The Next Generation of TRANSPORTATION
Welcome back to a new academic year! I am especially excited to be leading our community into the new academic year as the Donald Malloure Department Chair.

I would like to personally thank my predecessor, Prof. Kim Hayes, for his leadership and dedication to our department. During Kim’s tenure, the department re-introduced transportation into our undergraduate and graduate programs, increased our research output and impact, grew the newly established accredited undergraduate degree program in Environmental Engineering, and increased the number of students, faculty and staff in our community, just to name a few achievements. As Department Chair, I am excited to pick up right where Kim left off.

I have a number of new initiatives I am pleased to announce.

- We will be launching a strategic planning process that will develop a strategy to strongly differentiate us from our peers while informing future investments in the CEE department.
- We will continue to nurture large-scale teaching and research efforts that amplify our impact nationally and internationally. Our faculty are leading several cross-campus center efforts in very timely thematic topics, including: microbial processes in the built and natural environment; innovative infrastructure financing models; smart cities; and community resiliency in the face of natural hazards.
- We are establishing a new committee on Facilities and Research that will focus on making plans to upgrade our laboratory facilities. We have already broken ground on renovating the wave tank area of our civil engineering laboratories to create a reconfigurable laboratory space centered on new materials and manufacturing processes, including 3D printing of structures. We have also started the process of modernizing the classrooms in G. G. Brown to ensure faculty and students are empowered with the newest learning technologies.
- We are launching two new 26-credit Master’s of Engineering degrees programs, with specializations in Construction Engineering and Management (CEM) and Structural Engineering. These programs will position the department to be even more competitive in recruiting the best domestic and international students to our graduate programs.
- We will be reinforcing the on-campus student experience by empowering our undergraduate and graduate students with additional resources that will allow student leaders to introduce exciting new co-curricular, professional development, and social activities during the year.

In addition to our own efforts, our department will benefit from the new initiatives being led by Dean Alec Gallimore of the College of Engineering. This past summer, Dean Gallimore launched a new strategic vision, mission and set of values to ensure Michigan Engineering remains at the forefront of innovation in the field. As part of that vision, we are all excited by his efforts in emphasizing diversity, equity and inclusion on campus. A core strength of our department is that it is one of the most diverse and inclusive departments on campus, but we aim to do even better to ensure we are tapping into the best human talent possible.

As I embark on this first year as Chair, I am energized by the vibrant and engaged CEE community of faculty, students, staff and alumni. I am excited to lead the department as it sets out in new directions, and looking forward to meeting and working with all members of our family, including the new students, alumni and friends of the department.

Have a great academic year and Go Blue!

Jerome P. Lynch, Ph.D.
Professor and Donald Malloure Department Chair
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734•615•5290
The Department of Civil and Environmental Engineering welcomed Dr. Yafeng Yin to the faculty in January 2017. Coming to us from the University of Florida, Dr. Yin is a member of our Next Generation Transportation Systems and Intelligent Systems groups.

Dr. Yin is an internationally recognized expert on transportation systems analysis and modeling, and has published approximately 100 refereed papers in leading academic journals. He is the Editor-in-Chief of Transportation Research Part C: Emerging Technologies, one of the leading academic journals in the transportation domain.

Dr. Yin received his Ph.D. from the University of Tokyo in 2002, his master’s and bachelor’s degrees from Tsinghua University, Beijing, China in 1996 and 1994, respectively. Prior to his current appointment at the University of Michigan, he was a faculty member at University of Florida between 2005 and 2016. He worked as a postdoctoral researcher and then assistant research engineer at University of California at Berkeley between 2002 and 2005. Between 1996 and 1999, he was a lecturer at Tsinghua University.

Dr. Yin has received recognition from different institutions. He was one of the five recipients of the 2012 Doctoral Mentoring Award from University of Florida in recognition of his outstanding graduate student advising and mentoring. One of his papers won the 2016 Stella Dafermos Best Paper Award and the Ryuichi Kitamura Paper Award from Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine. He was also recently elected to serve on the prestigious International Advisory Committee of the International Symposium of Transportation and Traffic Theory (ISTTT).

Dr. Yin’s research interests include the analysis, modeling, design and optimization of transportation systems toward achieving sustainability and economic efficiency. His ongoing research involves investigating the implications of emerging technologies on mobility systems. “I closely follow the development of new technologies, such as smart mobile devices and apps, sensor technologies, electric vehicles, drones, and connected and automated vehicles,” says Dr. Yin. “I examine how they could potentially affect both the demand and supply sides of transportation systems, and then explore how to leverage these new technologies to better design, operate and manage transportation systems and improve the efficiency, reliability, safety, and diversity of the transportation services.” Beyond transportation, Dr. Yin also studies the interdependency of urban infrastructure systems, such as transportation, power and communications networks.

Dr. Yin is very happy to be joining the Next Generation Transportation Systems and the Intelligent Systems groups at CEE. In years past, the department’s transportation program was among the best in the nation and produced many students with successful careers in the transportation industry and academia. “We’re rebuilding this legacy and are creating a top-notch transportation program. I’m very excited to be part of this journey and look forward to working with others in the program to embrace the challenges and opportunities that lie ahead.”
Steven Wright  Commemorating a Career

Steven J. Wright has had a remarkable tenure at U-M, a 40-year career as a Professor of Civil and Environmental Engineering. He finished teaching at the end of 2017 winter semester, but because of a retirement furlough, he won’t be officially retired until 2018.

Throughout his career, Steve has put incredible energy into teaching and service. “Steve’s dedication and devotion to the department is second to none,” said Kim Hayes, the former department Chair and the Arthur J. Decker Collegiate Professor of Civil and Environmental Engineering. “His biggest and most selfless contributions have been in service and teaching, and are unmatched by any other faculty member I have met in my 30 years.”

