristics of Soils, as well as being named a member of the executive committee of ASTM D18 Committee on Soil and Rock as member at large.

## Transportation Infrastructure and Systems Engineering

TISE faculty were honored with many recognitions over the past year. Hesham Rakha became a Canadian Academy of Engineering Fellow and an Asia-Pacific Artificial Intelligence Association Fellow. Rakha was also honored with the Dean's Award for Excellence in Research by the College of Engineering. Alexander Brand received an NSF CAREER award for his project titled "Nanoscale Interfacial Phenomena and Reaction Kinetics of Calcium Silicate Minerals in Cements." Brand also received a 2023 College of Engineering Certificate of Teaching Excellence from Virginia Tech. Antonio Trani received the 2023 ASCE Frank M. Masters Award. Bryan Katz received the Wilbur S. Smith Distinguished Transportation Educator Award. This award is one of ITE's top honors, recognizing an educator who has made an outstanding contribution to the transportation profession by relating academic studies to the actual practice of transportation. The Virginia Tech ITE Traffic Bowl Team, advised by Katz won the Virginia Section traffic bowl and won the preliminary round of the Southern District traffic bowl. Gerardo Flintsch has been reappointed as chair of the World Road Association technical committee 3.3 on Asset Management for the cycle 2024-27 in representation of AASHTO and FHWA. Kathleen Hancock is leading Virginia Tech in its 13th year of a partnership with the Virginia Department of Motor Vehicles Highway Safety Office locating crashes and providing technical expertise in understanding vehicle fatalities in Virginia.



*The Freight Operations class in took a field trip to Volvo Trucks North America.*

## New Faculty

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### MD SAMI HASNINE

Sami Hasnine joined the Transportation Infrastructure and Systems Engineering group as an Assistant Professor. His research is at the intersection of transportation engineering, econometrics, data science, and psychology exploring how human behavior is connected to transportation decision-making. He builds mathematical models to develop smart, sustainable cities to reduce emissions and energy consumption.

He came to Virginia Tech after serving as an Assistant Professor at Howard University in Washington, D.C. Prior to that, he was a postdoctoral fellow at both the Massachusetts Institute of Technology (MIT) and at the University of Toronto, Canada. He earned his BSc in civil engineering from Bangladesh University of Engineering and Technology. He also earned his MASc and Ph.D. from the University of Toronto, Canada. He has published 33 peer-reviewed journal articles and 52 peer-reviewed conference papers. At Virginia Tech, he teaches Civil Infrastructure Systems Analysis.



In 2023, Hasnine was awarded the Curricular Advancement Award, the Amazon Research Award, and two Certificates of Appreciation from the Transportation Research Board

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### ADAM PHILLIPS



Adam Phillips joined the Structural Engineering and Materials group from Washington State University. Adam is a three time Virginia Tech civil and environmental engineering alumnus, earning his B.S. in 2012, M.S. in 2013, and Ph.D. in 2016. During his time as a student, he was an active member of the American Society of Civil Engineers and the Student Steel Bridge Competition team.

In addition to his role as an Assistant Professor, he is also a member of the Partners in Education Committee for the American Institute of Steel Construction. While in Washington, he was a member of the Washington State University CEE Undergraduate Curriculum Committee and a member of the School of Seismic Safety Committee of the Washington Office of Superintendent of Public Instruction.

At Virginia Tech, he teaches Design of Steel Structures I and Intermediate Design of Steel Buildings. His research interests include sustainable design, behavior of steel, mass timber, hybrid steel-timber buildings, experimental testing of structural sub-assemblies, performance-based design, earthquake engineering, and life-cycle assessment.



## Alexander Brand receives NSF CAREER award to discover the mechanisms that make concrete work

Alexander Brand has received a \$600,000 National Science Foundation Faculty Early Career Development (CAREER) award to understand the physicochemical interactions between water and the primary components of cements to clarify how concrete works. Cement, when reacted with water, makes up the binding phase of concrete. Cement production is currently the third-largest carbon dioxide source in the world after emissions from burning fossil fuels in the energy and transportation sectors.

Brand's research clears a path for scientists to design new materials for a more sustainable and resilient concrete. With concrete being the most widely used construction material in the world, Brand's research could ultimately transform civil infrastructure.

Each year, 4 billion tons of cement and 28 billion tons of concrete are made globally. According to Brand, this amount of concrete far

outweighs the use of other materials, including steel at 1.9 billion tons, aluminum at 0.08 billion tons, and plastics at 0.39 billion tons.

This award will advance that knowledge by implementing novel nanoscale characterization techniques to help explain concrete behavior and establish future directions for concrete materials. "Concrete that is used today is not going to be the same as the concrete used in 10, 20, or 50 years," Brand said. "Concrete has a fairly large carbon footprint, and the industry is working to meet carbon neutrality, which means they will need to invest in new materials. Understanding how cements fundamentally react with water will be a large step forward in finding these new candidate materials." Cement production currently contributes 5 percent to 8 percent of all human-generated carbon dioxide.

"The CAREER award will not immediately solve these problems upon completion of the project," said

Brand. "But it will definitely serve as the first step to launch the concept of lowering the carbon dioxide footprint of concrete through fundamental studies of cement chemistry."

This CAREER award also includes education outreach through the Center for the Enhancement of Engineering Diversity, the Hokie for a Day program, and activities at the Science Museum of Western Virginia. "I created activities that are aimed at engaging students' interest in civil engineering with an outlook on the need for and the environmental impact of one of the most used materials in the world – concrete," said Brand.

