2017

2017 Civil and Environmental Engineering Department News

Department of Civil and Environmental Engineering, Michigan Technological University

CEE

CIVIL AND ENVIRONMENTAL ENGINEERING

MICHIGAN TECH

STEM Outreach

More about the competition on page 10

Michigan Technological University
1885

SPRING 2017 DEPARTMENT NEWS

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Dear CEE Alumni & Friends,

Each fall semester as I prepare to teach the incoming first year students in my introduction to environmental engineering course, I look forward to interacting with our future engineers. This past semester was no different, as I welcomed 48 first year students into my classroom, who were all attentive, inquisitive, well informed, and equipped with strong communication skills. I am continually impressed by the quality of students at Michigan Technological University, and in the Civil & Environmental Engineering Department.

In order to continue welcoming high caliber students into our department and University, we must engage with our younger engineers by encouraging science, technology, engineering, and mathematics (STEM) outreach. In the CEE Department, we take pride in our exceptional outreach activities with schools and communities, not only local, but also around Michigan. Our Lake Superior Water Festival involved more than 900 local students in grades 4-8. Faculty in the department also opened their doors to Detroit-area high school students to explore career paths in natural sciences and engineering. We continued our outreach at Family Science Night and invited Daisy Isaksson, a ten-year-old, fifth grade student, to compete against engineering students and faculty in the department with her highway barrier design.

Our faculty, staff, and students continue to make advancements in the built and natural environments by providing solutions through research and technology transfer; finding ways to improve quality of life through water reuse; and tackling household sustainability issues related to food, energy, and water consumption. Several alumni have also been recognized for their contributions to the civil and environmental engineering profession.

This is my last communication in the newsletter as Chair of the Civil and Environmental Engineering Department as I will be stepping aside in June 2017. I have truly enjoyed providing support for our faculty, stuff, and students as chair for the past six years. As chair, I have immensely enjoyed meeting with past, present, and future engineers from our department.

GO HUSKIES!

David Hand • Class of 1980 • Professor & CEE Department Chair
dwhand@mtu.edu • mtu.edu/cee

Advisory Committee Update

The Civil and Environmental Engineering Professional Advisory Committee (CEEPAC) met on campus in October. Our advisory council meets semi-annually to collaborate with faculty on projects and the direction of the department so that Michigan Tech continues its reputation for high quality civil and environmental engineers that are joining the workforce.

An important part of the CEEPAC meetings include discussions with current students to get their insight into the parts of their department curricula they found most valuable and their suggestions on improvements. We had meetings with faculty on topics ranging from ABET accreditation to a discussion on how Grover C. Dillman Hall could be renovated to better serve the needs of students.

We hope to enlist your help in the future with an initiative to renovate and refurbish the undergraduate laboratories in Dillman. The CEEPAC committee looks forward to meeting with the department again in April to continue developing plans for the upcoming fundraising initiative and finding other ways to ensure that Michigan Tech civil and environmental engineers are prepared to be successful.

Civil & Environmental Engineering Professional Advisory Committee

CEEPAC MEMBERS LEFT TO RIGHT:

Teresa Schissler-Boichot, PE
Caterpillar, Inc.

Scott Thayer, PE
Michigan Department of Transportation

James Rockwell
Conoco-Phillips (retired)

Michael Erickson, PE
ARCADIS

Randall Gardner, PE
Westwood Professional Services

Leanne Panduren, PE
President, Rowe Professional Services

Jane Waldron
Dow Corning

Dean Roberts
General Motors

Timothy Wellert, PE
ILF Consultants, Inc

NOT PICTURED:

Donald Anderson
Anlaan Corporation

Steven Bower
Michigan Department of Transportation

Michelle Jarvie-Eggart
Barr Engineering

David Thomson
Engineered Rail Solutions

ON THE COVER

Fifth grade student, Daisy Isaksson, compares her barrier design to civil engineering senior, Drew Roberts, as part of the “Stop that Truck!” competition initially held at Family Science Night in Dollar Bay.

REPORT DESIGN BY MONTE • MONTE.NET

LATEST NEWS & ANNOUNCEMENTS

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Student Memorial Awards

The Civil and Environmental Engineering Department developed two memorial awards in 2006—the Nicole Bloom Award for Environmental Sustainability and the Danielle Ladwig Award for Graduate Excellence. The awards are dedicated in honor of two outstanding Civil and Environmental Engineering Department graduates.