Wright says what he’ll miss most in retirement are the students. Wright has taught over 20 core and elective courses including Introduction to Engineering, Design of Hydraulic Systems, Fluid Mechanics, Professional Issues and Design, and Coastal Hydraulics. While many professors develop strong relationships solely with their graduate-level students, Wright has always connected well with both undergraduate and graduate students. He served as faculty advisor for many student organizations such as the Chi Epsilon Honorary Society and the Pantanal Partnership.

He took an all-encompassing approach to teaching, and his efforts have not only helped students understand course material, but also “helped to shape the ways in which they came to view the world around them,” he said. In addition to being named Professor of the Year by U-M student organizations several times, his teaching evaluations have been among the highest of all professors in civil and environmental engineering for many years.

He has earned 30 honors and awards throughout his career for his dedication to teaching and civil and environmental engineering. This includes the Arthur F. Thurnau professorship, U-M’s highest teaching honor, in 2006, a state Distinguished Professor of the Year Award in 2006, and the Chi Epsilon Arthur N.L. Chiu Outstanding Faculty Advisor Award in 2010.

His research focused on sustainable development, hydraulics, storm water management and water quality issues in natural systems. His PhD research earned the international Lorenz G. Straub award and formed the basis for much of his early work at Michigan on environmental mixing processes in buoyant flows. In later years, he concentrated on understanding and predicting highly transient air-water interactions in large storm water and combined sewer collection systems for which he was recognized by the American Society of Civil Engineers with its Hydraulic Structures Award.

His work has been published in nearly 150 articles, and he has co-authored eight books.
Driven by the rapid development of information, sensor, and vehicular technologies, we are on the cusp of a transportation revolution not seen in decades. Ongoing issues with traditional transportation systems, such as congestion, pollution, limited parking, high traffic fatalities and ever-increasing costs, have created the need for improved transportation alternatives.

Cutting-edge research in connected vehicle technology, currently being conducted right here at the University of Michigan in Mcity, is propelling the steady progression toward transportation autonomy. While autonomous technologies will continue to advance toward incorporation into our transportation systems, safety testing, wide-spread adoption and regulation are key to successfully bringing these technologies to market.

Modern, quickly evolving on-demand travel solutions, such as ridesourcing and ridesharing, are changing the landscape of the industry. On-demand mobility services are playing an increasingly important role in meeting urban and rural mobility needs. At the same time, these new technologies and services come with unique challenges that must be addressed.

The Department of Civil and Environmental Engineering is pioneering technical research related to the next generation of transportation systems. The CEE program is identifying potential issues with these emerging technologies, leveraging the unparalleled research resources and developing innovative solutions.

The Next Generation Transportation Systems

The Department of Civil and Environmental Engineering is addressing the potential impacts of these emerging transportation technologies. The Next Generation Transportation Systems (NGTS) program at CEE is a platform for innovative transportation research. Faculty members, Tierra Bills, Henry Liu, Neda Masoud, Jim Sayer and Yafeng Yin, are developing new research relating to the implications of emerging technologies on the planning, design, operations and management of transportation systems.

Located on North Campus, Mcity is the world’s first connected and automated vehicle testing facility.

The NGTS Program has access to one of the most comprehensive facilities in the world for connected and automated vehicle (CAV) research, Mcity. Mcity, located
on the north campus of U-M near the intersection of Plymouth Road and Huron Parkway, is the world’s first dedicated CAV test facility. The simulated city, made possible by public-private partnerships, sits on 32-acres. Mcity contains many of the travel features we encounter in everyday life, such as intersections, sidewalks, buildings, streetlights, construction, railroad crossings and parking.

Students and faculty of the Department of Civil and Environmental Engineering utilize Mcity for many aspects of their vehicle technology research. The test facility allows researchers to gather data, perfect their algorithms and optimize their models in a safe testing environment.

NGTS faculty and students also have access to the Center for Connected and Automated Transportation (CCAT), which was created by a $2.4M grant from the U.S. Department of Transportation. CCAT conducts research in the fields of comprehensive transportation safety, connected infrastructure and autonomous vehicles.

Augmented Reality Simulation
Safety testing is a crucial part of the autonomous car development process. Testing must be conducted before self-driving vehicles can be integrated into our communities. How can we test autonomous cars for real world scenarios, without the danger of testing in real world scenarios?

Civil and Environmental Engineering professor, Henry Liu, has developed the technology to test scenarios that would be too expensive or unsafe to attempt in the real world. Augmented reality simulation is a mixed reality environment where virtual traffic communicates with real traffic through vehicle-to-vehicle (V2V) channels. With augmented reality, virtual vehicles and real vehicles can communicate their information about location, direction and speed. Thousands of scenarios can be tested, such as a car running a red light. The system can also generate virtual pedestrians and trains, as well as sounds.

“No one else has the capacity to add augmented reality to a test environment.”
–Professor Henry Liu

Augmented reality simulation is currently being utilized at the Mcity test facility in Ann Arbor. Liu’s augmented reality simulation allows for real and virtual vehicles within Mcity to communicate with one another and react to each other in real time.

One of the challenges with Mcity has been how to populate the test facility with enough traffic for realistic safety testing. With augmented reality, even if there are only a few real cars operating, tests can be conducted as if there is a realistic amount of background traffic.

“This is a game-changer,” CEE Professor Henry Liu said. “No one else has the capacity to add augmented reality to a test environment. And an important part of technology development for connected and automated vehicles is to evaluate the technology and to gain the confidence of the public.”

The system uses a powerful simulation environment to calculate the trajectory of multiple other vehicles in the area and the position, speed and heading is broadcast over the V2V system. Typically with self-driving cars, cameras and radar devices are used to spy upcoming obstacles, but the sensors are unable to see objects that are beyond their line of sight. In augmented reality simulation, information from virtual vehicles is being sent to Mcity, where the information is broadcast out. Cars can wirelessly and securely share data about their location, direction and speed at the rate of 10 messages per second, using Dedicated Short Range Communications.