While there is much work to be done to reduce the carbon footprint of concrete to zero, Brand's work will launch a new area of research to fundamentally understand cement reactions with water.

"My overall goal is to unlock the potential to explore new materials that produce more sustainable concretes," said Brand.



## Roberto Leon named Charles E. Via, Jr. Professor

Roberto T. Leon, professor of civil and environmental engineering in the College of Engineering at Virginia Tech, was named the Charles E. Via Jr. Professor by the Virginia Tech Board of Visitors.

The Via professorship is funded through an endowment established in 1987 by Marion Via Bradley in honor of her late husband to recognize excellence in faculty research. Recipients of the professorship hold the title for a period of five years.

A member of the Virginia Tech faculty since 2011, Leon is a multi-talented, nationally and internationally recognized scholar who is acknowledged to be one of the leading researchers in the world in the field of steel-concrete composite structures and seismic design and performance of new and existing steel and composite structures. His work has beneficially impacted numerous national and

international design codes. Leon has published more than 170 peer-reviewed papers, books and book chapters and his work has received over 7,000 citations. In his career, he has directed or co-directed nearly \$7 million in external research funding. In addition, Leon has been part of large, multidisciplinary teams that have collectively conducted more than \$120 million in research. He has advised or co-advised to completion 35 Ph.D. students, 48 master's degree students, and more than 20 undergraduate research students.

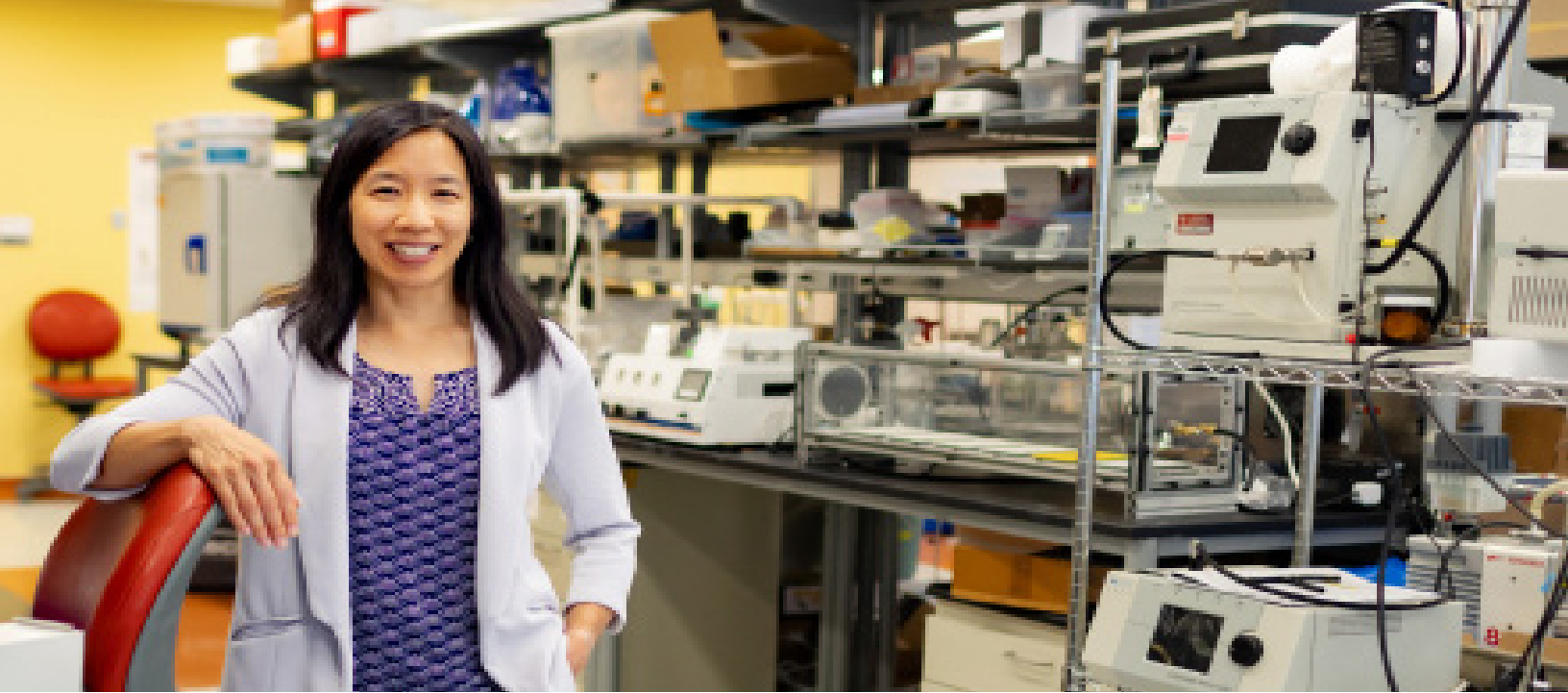
Leon has received notable recognition for his many contributions to the civil engineering profession and for his scholarly achievements. His most recent awards include the Beedle Award from the Structural Stability Research Council, the Geerhard Haaijer Award for Excellence in Education from the American

Institute of Steel Construction (AISC), and the Lifetime Achievement Award from AISC

His contributions also were recognized by his election to Distinguished Member of the American Society of Civil Engineers in 2015, the highest recognition the profession confers.