THE NICOLE BLOOM AWARD FOR ENVIRONMENTAL SUSTAINABILITY

This award is made annually to an undergraduate civil or environmental engineering student who has demonstrated leadership, passion, and activism for effecting environmental sustainability at the local, national, or global level. This award is accompanied by the Pati Damoder and Soumitri Reddy $1,500 Undergraduate Scholarship.

The 2016 Nicole Bloom Award was awarded to **Ellen Aiken.** Aiken is from St. Paul, Minnesota and is currently a junior in environmental engineering. Like Nicole Bloom, she has displayed a similar passion for the environment, and has been actively engaged in efforts to improve the environment at Michigan Tech. Appalled by the lack of recycling on campus in her freshman year, Aiken talked with other Society for Environmental Engineering (SEEn) members and leadership about initiating further recycling on campus.

At the beginning of her sophomore year, she wrote a white paper on the status of recycling and talked with multiple University officials to educate herself as to what was being done at Michigan Tech. She subsequently has worked to inform other students within SEEn and within the residence halls about recycling on campus. As an officer of SEEn, Aiken has played a major role in maintaining a high level of student participation by: restarting the Adopt-A-Highway clean-up, planning activities for K-12 environmental outreach, and other activities such as Spring Fling and Earth Day.

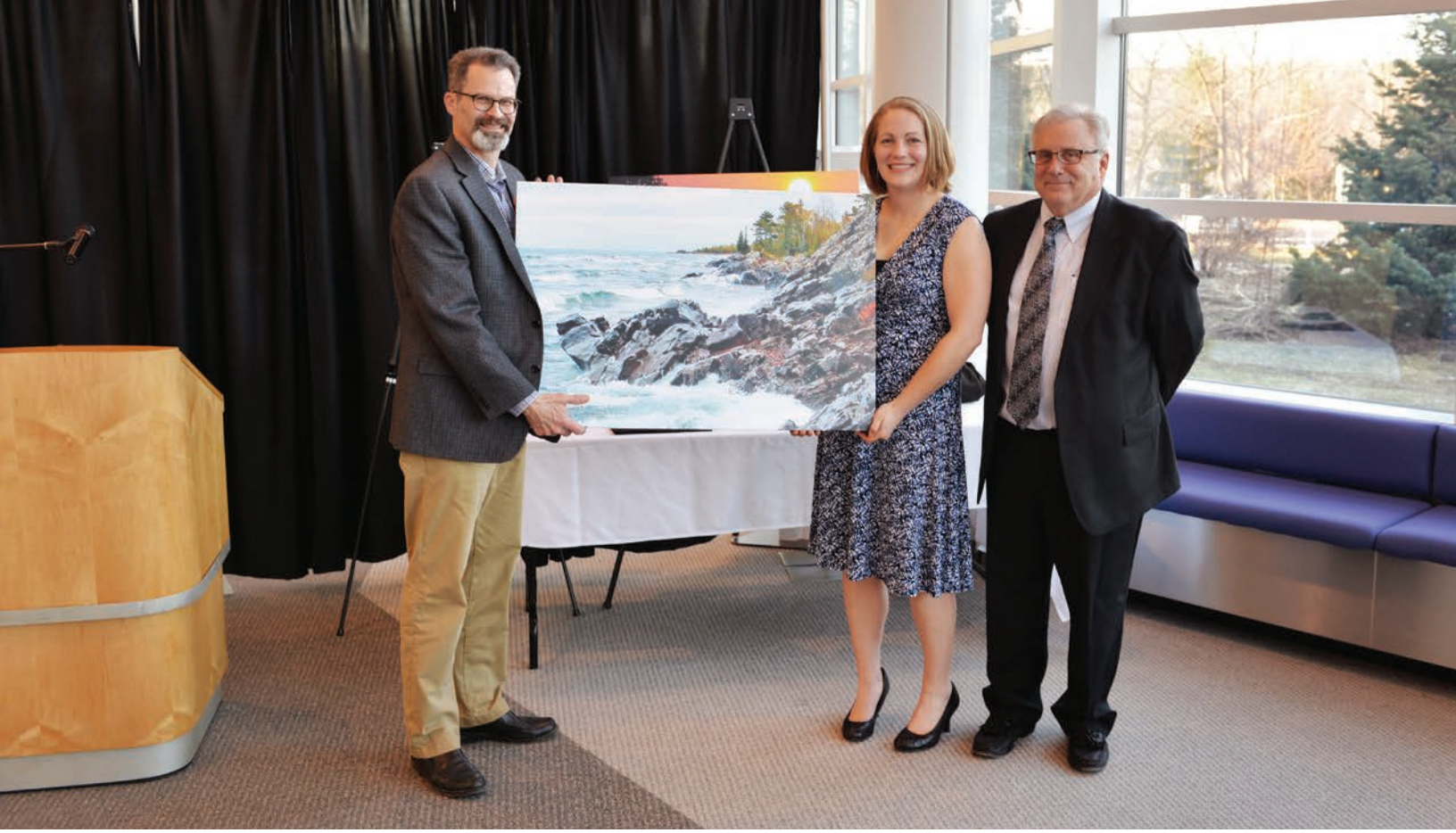
THE DANIELLE LADWIG AWARD FOR GRADUATE EXCELLENCE

This award is made annually to a graduate level civil or environmental engineering student in recognition of outstanding achievement in academics, research, and service, in memory of our friend and colleague, Danielle F. Ladwig. This award is accompanied by the Pati Damoder and Soumitri Reddy $1,500 Graduate Fellowship.

The 2016 Danielle Ladwig Award for Graduate Excellence was awarded to **Sumanth Kalluri.** Kalluri is a master's student and has been the lead research assistant on Dr. Pasi Lautala's sponsored project to perform "comparative life cycle assessment and life cycle costs analysis of rail and road transportation." He presented his work at the Transportation Research Board Annual Meeting 2016 and the LCA/LCCA investigations at the Joint Rail Conference 2016.