Emerging Mobility Services and Systems
CEE professor, Yafeng Yin, conducts research on transportation systems modeling and analysis. His research group, Lab for Innovative Mobility Systems (LIMOS), is currently investigating critical issues associated with the analysis, design, operations, regulation, and management of innovative mobility services and systems. “Our work addresses both the pressing needs and emerging challenges imposed by these services and systems,” Professor Yin said.

One of Yin’s research projects, funded by the National Science Foundation (NSF), examines the impacts of ridesourcing services like Uber and Lyft on the traditional taxi industry and investigates how to regulate and manage them to create a fair, open, and competitive ride-for-hire market. The ridesourcing services have enjoyed rapid growth in the last few years while creating controversies and generating heated debates. Yet the current research efforts in this area lags so far behind the industry that many policy makers are struggling to even understand the impacts and implications of these services, let alone prescribe guidance on their development and deployment. To address this pressing need, Professor Yin and his students have developed methodologies and tools to analyze the structure and competition of taxi markets with ride-sourcing services. Insights were derived from theses analyses on how to form an effective regulation policy to better manage ride-sourcing services.
In another NSF sponsored project, Professor Yin and his students have developed a smart phone-based parking navigation system to help drivers find curbside parking spaces in downtown areas. Parking is a growing problem in dense urban areas. To many, finding a parking space in those areas is an unpleasant experience of uncertainty and frustration. Cruising for parking makes traffic on already-congested urban streets even worse and leads to significant waste in time and fuel.

The parking navigation system developed by Yin’s group aims to mitigate parking competition via guiding drivers to open spaces appropriate for them. For example, the adoption of shared-use mobility, such as Lyft or Uber, has the potential to contribute to an increase of vehicle miles traveled, so we set the model to verify that and propose possible solutions. We propose providing parking spaces that are used only for shared-use vehicles, to maximize the total social welfare.”

“What I like most about the transportation program is you are actually solving a real problem that everyone experiences. It is very figurative and concrete. You actually see real-world results,” added Xu.

“"The future of ground transportation lies at the intersection of shared mobility, autonomous vehicles, and connected vehicle technology.”

–Assistant Professor Neda Masoud

User-Shared Resources in the Transportation Space

Neda Masoud, assistant professor at CEE, is conducting research surrounding optimization of shared-use mobility options. Shared-use mobility refers to services that enable users to gain short-term access to various types of transportation options on an “as-needed” basis. Users can access services on-demand, rather than owning assets or signing long-term contracts. Shared mobility offerings can include bikesharing, carsharing and ridesharing services. The convenience of requesting trips via a mobile device is challenging all of the previously-established rules of the transportation industry.

Masoud mathematically models large-scale systems, and creates efficient algorithms to optimize the mathematical models. Optimization is key from the operational point of view to place passengers and drivers in close proximity. Furthermore, from a systems point of view the mathematical models ensure that pricing of shared and innovative transportation alternatives is done in such a way that travelers would benefit from participating in the system (that is, the proposed solutions are individually rational), and that the system is budget-balanced and does not need subsidies to operate. Maximizing ride matching, while guaranteeing a high level of service to all system users, will increase the adoption rate for peer-to-peer ridesharing, creating a positive reinforcement loop.

Masoud is also working on research to guide the transitions between semi-autonomous vehicles and human drivers. Autonomous vehicles have not perfected conditional automation, where control is transferred seamlessly between the autonomous entity and the human driver. An optimal control exchange policy is the focus of this part of Masoud’s research.

There are a number of challenges involved with emerging transportation technologies, and policies and politics resources, putting those people in the same vehicle. Ridesharing applications can provide a tool for riders and drivers to find one another. There are many benefits of ridesharing, including less cost, less congestion, less pollution and less stress on the infrastructure.
have yet to catch up. Taxation models may need to be adjusted, switching from a gasoline-based tax system to a vehicle-miles-traveled (VMT) system, to avoid abuse of the transportation infrastructure by autonomous vehicles. Masoud examines the full picture of how communities can best transition to connected and automated vehicle technology. “The future of ground transportation lies at the intersection of shared mobility, autonomous vehicles, and connected vehicle technology,” said Professor Neda Masoud.

The quality of transportation available in a community affects people’s economic and social opportunities.

Transportation Equity

Tierra Bills, CEE Assistant Professor and Michigan Society Fellow, studies travel behavior, specifically in connection with different segments of the population. She compiles data on how people travel and how they make their transportation decisions. Bills looks at the entire range of transportation investments and analyzes the benefits that these investments will bring to society. The benefits could include increased availability of personal travel modes, transportation accessibility and equity. She utilizes state-of-the-art travel demand models to determine how these benefits will be distributed among society.

Historically, transportation investments have had negative impacts on some segment(s) of the population. “I aim to create methods for understanding and mitigating negative impacts on transport-disadvantaged communities,” says Professor Bills. Transport-disadvantaged communities have a number of constraints, such as inaccessibility to transit systems, income restraints or education constraints. Transportation equity (or Environmental Justice) regulations require that transportation investments expand opportunity to the most people and minimize any potential negative impacts. While billions are invested in our nation’s transportation system each year, millions of Americans still lack affordable and accessible transportation options. Robust transportation, providing access to jobs, education, health care and services, can build stronger, more competitive communities. The quality of transportation available affects people’s economic and social opportunities. These are important issues that not many transportation engineering researchers are currently addressing.

“I aim to create methods for mitigating negative impacts on transport-disadvantaged communities.”

–Assistant Professor Tierra Bills

One of Bills’ ongoing projects is the creation of a multi-sourced data-collection system that includes paper surveys, online surveys, GPS tracking and mobile smart phone applications to study transportation needs in Benton Harbor, MI. Benton Harbor is struggling to better serve the diverse transportation needs of its community. With over half of Benton Harbor households without access to a car, public transportation is critical for many residents to meet their basic needs.