At Virginia Tech, Leon held the title of the David H. Burrows Professor of Construction Engineering from 2011-21.

Leon received his bachelor's degree from the University of Massachusetts at Amherst, a master's degree from Stanford University, and a Ph.D. from the University of Texas at Austin.



## VIRGINIA TECH'S LINSEY MARR NAMED 2023 MACARTHUR FELLOW

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Linsey Marr, the Charles P. Lunsford Professor and a University Distinguished Professor at Virginia Tech, has been named a 2023 MacArthur Fellow, a highly prestigious award commonly called a “genius grant.”

The John D. and Catherine T. MacArthur Foundation announced Wednesday that Marr is one of 20 fellows who will receive an \$800,000 award. The “no-strings-attached” fellowship is awarded to talented individuals who have shown extraordinary originality and dedication in their creative pursuits and a marked capacity for self-direction, according to the foundation.

There are three criteria for selection: exceptional creativity, promise for important future advances based on a track record of significant accomplishments, and potential for the fellowship to facilitate subsequent creative work.

Nominated anonymously by leaders in their respective fields and considered by an anonymous selection committee, recipients learn of their selection only when they receive a call from the foundation.

Marr was in her Durham Hall office when she got the news. “My cellphone rang. I didn’t recognize the number, so I immediately declined the call,” she recalled. “A few seconds later, my office phone rang with the same number. I thought that was odd because telemarketers wouldn’t have both numbers and the only people who usually try me at both numbers are family members. I picked up my office phone and answered with a very suspicious, ‘Hello?’

The foundation representative on the line asked Marr if she was somewhere private. “After I closed my office door, they informed me that I had been selected for a MacArthur Fellowship,” said Marr. She exclaimed in surprise - but kept her guard up, still worried it could be a scam. They started asking personal questions, like my birthdate and place of birth. I hesitated because I thought they might be phishing me. They read my bio that they had prepared, to prove that they were legitimate. I was in shock through the rest of the call.”

Marr hopes to use the money to support research and projects that would be hard to fund through traditional channels. “I’m also looking for an experience that will rock my world, get me out of my comfort zone, and jolt my creativity,” she said.

But the first thing she wants to do: Thank her research group and family for their support during the heart of the pandemic - a crazy, nonstop work schedule that often took her attention from them.

“There are a lot of brilliant people out there doing brilliant work, so I feel extraordinarily lucky to have been selected for this recognition,” Marr said. “I know it’s an individual award, but it reflects a massive collaborative effort with my students and postdocs and many colleagues from around the world.”

Virginia Tech President Tim Sands lauded Marr’s selection. “We celebrate this prestigious recognition of Dr. Marr’s innovation, creativity, and continuing contributions to science and society,” said Sands. “We are especially proud of her global leadership and outreach, which exemplifies Virginia Tech’s spirit of exploration and discovery in service to humanity.”

Wednesday’s announcement comes in the middle of a whirlwind week for Marr, just three days after she was in Washington, D.C., for induction to the National Academy of Engineering as one of 106 new members for 2023.

Marr’s research on the transport, removal, and mitigation of airborne pathogenic viruses gained widespread recognition during the COVID-19 pandemic. During the global health crisis, her research helped answer two critical questions: “How is the coronavirus transmitted?” and “What can we do to protect ourselves?”

She became a regular expert source for The New York Times and has been interviewed over 500 times by The Wall Street Journal, The Washington Post, The Atlantic, Scientific American, NPR, CNN, and other media outlets.

An article in Wired described how she and her colleagues persuaded the World Health Organization and U.S. Centers for Disease Control and Prevention to recognize airborne transmission of COVID-19.

Marr has published more than 150 papers in peer-reviewed scientific journals that have been cited more than 16,000 times, according to Google Scholar. She has co-authored papers in high-impact journals, such as Science, The BMJ, and Proceedings of the National Academy of Sciences, and she has given dozens of seminars and keynote lectures. As a professor, she has mentored 10 Ph.D. students and 19 master’s students through graduation and has advised 13 postdoctoral researchers.

“Linsey’s critical thinking, innovation and leadership within her field exemplify our college’s mission and the qualities we seek to instill in our students,” said Julie Ross, the Paul and Dorothea Torgersen Dean of Engineering. “It’s exciting to think about how this fellowship will allow her to expand her impact and influence as a researcher, teacher, and mentor.”

Marr is a fellow of the American Association for Aerosol Research, the American Geophysical Union, and the International Society of Indoor Air Quality and Climate. In 2021, she was inducted into the Academy of Distinguished Alumni for University of California, Berkeley’s civil and environmental engineering department. Virginia Tech has recognized her accomplishments with multiple honors, including the Ut Prosim Scholar Award, the Fralin-ICTAS Innovator Award, and the College of Engineering Dean’s Award for Excellence in Research. In 2022, the State Council of Higher Education of Virginia awarded Marr with an Outstanding Faculty Award, the commonwealth’s highest honor for faculty at Virginia’s public and private colleges and universities.

Marr joined Virginia Tech as an assistant professor in 2003. Prior to Virginia Tech, she was a postdoctoral associate in the Department of Earth, Atmospheric, and Planetary Sciences at the Massachusetts Institute of Technology. Marr received her bachelor’s degree in engineering science from Harvard University in 1996 and a doctoral degree in environmental engineering from University of California, Berkeley, in 2002.