Apart from academics, he is also involved in many other activities and clubs on campus. He is one among the current Graduate Student Government (GSG) representatives from the Department of Civil and Environmental Engineering.

After graduation he plans to work on projects related to transportation and logistics. He was nominated by his advisor, Dr. Pasi Lautala.



WILBUR HAAS GRADUATE RESEARCH EXCELLENCE AWARD

This award is made annually to a graduate level student in civil or environmental engineering to recognize outstanding student scholarship and research contributions. This award is accompanied by a $1,000 departmental fellowship. This year two doctoral students were selected by the Graduate Research Committee: Zigeng Wang and Bonnie Zwissler.

Mr. Zigeng Wang has spent three and a half years as a PhD student in the CEE Department. To date, he has published five refereed journal papers in the Elsevier Journal of Construction and Building Materials and ASCE Journals, and three conference papers.

His educational background includes BS and MS in Civil Engineering from Chang'an University in China. His background spans the fields of civil engineering, mechanical engineering, mathematics, and chemical/material engineering. Wang plans to accept a faculty position at Beijing University of Technology after graduation.

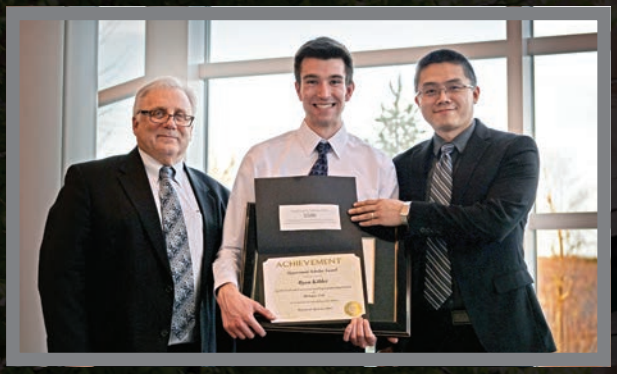
Ms. Bonnie Zwissler earned her BS in Civil Engineering from Widener University in Chester, Pennsylvania. She came to Michigan Tech for her MS in Civil Engineering, with a geotechnical engineering concentration in the fall of 2011. She enjoyed her time at Michigan Tech, especially her advisors, her colleagues, and the location of the school, so she decided to follow her MS degree with a PhD.

Zwissler's PhD research project is focused on the problems associated with the long-term storage of mine tailings in large-scale impoundments, and the associated environmental hazards. In particular, this project is focused on addressing the problem of air pollution from blowing dust due to the wind erosion of mine tailings. Zwissler has been active in her scholarly productivity with several conference presentations and two journal papers resulting from her MS work and two additional journal manuscripts under review that she has authored or co-authored.

