



## MESSAGE FROM THE CHAIR

I am glad to share with you the continuous success and growth of UNM Civil, Construction & Environmental Engineering in Fall 2019. We celebrate the success of our Center for Water and the Environment team being awarded \$5.0M for a new CREST Phase II Grant from the National Science Foundation. We also celebrate the national interest in our transportation research examining safe bicycling. We are excited about the success of our efforts on infrastructure

resilience which has grown our study abroad program, enabling CCEE students to learn principles of transportation and water resilience in Germany and Holland. The National Science Foundation funded colloquium on infrastructure resilience that was held in August 2019 was very successful. With our annual research expenditures exceeding \$6.5M, I am pleased to share our plans for expansion and hire four new faculty members in CCEE in 2020. We are also delighted to welcome our new faculty hire, Dr. Maryam

Hojati, with her research focus on 3D-printed concrete. Finally, we remember a great friend of the department, Professor Jerry Hall, who passed away in 2019. Professor Hall served as a faculty in the department in the transportation area for 34 years and was the department chair from 1990 to 1997. Jerry will always be remembered by UNM faculty and alumni.

**Mahmoud Taha, Distinguished Professor and Chair**

## \$5M NSF CREST PHASE II GRANT

The University of New Mexico has received a \$5 million grant from the National Science Foundation to continue the groundbreaking research that the Center for Water and the Environment has been leading since 2014. The CREST Center for Water and the Environment, Phase II, begins Jan. 20, 2020, and continues through Dec. 31, 2024. The grant continues the work from Phase I which was funded from a \$5 million, 5-year NSF grant awarded in 2014. CREST stands for Centers for Research Excellence in Science and Technology.

## FUNDRAISING CAMPAIGN

The CCEE Department is launching a major fundraising campaign to upgrade its facilities and shape its roadmap toward 2030. We need your leadership gift for UNM CCEE. For details, please contact:

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Leslie Currie, SOE Senior Director of Development  
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## ANNUAL PAVING CONFERENCE

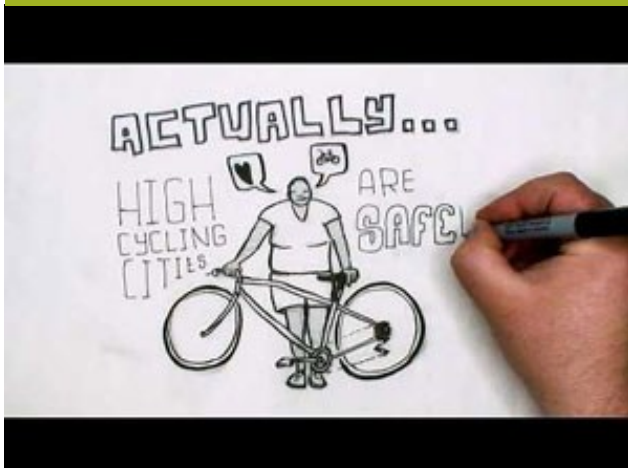
The 57th Annual Paving and Transportation Conference will be held January 8-10, 2020 at the Marriott Pyramid North Hotel and Convention Center in Albuquerque. For more information: <http://civil.unm.edu/about/paving-conference/index.html>

## NEW FACULTY MEMBER IN STRUCTURES



UNM CCEE welcomes a new faculty member, Dr. Maryam Hojati, assistant professor in structures. Dr. Hojati's research interests include the utilization of additive manufacturing technology for built environments. Her long-term research goal is to develop innovative materials, advanced fabrication systems, and novel design techniques to enable the construction of affordable housing. In May, the CCEE Department installed a state-of-the-art lab space in 3D concrete and printing by utilizing a gantry 3D-printing system located in the new Dana C. Wood Materials and Structures Lab. This lab will provide 3D technologies which have great potential for adaptation within the construction industry. Dr. Hojati received her PhD in civil engineering from Pennsylvania State University in 2017.

## NICK FERENCHAK RESEARCHES CITIES WITH HIGH BICYCLING RATES



About 40,000 people are killed in motor vehicle crashes each year in the U.S. Researchers estimate that biking is about ten times less safe than driving on a per mile basis. However, cities with high rates of bicycling are some of our safest in terms of motor vehicle crashes. Why would that be? Does the presence of bicyclists force drivers to change their behavior? Is it the infrastructure that we build in these cities? Or are the demographics simply different? Dr. Nick Ferenchak, an assistant professor in transportation and traffic engineering, examined these factors for 12 major U.S. cities, investigating 13 years of data that included crashes, mode choice, socio-demographics, trauma center access, weather, infrastructure, street networks, vehicle speeds, and more. Findings show that better safety is less about the number of bicyclists on our roads and more about the type of infrastructure we provide. Specifically, protected and separated bike lanes make the biggest impact. Holding all else constant, we would expect cities in the top tier of protected bike lanes to kill 44% less road users, and that is all road users, not just bicyclists. View the research paper video on YouTube: [https://www.youtube.com/watch?time\\_continue=21&v=YwYeNz1jCkM](https://www.youtube.com/watch?time_continue=21&v=YwYeNz1jCkM)