Marr is the second Virginia Tech professor to be named a MacArthur Fellow, an award deemed “highly prestigious” by the National Research Council. University Distinguished Professor Marc Edwards, also a faculty member in the Department of Civil and Environmental Engineering, earned the award in 2007 for his work analyzing the chemistry and toxicity of drinking water in large cities.

*By Michael Stowe*

*Photos provided by the John D. and Catherine T.*

*MacArthur Foundation*



*Earlier this summer, a small group from Virginia Tech traveled to Bolivia to help build the pedestrian bridge that they had spent much of the spring semester designing. Photo courtesy of Jimena Macias.*

## Building Bridges in Bolivia

Last fall, Jimena Macias went to O-Show, an event for STEM-related student organizations sponsored by the Center for the Enhancement of Engineering Diversity each August, mostly out of curiosity. But she also had an internal desire to join a club and organization seeking students to help with their upcoming missions.

A native of Mexico who grew up in Richmond, Macias was a first-year student with an interest in civil engineering. She came across a booth for Engineers in Action, and it caught her attention.

“I saw that their club mostly consisted of traveling abroad and actually building these bridges for these communities that truly need the help,”

Macias said. “So I joined the club, and then their applications went out for the actual abroad travel, and I said, ‘Why not?’”

Earlier this summer, Macias joined three others from Virginia Tech on a trip to Bolivia to construct a pedestrian bridge in a remote village outside of the nation’s constitutional capital of Sucre. The bridge crossed a small river that bisects the village, and during the rainy season, it floods, which prevents access to either side.

The lack of access thus created issues for the residents. Most of the homes are located on one side of the river, but a school and a health clinic sit on the opposite side. “The community members would tell

us how they really struggled during those rainy seasons,” Macias said. “It gets difficult for them. There’s a three-month period where they can’t even cross the river because it’s too dangerous. They were mostly just grateful and happy we were there helping them so they wouldn’t have to struggle as much throughout the year.”

The project marked yet another example of Virginia Tech’s emphasis on experiential learning, which, as university President Tim Sands pointed out in his State of the University address in January, leads to improved student success following graduation. Students with such learning on their resumes are 110 percent more likely to land their first choice of jobs, according to a study on the topic conducted

by the university. Though not technically an internship, students' involvement with Engineers in Action (EIA) provides them with real-world experience that many employers desire.

"The EIA program is a great opportunity for students across different disciplines to participate in an authentic, community-focused design project from start to finish," said Matthew James, associate professor of practice in the Department of Engineering Education. "With the guidance of EIA staff and volunteers, the student team takes the lead in everything from the initial project planning, design details, construction, and cultural awareness needed to complete each project successfully. I've been really impressed at how dedicated all the students are to these projects as well as how much they learn and grow not just as engineers but as global citizens throughout the process as partners with the communities where they're working."

The process for building the bridge started at the beginning of the spring semester. Engineering students from Virginia Tech, Georgia Tech, and the University of Illinois – Engineers in Action is a national organization with chapters at participating universities – collaborated on the student-led design of the bridge. Students from each school designed different parts of the bridge.

"We went through the whole process of designing the bridge from scratch," said Erika

Riddervold, who graduated from the Charles E. Via Jr. Department of Civil and Environmental Engineering in May. "We were given a site plan, and we had to design the pedestrian bridge, taking into account the landscape and the community. Our priorities were safety and influence on the community, but also what was the most economical design."

The three groups of students came up with many iterations, which they submitted to Engineers in Action's Bridge Corps, a group of engineering professionals who lend their expertise and sign off on designs before a project advances to the construction phase. Toward the end of the semester, all involved finalized the design and made plans for traveling to the South American country for the bridge's construction.

Riddervold, who hails from Charlottesville, Virginia, and will start a position with a transportation engineering firm in Richmond in September, served as the project manager for the Virginia Tech team and helped plan the trip. The four from Virginia Tech and six from Illinois worked with local masons hired by Engineers in Action and four members of the Bridge Corps to build the bridge. At least one Bridge Corps member travels with the team to the site to oversee the construction phase of every project.

The group allotted six weeks to build the project – but finished nearly three weeks ahead of schedule. After its completion, the local community held a

celebration.

"Everyone was crossing the bridge for the first time," Riddervold said. "The governor came and gave a speech. Community members as well gave speeches, saying how they were so grateful that we were able to come and help them build this bridge and how beneficial it would be. It was very heartwarming to kind of to see the impact that we were able to have."

Macias echoed similar thoughts.

"It was a great experience for me," she said. "Before the trip, I was almost like nervous about the entire construction process because I've never had any real experience in this. I didn't know if I'd be good. On the site, the masons and the community, they helped a lot, and they just made the process very easy. It was fun to enjoy, and now I kind of have a grasp of some of these concepts. I think it helped give me experience for several future projects or constructions."

Hers is a lesson for other Virginia Tech freshman students with similar aspirations – get involved, gain experience, and go make a difference

*By Jimmy Robertson*



*Amanda Darling prepares a plate for ddPCR which is a method used to detect pathogens in water and wastewater samples. Photo provided by Amanda Darling.*

## Appalachian drinking water quality and health data lacking, Virginia Tech-led study finds

Faced with a drought of data concerning Appalachian drinking water quality and resulting health outcomes, researchers dug deeply to find what trickles they could.