Zwissler's advisors, Eric Seagren and Thomas Oommen, have found her to not only have the intellectual skills necessary for success in graduate school and beyond, but also the motivation to succeed with an excellent work ethic, a desire to serve society, and a personality that makes her a great member of the research team.

Zwissler enjoys the outdoors (biking, skiing, hiking, camping, and spending time on the water), teaches spinning classes, loves cooking (and eating), and spending time with friends. She is excited to be finishing her PhD this summer, and is even more excited to start applying her experiences as a geotechnical engineer with Barr Engineering in Minneapolis upon graduation.

Student Awards



DEPARTMENT SCHOLAR

Each year the department selects one of our highest achieving students as the Department Scholar. At the University level, one of the Department Scholars is then selected for the Provost's Award for Scholarship.

Ryan Kibler was selected as the 2016 Civil and Environmental Engineering Department Scholar. Kibler has been working with Dr. Pengfei Xue since his first year at Michigan Tech on a study to analyze the Lake Superior warming trend and associated mechanisms. Kibler was able to locate and summarize findings of some of key research publications on this topic, and raise questions about the methodology of these studies and the consequent uncertainty of their conclusions. He has been able to look into research literature and interpret results with a strong sense of scientific judgement. This is very impressive for a junior level student who has not yet had systematic training on climate dynamics. It also reflects Kibler's intellectual curiosity. He has maintained a full academic schedule with a high GPA of 3.96.

2016 GTA OF THE YEAR AWARD

Jennie Tyrell was selected as the 2016 Graduate Teaching Assistant (GTA) of the Year. Tyrell joined the Civil and Environmental Engineering Department in January of 2013. She is from Ft. Pierce, Florida and has over 15 years of experience as a Project Manager with Richard K. Davis Construction Corporation. Her doctoral research has taken her in a new direction in the area of water resources engineering where she is working on scour detection methods and flow velocities to forecast sediment transport. One of her interests in attending Michigan Tech was the opportunity to be involved with STEM outreach.

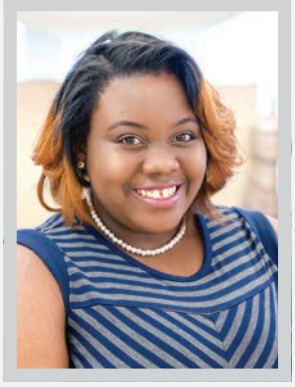
MACKINAC SCHOLARSHIP

Named in honor of Michigan's number one civil engineering project of the 20th Century by the ASCE Michigan membership in December 1999, this scholarship is intended to recognize a premier civil engineering student from Michigan.

This year's Mackinac Scholarship ($5,000 – two year award) is **Brock Hoffman**. Hoffman is a civil engineering student at Michigan Tech. He is an ASCE student chapter member and participates heavily in Concrete Canoe.

2016 PRESIDENT'S AWARD FOR LEADERSHIP

Terrianna Bradley, a senior environmental engineering major, has shown excellent leadership and success during her time here as a student. Some of her accomplishments include serving as President for the National Society of Black Engineers, Coordinator for National Breast Cancer Foundation fundraisers, undergraduate researcher and mentor for Ride the Waves outreach initiative, as well as professional internships with Prein&Newhof, an engineering consulting firm. She was recognized for her accomplishments with the President's Award for Leadership.



The President's Award for Leadership is given to a student who is chosen from an outstanding group of nominees that have provided leadership for their peers in their activities while a student at Michigan Tech.

"EDITOR'S CHOICE" PAPER

An article titled "The Cladophora Resurgence in Lake Ontario: Characterization and Implications for Management" by **Anika Kuczynski**, Environmental PhD Candidate, Martin T. Auer, Colin N. Brooks, and Amanda G. Grimm was recently accepted as one of the "Editor's choice" papers for 2016 by the Canadian Journal of Fisheries and Aquatic Sciences (CJFAS). The NRC Research Press uses this as a means of highlighting articles of "particularly high caliber and topical importance." The article will be published as an Open Article (no CJFAS subscription required) for increased visibility. Learn more: nrcresearchpress.com/journal/cjfas.

Household Sustainability: Consuming Food, Energy, Water

Changing people's behavior may be the hardest part of mitigating climate change. But a research team led by Michigan Technological University wants to find a way to do just that.

As part of a new program called Innovations at the Nexus of Food, Energy and Water Systems, the National Science Foundation (NSF) is awarding the team nearly $3 million over five years. Their research focuses on how household consumption of food, energy and water (FEW) impacts climate change and resource scarcity.