Unemployment remains a major hurdle, impeding the prosperity of Benton Harbor. Bills’ study is targeting survey responses from both employed and unemployed residents, with the goal of understanding the relationship between transit accessibility and employment outcomes. Another project of Bills’ focuses on the potential equity impacts of connected and autonomous vehicles. How will different groups be impacted by this technology? Experimental data will be collected in the form of post-surveys for participants in the Moxy pilot. The aim is to look at variations in willingness to adopt autonomous vehicles and the role that exposure can have on the adoption of CAVs.

As connected and autonomous vehicle technologies continue toward incorporation into our public transportation systems, there exists a variety of open questions surrounding development, policy and planning.

New, shared-use forms of transportation, such as ridesourcing and ridesharing, are gaining momentum. The benefits of shared mobility for cities and residents are extensive. To fully realize them, we must address the remaining challenges related to issues such as regulation.

Faculty and students of the Next Generation Transportation Systems program at CEE are creating innovative research projects to apply definitive answers to these questions and resolve the potential issues. The future of transportation leaders and innovators is being created right here at the department of U-M Civil and Environmental Engineering.

Shahabi added, “With the advent of autonomous vehicles and smart phone technologies communicating with users, the study of transportation has a very bright future.”

“Tweaking different components on the supply side of transportation can actually change your life.”

–Postdoctoral Fellow Mehrdad Shahabi
Recent Grads

FALL 2016

Aaron Anderson — Civil Engineering MSE
Emily Cressette — Environmental Engineering MSE
John Dunnc it — Civil Engineering MSE
Nicholas Fredricks — Construction Eng & Mgt MEng
Oscar Leonel Gonzalez Carrion — Civil Engineering MSE
George Gryzwacz Jr. — Civil Engineering MSE
Matthew Halse — Civil Engineering MSE
Emily Herbert — Civil Engineering PhD
Xuewen Hu — Structural Engineering MEng
Vaibhav Jain — Construction Eng & Mgt MSE
Mollie Kurasik — Civil Engineering MSE
Haiwei Luo — Construction Eng & Mgt MSE
Rishabh Mahimtura — Construction Eng & Mgt MSE
Anne Menefee — Environmental Engineering MSE
Huirong Ning — Environmental Engineering MSE
Zhicheng Ouyang — Civil Engineering MSE
Michael Partenlo — Civil Engineering MSE
Richelle Penn — Civil Engineering MSE
Martina Plikta — Structural Engineering MEng
Sara Rimer — Environmental Engineering PhD
Brenden Ritoila — Civil Engineering MSE
Nicole Rockey — Environmental Engineering MSE
Justin Sam — Construction Eng & Mgt MEng
Vishal Shah — Construction Eng & Mgt MSE
Shengying Shen — Civil Engineering MSE
Rebecca Spellacy — Environmental Engineering MSE
Naga Veena Talota — Construction Eng & Mgt MEng
Devibaghy Thirunarayanam — Environmental Engineering MSE
Kevin Tran — Environmental Engineering MSE
Chinmay Dinesh Vaidya — Construction Eng & Mgt MSE
Mohammad Yardehnavi — Construction Eng & Mgt MSE
Kaili Yin — Construction Eng & Mgt MSE
James Yorts — Environmental Engineering MSE
Xinpeng Yo — Civil Engineering MSE
Qianying Zeng — Construction Eng & Mgt MSE
Xiyuan Zhang — Civil Engineering MSE
Yilan Zhang — Civil Engineering PhD
Tianqi Zhao — Civil Engineering MSE
Zixu Zhao — Environmental Engineering MSE
Jiaifeng Zheng — Civil Engineering PhD
Hui Zhi — Civil Engineering MSE

WINTER 2017

Elizabeth Agee — Environmental Engineering MSE
Luis Alfaro — Civil Engineering MSE
Omid Bahrami — Civil Engineering MEng
Xiaoya Ding — Environmental Engineering MSE
Jesse Edick — Civil Engineering MSE
Xiaodong Fei — Civil Engineering MSE
Evan Fredline — Civil Engineering MSE
Kevin Fries — Civil Engineering MSE
Attina Girizi — Civil Engineering PhD
Julia Hanson — Civil Engineering MSE
Yejun Lao — Civil Engineering MSE
Lan Ma — Environmental Engineering MSE
Uttam Monon — Civil Engineering MSE
Abhiram Mullapudi — Civil Engineering MSE
Alicia Revezzo — Environmental Engineering MSE
Sara Troutman — Civil Engineering MSE
Andrea Ventola — Civil Engineering MSE
Jing Wang — Construction Eng & Mgt MSE
Zhijie Wang — Civil Engineering PhD
Eli Warner — Civil Engineering MSE
Dan Wei — Civil Engineering PhD
Yong Xiao — Construction Eng & Mgt MSE
Xiao Xu — Civil Engineering MSE
Hanshu Zhang — Civil Engineering MSE
Jingyuan Zhang — Civil Engineering MSE
Qianying Zeng — Construction Eng & Mgt MSE
Hao Zhou — Civil Engineering MSE
Shiao Zhou — Civil Engineering MSE
Wenbo Zhou — Civil Engineering MSE

SUMMER 2017

Jonathan Hubler — Civil Engineering PhD
Elinge Ngongi Feliciano — Structural Engineering MEng
Nephil Johnson — Civil Engineering PhD
Nadine Kotlarz — Environmental Engineering PhD
Albert Thomas — Civil Engineering PhD
Eric Warner — Civil Engineering PhD
Yong Xiao — Civil Engineering PhD

Congratulations graduates!
Student Honors

Elizabeth Agee
Environmental Eng. PhD
NASA Earth and Space Science Fellowship
Engineering Graduate Symposium Award

Omid Bahrami
Civil Eng. PhD
Dow Sustainability Fellows Program

Byungjoo Choi
Civil Eng. PhD
Rackham Predoctoral Fellowship
Engineering Graduate Symposium Award