Alasdair Cohen, assistant professor of environmental epidemiology in public health, has studied drinking water and health challenges in rural areas internationally and in California. Since arriving at Virginia Tech in 2019, he has been studying similar issues in rural Appalachia.

“My first few years at Virginia Tech, I reached out to academics, nonprofits, and

state and local government agencies to try and better understand what was known about water quality in the region,” said Cohen, who researches and teaches in the Department of Population Health Sciences at the Virginia-Maryland College of Veterinary Medicine. “I was waiting for someone to say, ‘Oh, we have the data, here it is,’ as far as these are the contaminants of concern for a particular region. But increasingly it became apparent that data on water quality and related health outcomes in rural areas are limited.”

Amanda Darling, a doctoral

student in the College of Engineering’s Charles E. Via, Jr. Department of Civil and Environmental Engineering who is mentored by Cohen, is the lead author on a recently published systematic review and meta-analysis peer-reviewed study in the journal *Science of the Total Environment*. The study examined 3,452 scientific publications from the past 20 years to find data that met pre-established criteria for gauging microbial and chemical drinking water contamination in Appalachia and associated health outcomes.

The study found only 85 such

publications, with a scarcity of studies involving the Central Appalachian region or asking questions about health outcomes.

“As someone who has been working on issues related to water and sanitation in Appalachia for over a decade, I was not surprised by these results,” said Leigh-Anne Krometis, associate professor of biological systems engineering in the College of Engineering and a co-author of the study. “Unfortunately, while Appalachia has long been recognized as a region with acute infrastructure needs, on-the-ground data sets are incredibly limited, which makes the identification and prioritization of effectiveness interventions very difficult.”

The researchers cast a wide net to find any prior studies that are relevant.

“We also included papers whose research questions may not have even been focused just on drinking water quality and contaminants we’re interested in,” Darling said. “Some were focusing just on impacts from fracking, but we took the data, still being under our big research umbrella of things we were looking at. So even though we did find 85 eligible papers, a lot of them weren’t intended to answer the questions we are interested in.”

Darling said many of the existing studies were conducted in response to various contamination events, such as chemical spills in rivers.

Five of the seven co-authors are associated with Virginia Tech. Besides Darling, Cohen, and Krometis, co-authors include Hannah Patton, who recently finished her Ph.D. in biological systems engineering, and Md Rasheduzzaman, a postdoctoral researcher in the population health sciences working with Cohen. Two undergraduates at the University of Virginia at Wise are also co-authors, Rachel Guevera and Joshua McCray.

“The benefit of a systematic review and meta-analysis study is that it provides a rigorous way to review a body of literature and then systematically extract data and analyze it,” Cohen said. “In a way, it’s like a lab experiment. This is where this type of study differs from a narrative review. In a systematic review, you also review the literature, but you do so in a way that, like a lab experiment, could be replicated and ideally is pre-specified.”

The study will help researchers from Virginia Tech and elsewhere know what gaps need to be filled, which in the case of Appalachian drinking water quality and contaminants are many and wide.

The study also provided an important opportunity for graduate and undergraduate students to participate as authors on a publication in an important scientific journal, starting with the lead author, Darling, a Via Scholar in the College of Engineering. Darling completed her undergraduate work at the University of Illinois and has received master’s

degrees in environmental engineering and public health at Virginia Tech.

“I try to provide opportunities for graduate and undergraduate students to be involved in research that can lead to co-authorship opportunities on journal papers,” Cohen said. “For me, that’s a really important part of mentoring to try to provide those opportunities. I think it’s exciting for anybody to contribute to a scientific publication, but I’ve found from my experience it’s especially so for undergrads.”

Cohen is leading multiple research studies in rural areas in partnership with local utilities and nonprofits in Southwest Virginia and with collaborators at Virginia Tech, the University of Virginia, and East Tennessee State University. Together, they are collecting water samples, survey and health data, and sharing water testing results with households, all to help fill some of the research gaps identified in this new publication.

*By Kevin Myatt*

## MEET THE VIA SCHOLARS

The Via Scholarships are made possible through the generosity of the late Mrs. Marion Bradley Via of Roanoke, Virginia, and her family. In 1987, Mrs. Via contributed \$5 million each to the Departments of Electrical and Computer Engineering and Civil and Environmental Engineering. Virginia Tech's Board of Visitors subsequently named the ECE department in honor of Mrs. Via's deceased father, Harry Lynde Bradley, and the CEE department in honor of her late husband, Charles E. Via, Jr. Mrs. Via died in 1993.

Both departments use a portion of the endowment to award scholarships to qualifying students. These scholarships are among the most competitive in the country. Since the Via endowment was created in 1987, the department has received more than \$20 million in support.

We are proud to acknowledge that this is the 37th year of the Via endowment and the Via Report. We want to take this opportunity to recognize the current Via scholars as well as alumni that have come through the program for the last 36 years and continue to fulfill the mission set by the Via family.

## UNDERGRADUATE

## Paul DeBole



*Hometown:* Cranford, New Jersey

*Career Goals:* My work so far has inspired me to attend graduate school at Virginia Tech for environmental and water resources and conduct research at a university or government agency after graduation. Climate change will transform water resources policy, and I would like to study how government agencies can equitably combat sea level rise, flooding, and aquifer depletion.

## Andrew Joseph



*Hometown:* McLean, Virginia

*Career Goals:* After graduating this May, I will be staying for an M.S. in transportation engineering. After that, I want to work in public transit. I love solving the puzzle of moving people as safely and efficiently as possible and I have never gotten tired of playing with trains.