## DEPARTMENT EXPANDING WITH NEW FACULTY

The CCEE Department has a vision for unprecedented growth in research and education over the next 10 years that includes an aggressive search and hire of the future leaders in civil, construction, and environmental engineering. We intend to expand our faculty for Fall 2020 in the following four focus areas: Construction engineering and management, Structural engineering, Transportation engineering, and Environmental and water resources engineering. The department currently has 16 faculty members, several research professors, 250 undergraduate students, and 85 graduate students. The department generates \$6.5 million in annual research expenditures. For more information, please visit: <https://unmjobs.unm.edu> , Faculty Careers, ReqID: 10595.

## RESILIENCE COLLOQUIUM 2019 WAS A HUGE SUCCESS



A group of about 200 people attended the 4th Annual UNM Resilience Colloquium (RC4) in early August. RC4 was hosted by the UNM Resilience Institute, the CCEE Department, and Colorado State University, and sponsored by UNM, the National Science Foundation, the New Mexico Department of Transportation, and the 100,000 Strong in the Americas Program. RC4's theme was connectivity between resilient urban and rural systems. Participants were from New Mexico along with speakers from Colorado, California, Minnesota, Pennsylvania and England. Highlights included a welcoming address by U.S. Rep. Deb Haaland, a lunch presentation by U.S. Sen. Tom Udall, and professors and students from Universidad de Sonora, Instituto Tecnológico de Hermosillo, and Instituto Politécnico Nacional in Mexico. (Photo from left: U.S. Sen. Tom Udall, Mark Stone, Mahmoud Taha)

Mexico. (Photo from left: U.S. Sen. Tom Udall, Mark Stone, Mahmoud Taha)

## SUMMER STUDY ABROAD PROGRAM IN GERMANY AND HOLLAND



In Summer 2019, Mark Stone, associate professor, civil engineering, and Michael Gonzalez, lecturer II, construction, organized an outstanding trip to Germany and Holland teaching engineering concepts to students. The faculty traveled with 22 UNM students, spending two weeks in Germany, focusing on transportation systems, and two weeks in Holland, focusing on water resources. Check out the Holland course; <http://holland2019.weebly.com> . Plans are already underway for another study abroad program in Summer 2020.

## IN MEMORIAM—PROFESSOR JERRY HALL



Jerome (Jerry) Hall, a professor emeritus at the University of New Mexico Department of Civil, Construction and Environmental Engineering, passed away July 8 at his home in Albuquerque. He was 75. Jerry taught for 34 years at UNM, including seven years as department chair. He studied transportation engineering, highway design and traffic safety, and provided expert analysis of serious crashes to see if safety improvements were needed. In a 2011 edition of UNM Engineering magazine, Jerry described a research highlight as working with the Insurance Institute for Highway Safety to study accidents in New Mexico when single vehicles overturned. He also volunteered with the Transportation Research Board throughout his career. Jerry was awarded with a lifetime achievement award in 2006 from the Institute of Transportation Engineers' Western District, and the organization established a scholarship in his name. While at UNM, he established a capstone design course, where teams of seniors worked with practicing professional engineers in real-world projects. Jerry earned his master's and doctorate degrees in civil engineering at the University of Washington, then taught for seven years at the University of Maryland before coming to UNM.

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## STUDENT NEWS

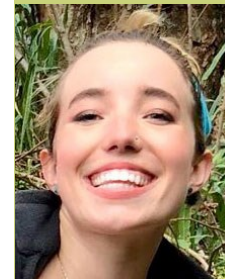
### Samuel Boyce MSCE Candidate



Samuel Boyce, a graduate research assistant for Dr. John Stormont, will earn his M.S. this fall in civil engineering, graduating with distinction. With

Los Alamos National Laboratories, he developed a novel experiment testing confined Brazilian disks to correlate damage and permeability in brittle geomaterials. He published and presented his work on simulating hybrid fractures in Carrara marble at the 2019 American Rock Mechanics Association Symposium. After graduating, Sam plans to continue his research and accept a full-time position at LANL.

### Dora Bean BSCE Candidate



A native of Albuquerque, New Mexico, Dora is a senior B.S. civil engineering student. She is part of Dr. Mark Stone's research team, currently

studying ENSO events and sustainable water resources along the Continental Great Divide. She has participated in research on climate change and agricultural development in Northern Ecuador for the last two years and spent last summer working at Ghost Ranch in Abiquiu, New Mexico, designing environmental education outreach initiatives for New Mexican youth. She is the 2019 recipient of the Braidwood Honors STEM Scholarship.

## CCEE Facts at a Glance

Number of Faculty	16
Number of Undergrads	268
Number of Grad Students	86
Number of Adjuncts	9

Annual Research Expenditures  
FY 2019  
\$6.5 Million

Department Scholarships  
\$118,000 Awarded Annually to  
Undergrad and Graduate Students