Emily Crossette
Environmental Eng. PhD
Integrated Training in Microbial Systems (ITiMS) Fellowship

Sampurna Datta
Civil Eng. PhD
Rackham International Student Award
EREF Scholarship Award

Raghav Reddy
Environmental Eng. PhD
Integrated Training in Microbial Systems (ITiMS) Fellowship

Sara Rimer
Environmental Eng. PhD
ProQuest Distinguished Dissertation Award

Grace Rodriguez
Environmental Eng. MSE
UM Dow Sustainability Fellows Program

Arthiya Sukswan
Civil Eng. PhD
Engineering Graduate Symposium Award

Katherine Flannigan
Civil Eng. PhD
Rackham Predoctoral Fellowship
Engineering Mechanics Institute’s First Place Student Paper

Heather Goetsch
Environmental Eng. PhD
Rackham Predoctoral Fellowship
Rackham Master’s Award

Goldie Gunawan
Civil Eng. MSE
Rackham Predoctoral Fellowship
Walt Weber Award

Nina Zabihi
Civil Eng. PhD
ASCE GSI of the Year Award

Elizabeth Agee
Environmental Eng. PhD
NASA Earth and Space Science Fellowship
Engineering Graduate Symposium Award

Omid Bahrami
Civil Eng. PhD
Dow Sustainability Fellows Program

Byungjoo Choi
Civil Eng. PhD
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Engineering Graduate Symposium Award

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Environmental Eng. PhD
Integrated Training in Microbial Systems (ITiMS) Fellowship

Sampurna Datta
Civil Eng. PhD
Rackham International Student Award
EREF Scholarship Award

Raghav Reddy
Environmental Eng. PhD
Integrated Training in Microbial Systems (ITiMS) Fellowship

Sara Rimer
Environmental Eng. PhD
ProQuest Distinguished Dissertation Award

Grace Rodriguez
Environmental Eng. MSE
UM Dow Sustainability Fellows Program

Arthiya Sukswan
Civil Eng. PhD
Engineering Graduate Symposium Award

Katherine Flannigan
Civil Eng. PhD
Rackham Predoctoral Fellowship
Engineering Mechanics Institute’s First Place Student Paper

Heather Goetsch
Environmental Eng. PhD
Rackham Predoctoral Fellowship
Rackham Master’s Award

Goldie Gunawan
Civil Eng. MSE
Rackham Predoctoral Fellowship
Walt Weber Award

Nina Zabihi
Civil Eng. PhD
ASCE GSI of the Year Award
This year GrEENPEAS hosted happy hours following EWRE seminars to provide informal networking opportunities among students, faculty, and speakers. Our monthly Free Bagel Fridays were a hit and promoted camaraderie in all of CEE. In addition, we organized a fall gathering (hosted by Professor Terri Olson) to welcome new and returning EWRE students; a holiday party at Cobblestone Farms to ring in the end of fall semester; and the traditional end-of-year celebration spearheaded and hosted by Professor Wright. Thanks to everyone who came out and made these events a success! For more information, contact amenefee@umich.edu.

American Society of Civil Engineers (ASCE)

Faculty Advisor – Carol Menassa

The University of Michigan’s student chapter of the American Society of Civil Engineers (ASCE) has two primary objectives: to unite the community of civil and environmental engineers and to connect students with diverse professionals in the engineering field. This past year, with Faculty Advisor Jeffery Scruggs, our goal was to bring the civil engineering department together. We accomplished our goals through various social and networking events.

Throughout the year, we hosted speaker meetings on a bi-weekly basis. We carefully selected the speakers and the topics so that students could be exposed to diverse topics in the civil and environmental engineering field. Ultimately, the students most benefited from receiving help to decide their concentration and expanding their realm of civil engineering knowledge. The topics for the meetings included construction management, transportation, structural, environmental, urban planning, field testing, offshore structure, and geotechnical engineering. We also held a number of company info sessions to help students get employment opportunities.

We also hosted the ASCE Career Fair in November, which attracted over 40 companies and over 200 students. In February, we organized a weekend conference trip to Chicago to network with alumni and tour various construction projects in different sectors. The attendance for the Chicago trip was over 70 people. For any questions about events or involvement, please contact us at asce-officers@umich.edu.

Steel Bridge Team (SBT)

Faculty Advisor – Jason McCormick

Each year the Steel Bridge Team designs, fabricates and constructs a 1:10 scale bridge according to the rules set by the American Society of Civil Engineers and the American Institute of Steel Construction.

This year, the Steel Bridge Team looked to continue our success, following our ninth place finish at the national competition. Despite losing a large graduating class, we gained new members who contributed right away in the fall when the new rules were released. The rules specify material, dimensional, and construction requirements that led us to iterate through countless designs in RISA-3D, a structural modeling software, to develop the most efficient, rules-compliant bridge possible.

Our final bridge design is an asymmetrical truss structure, with a beam and rails that have differing depths to optimize the stiffness of the members under the given loads. After we modeled our complicated 76-piece design in Solidworks, we spent the second half of the year focusing on fabrication and construction. We fabricate nearly the entire bridge ourselves on the mills, lathes, and welders in the Wilson Student Team Project Center, and are proud of the advances we have made in the quality of fabrication over the past couple of years. We successfully passed the load test on the first try, leaving ample time for our construction team to practice assembling the bridge.

In April, the team attended the North Central Regional Conference at Lawrence Technological University. We placed second overall and first in aesthetics, qualifying us for the National Competition held at Oregon State University. At Nationals, the team placed 4th in display, 7th in stiffness and 21st overall. If you are interested in learning more about the SBT team please contact us at sbtcaptains@umich.edu.