## Anna Walter



*Hometown:* Waxhaw, North Carolina

*Career Goals:* My ultimate career goal is to work as a professional civil engineer, dedicated to building and restoring infrastructure worldwide. I am passionate about being involved in structural research, design, and field implementation. My aim is to collaborate with international teams to develop environmentally friendly, cost-effective, and safer structures.

## Rick Wohlrab



*Hometown:* Freehold, New Jersey

*Career Goals:* After graduation, I plan to enter the industry as a structural engineer and work towards obtaining my professional engineering license. I'm interested in unique and complex structures. I want to work on challenging and rewarding projects.

MASTERS

Elizabeth Beyer



**ENVIRONMENTAL AND WATER RESOURCES**

*Hometown:* Durham, North Carolina

*Location of Undergraduate Studies:* North Carolina State University

*Career Goals:* After earning my M.S., I plan to work in a water resources engineering role and obtain my professional engineering license. I aim to solve large-scale water systems issues around the globe.

Emme Bina



**ENVIRONMENTAL AND WATER RESOURCES**

*Hometown:* Wichita, Kansas

*Location of Undergraduate Studies:* University of Kansas

*Career Goals:* After graduate school, I plan to work for a non-profit organization aimed at helping communities facing water insecurity.

Megan Blumenauer



**ENVIRONMENTAL AND WATER RESOURCES**

*Hometown:* Middletown, Maryland

*Location of Undergraduate Studies:* University of Maryland, College Park

*Career Goals:* After earning my M.S., I want to work in the public sector with a career focus on environmental justice, bridging the gap between engineering science and policy.

Heather Brouwer



**STRUCTURAL ENGINEERING AND MATERIALS**

*Hometown:* Ann Arbor, Michigan

*Location of Undergraduate Studies:* University of Michigan

*Career Goals:* My goal is to pursue a career in forensic structural engineering. I particularly wish to focus on the restoration and preservation of historic buildings. I also plan to earn my professional engineering license.

## MASTERS

## Mason Brown



## STRUCTURAL ENGINEERING AND MATERIALS

*Location of Undergraduate Studies:* The United States Air Force Academy

*Career Goals:* After graduation I will serve as a civil engineer in the Air Force. After finishing my career in the Air Force I would like to teach and later work in green engineering in development of new technologies or city planning to create more sustainable communities.

## Joanna Capone



## ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Cranford, New Jersey

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* After completing my M.S., I hope to proceed to a doctorate program or work at a national lab where I can continue my research on the socio-economic and land use drivers of water demand in the western United States. Eventually, I would love to conduct research as a professor, inspiring the next generation of researchers just like my professors at Virginia Tech have inspired me!

## Phillip Crispell



## GEOTECHNICAL ENGINEERING

*Hometown:* Ellicott City, Maryland

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* After completion of my graduate studies, I plan to begin working at a geotechnical design or design-build firm focusing on the design of deep foundations and solutions to geological hazards. During the start of my career, I plan to work towards obtaining my professional engineering license and gain valuable experience that will further my career.

## Madeline Deck



## ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Blacksburg, Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* I strive to help empower the public with the knowledge required to improve their drinking water quality either through consulting or new policy creation and implementation.

## MASTERS

### Riley Doyle



#### ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Olney, Maryland

*Location of Undergraduate Studies:* Bucknell University

*Career Goals:* After earning my degree, I hope to earn my professional engineering license by working at a consulting company or government on projects evolving around wastewater management.

### Justice Forster



#### STRUCTURAL ENGINEERING AND MATERIALS

*Hometown:* Salem, Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* Following graduation, I would like to serve as a structural design engineer and eventually earn my professional engineering license. Long term, I would like to start and manage my own construction firm that focuses on infrastructure development in communities that lack the resources to meet their needs. With this basis, I would also like to optimize the process in which the community can become involved in this development.

### Caitlyn Harris



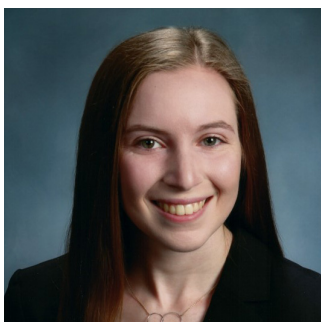
#### ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Midlothian, Texas

*Location of Undergraduate Studies:* The University of Texas at Austin

*Career Goals:* Upon completing my degree, I hope to pursue a career as a wastewater treatment process engineer or a design consultant with a focus in resource recovery and reclamation.

### Elise Hummel



#### GEOTECHNICAL ENGINEERING

*Hometown:* Wallingford, Connecticut

*Location of Undergraduate Studies:* Lafayette College

*Career Goals:* After earning my M.S., I will be working on Starbase's launch infrastructure as a Launch Engineer at SpaceX. I plan on obtaining my professional engineering license and being actively involved in professional organizations.

## MASTERS

## Olivia Janney



## GEOTECHNICAL ENGINEERING

*Hometown:* Wenatchee, Washington

*Location of Undergraduate Studies:* Franciscan University of Steubenville/Catholic University of America

*Career Goals:* I plan on obtaining my professional engineering license and working for a geotechnical design firm providing technical support for innovative geostructural engineering projects. I aspire to be a leader in my field and a mentor for young engineers.

## Amelia Ketelhohn



## ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Cedarburg, Wisconsin

*Location of Undergraduate Studies:* Marquette University

*Career Goals:* After completing my M.S., I hope to obtain my professional engineering license and work in the industry or government agency. I am interested in water, ranging from the accessibility of safe drinking water to discovering and mitigating contaminants in wastewater.

## Henry McKlin



## STRUCTURAL ENGINEERING AND MATERIALS

*Hometown:* Decatur, Georgia

*Location of Undergraduate Studies:* The University of Alabama

*Career Goals:* After earning an M.S., I plan to pursue a career as a structural engineer with a strong emphasis on sustainable design. I hope to design and preserve structures for future generations while lowering the carbon footprint of the civil industry.

## Jonathan Moore



## ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Fairfax, Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* After earning my M.S., I want to continue learning about the physics of coastal environments and sediment mechanics so that I can be a resource to coastal communities. To accomplish that goal, I plan to earn a Ph.D.

## MASTERS

### Morgan Oehler



#### ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Elkridge, Maryland

*Location of Undergraduate Studies:* University of Maine

*Career Goals:* I plan to work in the industry or at a government agency on stream restoration design and watershed management projects.

### David Provost



#### GEOTECHNICAL ENGINEERING

*Hometown:* Kennett Squarer, Pennsylvania

*Location of Undergraduate Studies:* University of Pittsburgh

*Career Goals:* For now, I want to focus on graduating with my M.S. and aim to work on transportation infrastructure projects as a geotechnical engineer. I would also like to become a professional engineer.

### Megan Schantz



#### ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Charlottesville, Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* After completing my M.S., I would like to work for a consulting firm performing groundwater monitoring, contamination investigations, and remediation.

### Katherine Scott



#### ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Wall, New Jersey

*Location of Undergraduate Studies:* Rutgers University

*Career Goals:* I hope to find a career applying research in water reuse to solve large-scale problems such as groundwater depletion.

## MASTERS

### Chantaly Villalona



#### ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Newark, New Jersey

*Location of Undergraduate Studies:* Wellesley College

*Career Goals:* I am pursuing a graduate degree in order to gain entry to and work in the drinking water industry. Once in the drinking water industry, I aspire to aid in strengthening national water security and public understanding of our water systems.

### Iliana Walters



#### STRUCTURAL ENGINEERING AND MATERIALS

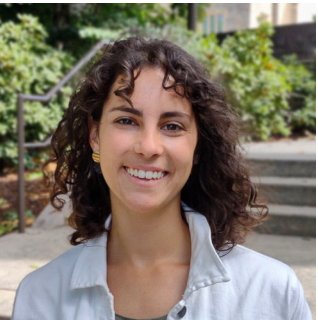
*Hometown:* Fredericksburg, Virginia

*Location of Undergraduate Studies:* Lehigh University

*Career Goals:* My goal after completion of my M.S. is to work in industry in protective design or forensic engineering while working towards obtaining my professional engineering license.

## DOCTORAL

### Ann Albright



#### STRUCTURAL ENGINEERING AND MATERIALS

*Hometown:* Louisville, Colorado

*Location of Undergraduate Studies:* University of Washington, Seattle

*Career Goals:* Innovating novel structural engineering designs and methodologies is critical for improving our infrastructure- both for sustainability and longevity. I hope to continue with research in the reinforced concrete field, retrofitting existing structures to improve performance under earthquake loads; simultaneously pursuing a teaching career to interact with the newest generation of civil engineers.

### Megan Beever



#### ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Stratham, New Hampshire

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* I hope to continue my research in academia or the federal government after graduating.

## DOCTORAL

### Thomas Carnes



#### STRUCTURAL ENGINEERING AND MATERIALS

*Hometown:* Lake Milton, Ohio

*Location of Undergraduate Studies:* Youngstown State University

*Career Goals:* After graduating, I hope to continue in academia as a professor. As a professor, I would like to positively impact the civil engineering community by furthering the understanding of structural engineering through research and teaching future generations of civil engineers.

### Zachary Coleman



#### STRUCTURAL ENGINEERING AND MATERIALS

*Hometown:* Brodheads ville, Pennsylvania

*Location of Undergraduate Studies:* Lafayette College

*Career Goals:* After obtaining my Ph.D. from Virginia Tech, I aim to work in the engineering industry for a company specializing in the forensic analysis and repair of civil infrastructure. After this time, I may pursue a career in academia to help educate the next generation of young engineers.

### Amanda Darling



#### ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Aurora, Illinois

*Location of Undergraduate Studies:* University of Illinois at Urbana-Champaign

*Career Goals:* After earning my degree, I hope to pursue research opportunities applying technologies for sustainable development of water infrastructure, including systems for wastewater treatment and water supply.

### Fred Falcone



#### GEOTECHNICAL ENGINEERING

*Hometown:* Pembroke Massachusetts

*Location of Undergraduate Studies:* Wentworth Institute of Technology

*Career Goals:* After completing my Ph.D. I want to continue work in research. My plan is to either continue in academia and work as a professor, or to work for a research facility.