Graduate Environmental Engineering Network of Professionals, Educators, and Students (GrEENPEAS)

Faculty Advisor – Lut Raskin

This year GrEENPEAS hosted happy hours following EWRE seminars to provide informal networking opportunities among students, faculty, and speakers. Our monthly Free Bagel Fridays were a hit and promoted camaraderie in all of CEE. In addition, we organized a fall gathering (hosted by Professor Terri Olson) to welcome new and returning EWRE students; a holiday party at Cobblestone Farms to ring in the end of fall semester; and the traditional end-of-year celebration spearheaded and hosted by Professor Wright. Thanks to everyone who came out and made these events a success! For more information, contact amenefee@umich.edu.
Earthquake Engineering Research Institute (EERI)

Faculty Advisor – Seymour Spence

The EERI student chapter at the University of Michigan aims to promote learning and research in the earthquake engineering field and provide outreach to the local community.

EERI members participated in the “Building Bridges” outreach program with second-grade classes at Bates Elementary School in Dexter. The program promotes engineering through an interactive, hands-on experience. After being taught about bridges and truss bridge design concepts, the students worked with undergraduate and graduate students from EERI on computer software to design and test their own bridges. EERI members also participated in earthquake engineering outreach to local elementary and high school students by demonstrating soil liquefaction and the travel of seismic waves in the ground.

In the coming year, the group is working toward bringing a speaker to campus through EERI’s Freidman Family Visiting Professionals Program and to organize an undergraduate student seismic design competition team. Graduate students will also be encouraged to submit to the annual EERI National Student Paper Competition.

Any questions on how to get involved with Earthquake Engineering Research Institute can be directed to the address eeri-officers@umich.edu.

Chi Epsilon, the National Civil Engineering Honor Society, honors students who have exemplified the principles of scholarship, character, practicality, and sociability in the civil engineering profession. The University of Michigan chapter had another successful year in 2016-2017.

The chapter initiated fourteen new student members from the civil and environmental engineering programs. In addition, CEE alumna, Tarolyn Buckles, was initiated as chapter honor member, a prestigious honor bestowed upon stellar civil engineering professionals. Following both the fall and winter initiations, new initiates, existing Chi Epsilon members, and CEE faculty attended Chi Epsilon’s formal banquet to celebrate the accomplishments of the new initiates.

Chi Epsilon continued to host its bi-weekly speaker series during the fall and winter semesters. A diverse array of speakers including graduate researchers, university professors, and professionals gave presentations on topics ranging from green infrastructure and urban resilience to the preservation of historic barns and car seat safety design.

The chapter also wishes to recognize the guidance and wisdom of Dr. Steven Wright, who served as Chi Epsilon’s faculty advisor for the past twenty-three years. Dr. Adda Athanasopoulos-Zekkos will serve as the new faculty advisor. To learn more about Chi Epsilon, please contact ciep-officers@umich.edu.

Michigan Aquaponics (MAqua)

Faculty Advisor – Aline Cotel

We have completed our Main Aquaponics System! We are currently in the process of preparing the environment for the flora and fauna that we will be growing in the system. We have completed the structure of the Display System. The only parts currently in the process of preparation are the mechanical validations testing to ensure uninterrupted operation when placed within the conservatory. Michigan Aquaponics expanded from just 12 active members in AY15-16 to over 20 active members this past school year!

Additional accomplishments include winning the Social Design Challenge Award at Makeathon 2017, being chosen as a finalist in the China Business Challenge and establishing a new subgroup focused on Ecology. For more information about Michigan Aquaponics, contact m-aqua.contact@umich.edu.

Michigan Concrete Canoe Team (MCCT)

Faculty Advisor – Will Hansen

A common question received by the Michigan Concrete Canoe Team is, “Doesn’t it sink?” The simple answer, is no!

MCCT utilizes their unique engineering knowledge to design, build, and race a canoe made entirely of concrete and yes, it is functional! Each year the team focuses on fine tuning the hull, concrete, and aesthetics of our canoe to produce a final product to compete with in our annual competition.

Our theme this year was inspired by the bicentennial of the University, and we celebrated it in the most concrete way possible! We brainstormed how we wanted our theme to manifest itself. The team decided upon the name, VALIANT for the canoe. Thanks to the efforts of the entire team and our leadership board, MCCT placed second overall at the regional competition at Lawrence Technological University. We placed in the top two in Oral Presentation, Final Product, and Racing. If you would like more information about the MCCT team, please contact mcct-eboard@umich.edu.
The Geo-Institute (G-I) Graduate Student Organization is in its eighth year at the College of Engineering. G-I is one of nine specialty organizations within the American Society of Civil Engineers (ASCE). The goal of G-I is to provide support for career development and promote collaboration among geotechnical engineers. As a graduate student organization, G-I holds community-building events for geotechnical engineering graduate students and promotes the benefits provided by G-I membership. Fall welcome picnic is one of the annual activities held by the U-M chapter of G-I for geotechnical engineering faculty and graduate students.

Our chapter is also involved in sponsoring 1-2 seminars per year from the weekly geotechnical engineering seminar series in the department. This year, we were pleased to host the 2017 Frank E. Richart Jr., Civil and Environmental Engineering Department Distinguished Lecture given by Professor Kenneth Stokoe of The University of Texas at Austin.

Our chapter was involved in forming and preparing a team consisting of graduate and undergraduate students, to participate in the Geo-Wall competition held by Geo-Institute at the annual ASCE G-I conference. This competition is about designing and building a model Mechanically Stabilized Earth (MSE) retaining wall using paper as reinforcement. In 2018, the G-I annual conference will be in Orlando, FL.

In November 2016, our chapter was selected to visit an active tunneling project in Indianapolis, IN courtesy of Citizens Energy Group, Parsons-Brinckerhoff, and ASCE G-I. The White River Tunnel is a component of the DigIndy Tunnel System project which works to reduce combined sewer overflow events in the city of Indianapolis. The site visit included a presentation covering all aspects of the project and a tour of the tunnel boring machine.