DOCTORAL

Megan Harris



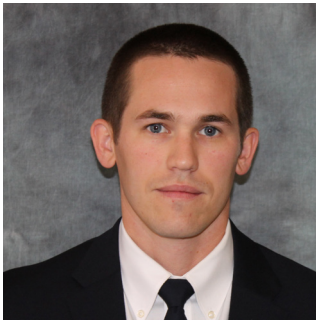
ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* San Antonio, Texas

*Location of Undergraduate Studies:* The University of Texas at Austin

*Career Goals:* I aim to harness my modeling expertise to shape government policies, working on international projects that drive sustainable change in infrastructure and environmental practices.

Steven Hoagland



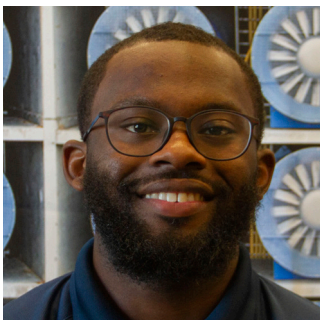
ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Lexington, Kentucky

*Location of Undergraduate Studies:* University of Kentucky

*Career Goals:* I would like to perform research and help educate young engineers as a university faculty member.

Joseph James



CONSTRUCTION ENGINEERING AND MANAGEMENT

*Hometown:* Columbia, South Carolina

*Location of Undergraduate Studies:* Clemson University

*Career Goals:* I want to excel in teaching students, conducting research related to creating societal change, collaborating with other faculty members, receiving grants, and creating a pathway for future black engineers to feel welcome and know that they can achieve any level of greatness.

Krystin Frances Kadonsky



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Clearwater, Florida

*Location of Undergraduate Studies:* University of South Florida

*Career Goals:* My main goal in my career is to help others, and Virginia Tech has provided me the opportunity to focus my expertise on pathogens in drinking water and wastewater. Throughout my career after graduation, I would like to provide mentorship to younger aspiring engineers, and help solve public health crises for communities in need. I would also like to write my own version of “Kitchen Confidential” one day, perhaps after I’m retired.

DOCTORAL

Alexandra Longest



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Oakland, Maryland

*Location of Undergraduate Studies:* Bucknell University

*Career Goals:* After earning my doctorate, I would like to work at a national laboratory to continue to pursue research into issues concerning public health and the air.

Kathryn Lopez



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Miami, Florida

*Location of Undergraduate Studies:* Florida State University

*Career Goals:* I plan to become a professor to continue conducting research on aquatic contaminants and shape the learning experiences of young engineers. I also aim to become involved in environmental policy.

Christian Lytle



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Liberty Township, Ohio

*Location of Undergraduate Studies:* Case Western Reserve University

*Career Goals:* I plan on conducting research in academia or the private sector after completing my doctorate degree. My end goal is to teach and mentor the next generation of environmental engineers.

Clayton Markham



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Syracuse, New York

*Location of Undergraduate Studies:* University at Buffalo

*Career Goals:* I would like to be a professor of environmental engineering, concomitantly performing cutting-edge research and educating the next generation of environmental engineers to protect both planet and people.

DOCTORAL

Frank Mazzola



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Sterling, Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* I hope to continue researching problems in drinking water systems and developing solutions to help communities receive safe water. I aspire to teach the next generation of environmental engineering students.

Lilian McIntosh



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Abilene, Texas

*Location of Undergraduate Studies:* Abilene Christian University

*Career Goals:* Upon completing my degree, I plan to pursue consulting as a wastewater treatment process engineer. My goal is to help communities on the municipal scale to have access to sustainable wastewater treatment. Later in my career journey, I hope to become a professor in an effort to lead future generations of rising engineers.

Tolulope Odimayomi



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Westfield, Indiana

*Location of Undergraduate Studies:* Purdue University

*Career Goals:* I plan to pursue a career in academia centered around conducting community focused research on water quality and sustainability in the built environment to protect public health. I hope to address modern environmental concerns and equip the next generation of engineering professionals to do the same.

Kase Poling



CONSTRUCTION ENGINEERING AND MATERIALS

*Hometown:* Beckley, West Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* Become governor of West Virginia

DOCTORAL

Mia Riddley



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Byram, Mississippi

*Location of Undergraduate Studies:* Iowa State University

*Career Goals:* I want to pursue research opportunities within academia or government agencies that address environmental sustainability, ecosystem health, and environmental justice.

Fernando Roman



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Monterey, California

*Location of Undergraduate Studies:* University of California, Merced

*Career Goals:* After graduating from Virginia Tech, I would like to work as a drinking water/wastewater treatment plant designer, operator, and lab technician. I also hope to publish a collection of poems along the way.

Benjamin Roston



ENVIRONMENTAL AND WATER RESOURCES

*Hometown:* Newport News, Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* I hope to explore opportunities in flood hazard management to improve the safety, welfare, and well being of communities impacted by hazardous floodplains and coastal zones. I look forward to exploring new perspectives on the relationships between water and society throughout the master's program and my future career.

Alan Smith



STRUCTURAL ENGINEERING AND MATERIALS

*Hometown:* Buena Vista, Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* I would like to work in either a research setting or structural forensic analysis.

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## DOCTORAL

### Joshua Trump



#### CONSTRUCTION ENGINEERING AND MANAGEMENT

*Hometown:* Manassas, Virginia

*Location of Undergraduate Studies:* Virginia Tech

*Career Goals:* My interests are split. I'm very interested in continuing research but I'm also considering my future in industry. I'm excited to see where this year takes me as I explore more of my research and experience academia.

**THE CHARLES E. VIA, JR. DEPARTMENT OF  
CIVIL AND ENVIRONMENTAL ENGINEERING**

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