Graduate students interested in geotechnical engineering are welcome to join G-I. Any questions about Geo-Institute should be directed to gi-officers@umich.edu or the group’s faculty advisor Adda Athanasopoulos-Zekkos addazekk@umich.edu.

The following CEE students, who graduated during fiscal year 2016 and 2017, obtained teaching positions at higher education institutions:

- **Hua Cai**
  Environmental Engineering Ph.D.
  Purdue University
  Assistant Professor

- **Thai Xuan Dam**
  Civil Engineering Ph.D.
  University of Civil Engineering, Vietnam
  Faculty

- **Julie Elizabeth Fogarty**
  Civil Engineering Ph.D.
  California State University, Sacramento
  Assistant Professor

- **Athina Gkrizi**
  Civil Engineering Ph.D.
  Nottingham University
  Lecturer

- **Jonathan Hubler**
  Civil Engineering Ph.D.
  Villanova University
  Assistant Professor

- **Joon Oh Seo**
  Civil Engineering Ph.D.
  The Hong Kong Polytechnic University
  Assistant Professor

- **Lauren Stadler**
  Environmental Engineering Ph.D.
  Rice University
  Assistant Professor

- **Junxing Zheng**
  Civil Engineering Ph.D.
  Iowa State University
  Assistant Professor

- **Qian Zhang**
  Civil Engineering Ph.D.
  University of Louisiana
  Visiting Assistant Professor
Dear CEE Alumni, Students and Friends,

Greetings once again. It has been a real adventure for me as a Houston resident. I was able to witness the impact of Hurricane Harvey first-hand, as it roared across the coastal and inland areas of Texas. Harvey was quickly followed by Hurricanes Irma and Maria. These natural disasters draw into focus the incredibly important work of Civil & Environmental Engineers and the responsibility we all share in designing safe, efficient and resilient infrastructure. The public relies on our skill, knowledge and professionalism. Natural disasters such as these show the importance of these contributions. At U-M CEE, we are well prepared to meet this challenge with our good work!

We look forward to working with our new Department Chair, Jerry Lynch. The Board would like to thank former Chair, Kim Hayes, for his hard work and dedication to the Department for many years. We have enjoyed productive sessions with Kim on a wide range of topics and look forward to continuing this process with Jerry.

The CEEFA Board of Directors meeting was held Friday, October 6, 2017. Board meetings are typically a day long affair with morning sessions focused on meeting with faculty and students to listen and provide feedback on various issues. The afternoon session is devoted to Board business, including Department updates and Board Committee reports. During our meeting last March we met with members of the CEE Student Advisory Council to discuss issues related to student networking with alumni, academic preparedness for CEE careers, internships and job site visits. Opportunities. These types of exchanges provide an opportunity for students to hear directly from alumni, filtering by location, company, industry, etc. The more alumni in the mix, the better the potential results, so get engaged if you are not already. There are already well in excess of 1,000 CEE alumni and students participating. Also, be sure to join the University of Michigan Civil & Environmental Engineering Alumni & Friends LinkedIn group. You can reach this group from the links on the CEE Department’s website (cee.umich.edu).

This is a banner year for our University as we celebrate our 200th anniversary. As the first department in the College of Engineering, we have a long and distinguished history to celebrate a well. Our profession is growing in some very exciting ways. These changes are bringing in new technologies, equipment, processes and collaboration opportunities with other engineering disciplines. Smart Cities, Robotics, Autonomous Vehicles, Building Information Modeling, Parametric Design, Data Driven Systems Design, new material and many others are bringing new challenges and opportunities to the field of Civil and Environmental Engineering. Of course it would be impossible to predict what the practice of Civil Engineering will look like 200 years hence, nonetheless I am certain that our CEE Department will be among the leading institutions producing the new Civil and Environmental engineers for that era!

Our Board is always on the lookout for alumni interested in participating in CEEFA, whether it be sponsoring alumni get togethers, networking with students and recent alumni in your areas, or giving the Board insight on issues you feel are important for the Department and our profession. Please do not hesitate to reach out and contact us in that regard.

Hope to see you around campus. GO BLUE!

Jim Jacobi, PE
Senior Principal
Chief Information Officer, WALTER P MOORE
jjacob@walterpmoore.com

The annual ASCE/CEEFA banquet, held on Friday, April 7, honored several CEE members. The American Society of Civil Engineers (ASCE) student chapter hosted the event which brings together current students and members of the Civil and Environmental Engineering Friends Association (CEEFA) for a social evening and awards banquet.

The event consists of presentations by the CEE Department Chair, CEEFA Board of Directors and various student organizations, as the officers wrap up the academic year and transition members for the next year. ASCE members and the CEEFA board also select recipients for awards honoring faculty, graduate student instructors (GSI) and staff.

ASCE chose Seymour Spence as the faculty member of the year, Nina Zabihi as Graduate Student Instructor (GSI) of the year and Angela Jeon as staff member of the year. CEEFA awarded Jeremy Semrau with the faculty member of the year award.
New Staff

Steve Donajkowski — Mechanical Technician
Steve selects the materials and equipment used in lab experiments and research projects. He provides supervision of students in the department labs, including assistance with experiments and safety procedures. Steve specializes in machining parts for faculty and students.

Katherine Johnson — Marketing Communications Specialist
Katherine creates printed and digital pieces promoting the work of the entire CEE community. She maintains the CEE website, manages all of the social media accounts, creates illustrations & graphics, take photographs, and writes new stories highlighting CEE.

Levi Powis — Desktop Support Specialist
Levi provides computer support for the entire CEE department. He deals with hardware and software questions. Levi is the point of contact for A/V equipment and most other computer-related questions within the department.

Ariane Smith — Student Services Assistant
Ariane assists with administrative tasks associated with both undergraduate and graduate student services. This includes issuing keys, troubleshooting student issues, creating student photo boards, as well as scheduling and assisting student groups.

Amy Shepherd — Assistant to the Chair
Amy provides administrative support to the CEE Chair and Unit Administrator and manages most of the department activities. She orders supplies, organizes meetings and appointments. She processes Pcard reports and reimbursements for faculty, staff, guests and fellowship students.

Ingra Stimach — Senior Administrative Assistant
Ingra provides administrative support for the CEE community in the EWRE building. She is responsible for reimbursements for faculty, staff, students and guests, Pcard reconciling and ordering supplies. She also assists with event management for the department.

Staff Excellence

Stephanie Ford — Research Manager
Stephanie was presented with the 2016 Civil and Environmental Engineering Staff Excellence Award, meeting a high standard for professionalism, communication, teamwork, work quality, initiative, problem solving planning and leadership.

Stephanie began working in CEE in October 2012. She has been with the University since 2001, working in several departments including the School of Education, LSA Physics, LSA Astronomy, School of Public Health and ISR’s Survey Research Operations.

Since being promoted to Research Process Manager, Stephanie has learned all of the necessary management skills to supervise other administrators. She has enthusiastically taken on challenges, including managing performance appraisals to focus on continuous improvements and new goals for the coming year.

Her positive attitude is infectious and helps keep things in perspective when the going gets tough. She is able to relate well to others and quickly build trust. One faculty member noted that Stephanie “works really hard” and “rarely appears frustrated or upset.”

“When I have proposal deadlines, she makes me feel like we’re a team working towards a common goal.” Another faculty member explained, “Stephanie never seems to be stressed and always has a positive attitude even in situations where others are stressed. As a result, her presence as such a positive team member is an extremely calming influence that leads to better overall team performance.”

Stephanie participates on university committees and groups to improve processes related to research. This includes the Research Administrators Advisory Council (RAAC) and co-chair of their subcommittee tackling issues related to Roles and Responsibilities.

Staff Awards

Stephanie Ford — Research Manager
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In Memoriam

Bob Brustman
Marketing and Communications Specialist

The department mourns the passing of Robert (Bob) Brustman, 51, who died unexpectedly on March 11, 2017 in Ann Arbor. Bob worked as a marketing and communications specialist in CEE since May, 2016—one of several communications posts he’s held across the University during his career as a writer, editor and strategic communicator.

Bob worked with a wide variety of CEE community members – faculty, staff, graduate students, alumni and retirees – as he promoted the department. He was independently responsible for showcasing CEE achievements through newsletters, websites, fliers, social media, videos and photography.

“He was humble, kind and genuinely cared for others, especially his family. He appreciated others and did not hesitate to remind them,” said Patricia Brainard, department administrator. “He was very well-liked within the CEE community and will be missed immensely.”

Reta Teachout
Human Resources Assistant, Administrative Associate

Reta J. Teachout, age 81, passed away on Friday, August 11, 2017, at her home. A graduate of Cleary College, now Cleary University, she prepared there for her long career at the University of Michigan.

Reta taught in the Department of Civil and Environment Engineering for over 53 years. In addition to being one of the longest serving staff members in the department’s history, Reta Teachout had a far reaching impact on the management and upkeep of the departments programs. Reta “did it all” within the department. She worked as an undergraduate secretary, graduate secretary, assistant to the department chair, administrative associate and human resources assistant.

Reta most enjoyed working with the hundreds of students who have passed through her office over the years, watching them grow and succeed. Possessing an encyclopedic knowledge of the University of Michigan, she truly cared about the people with whom she worked. Reta will be remembered fondly.

In Memoriam

In order by year of graduation:

Kai C. Lu
BSECE ’43, MSE ’44
03/30/2015

John S. Burtt
BSECE ’46
06/21/2017

Winn L. Taplin
BSECE ’46
12/03/2016

Ali A. Baghai
MSE ’48
09/11/2016

Harold J. Jobse
BSECE ’48
4/29/2017

Donald P. Schiesswohl
MSE ’48
1/31/2017

Fred N. White
BSECE ’49
10/08/2016

Haralambos Y. Vafiadis
MSE ’50
09/29/2016

John M. Keir
BSECE ’50
04/09/2017

Thomas A. Webb
BSECE ’50
12/28/2016

Lynn H. Barber
BSECE ’51
05/22/2017

Jack D. Bryant
BSECE ’51
12/20/2016

Edward Vallorani
BSECE ’51
11/25/2016

Kat C. Lu
BSECE ’52, Ph.D. ’60
09/26/2016

Donald C. Kaido
MSE ’52
10/07/2016

Joseph G. Hipfel
BSECE ’53
4/09/2017

Neil F. Jedele
BSECE ’53
11/03/2016

Nooraldeen M. Ridha
MSE ’53
8/13/2016

Robert A. Nielsen
BSECE ’53
1/05/2017

Pravin G. Bhuta
BSECE ’54
7/20/2017

E. Robert Ferguson
BSECE ’55
8/18/2017

Robert F. Russell
BSECE ’55
9/21/2016

Edward R. Godfrey
BSECE ’56
1/27/2017

Arthur H. Boylan
BSECE ’57
01/25/2017

Richard A. Reinlein
MSE ’57
3/20/2017

Bernard W. Hanna
BSECE ’58
3/16/2017

Nalinkumar H. Udani
MSE ’58
5/27/2017

David J. Vargas
BSECE ’59
7/21/2017

William R. Heitzig
BSECE ’61
1/21/2017

John D. McLaurin
BSECE ’61, MSE ’65
1/17/2017

Peter Glockner
Ph.D. ’64
11/05/2016

Lao A. Lagatski
BSECE ’65, MSE ’66
7/15/2017

Alfred R. Briere
BSECE ’66
10/22/2016

Frank E. Hibbard
BSECE ’67
7/13/2017

Bruce W. Steketee
BSECE ’67
3/11/2017

Michael E. Kane
BSECE ’68, MSE ’70
4/15/2017

Steven C. Dupay
BSECE ’77, MSE ’78
11/20/2016

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