"Our focus is on targeted conservation," says **Dr. David Watkins,** a professor of civil and environmental engineering at Michigan Tech and a lead researcher on the grant. "We're trying to understand what types of consumption have the biggest impacts."

The project has three phases, the first two of which will determine how households are currently consuming food, energy and water, and what changes householders would most likely make when provided with specific information about FEW consumption impacts. Based on the results, the last phase will focus on two case-study communities that implement experimental changes in their daily FEW consumption habits.

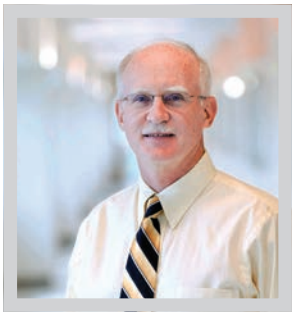
To monitor the impacts of these changes, **Charles Wallace,** associate professor of computer science at Michigan Tech, is developing a user-friendly software system, currently referred to as the Household Metabolism Tracker. This tool will track consumption levels and link to an impact database, providing feedback to household residents on the rather complex impacts of their resource use.

"If we're aiming to change consumption," says **Chelsea Schelly,** assistant professor of sociology at Michigan Tech and another researcher on the grant, "then it's not enough to look at, for instance, energy by itself, because energy systems affect food and water systems. We need look at the places where the three intersect."

Watkins' research team also includes: systems engineer Datu Buyung Agusdinata at Arizona State University; climate scientists Jenni-Louise Evans and Jose Fuentes at Penn State University; sociologists Rachael Shwom and Cara Cuite at Rutgers University; and biosystems engineer Tim Smith and energy policy analyst Elizabeth Wilson at the University of Minnesota.

Michigan Tech's Sustainable Futures Institute will also play a role, crunching the data in the FEW life cycle assessment models that will serve as the study's basis. Other researchers at Michigan Tech include **Kathy Halvorsen** who has a dual appointment in social science and environmental science, **Robert Handler** from the Sustainable Futures Institute, and **Daisuke Minakata** in the Civil and Environmental Engineering Department.

Faculty Awards



HENRY KRUMB LECTURER

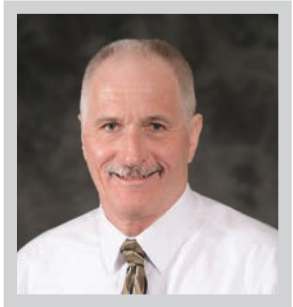
Dr. Stanley Vitton, an associate professor of civil engineering, was recently selected as a 2016-2017 Henry Krumb Lecturer by the National Society of Mining Engineers (SME).

The Henry Krumb Lecture Series aims to provide local SME sections with prominent mineral professionals to speak on subjects of their expertise and is partially funded by a grant from the Seely W. Mudd Memorial Fund. Lecturers are selected from those who present papers at the Annual Conference & Expo (ACE).

MATTILA RECEIVES DISTINGUISHED TEACHING AWARD

Dr. Kris Mattila, associate professor of civil engineering, was awarded the 2016 Howard E. Hill Award for Outstanding Faculty of the Year in the Department of Civil and Environmental Engineering. Mattila, who joined the faculty in 1994, teaches construction engineering courses.

The Howard E. Hill Award, which recognizes excellence and passion for teaching, was established in 1994 and is determined annually by the CEE students. This is the sixth time that Mattila has been recognized with this award by the students in the Civil and Environmental Engineering Department for his excellence in teaching.



DREWYOR ELECTED CHAIRMAN

Michael T. Drewyor, PE, PS, and Professor of Practice in the Department of Civil and Environmental Engineering was recently elected Chairman of the Board of Professional Surveyors in Michigan for the 2016-2017 year. Drewyor also serves on the Board of Professional Engineers.

WATKINS NAMED EDITOR-IN-CHIEF

Professor **Dr. David Watkins** has been appointed as Editor-in-Chief (EIC) of the American Society of Civil Engineers (ASCE) *Journal of Water Resources Planning and Management,* effective March 2016. *The Journal of Water Resources Planning and Management* is a leading journal in the field of water resources and has the highest impact factor of all ASCE journals.

As the EIC, Watkins works with 20 associate editors to process 400 to 500 manuscripts submitted annually to the journal. Approximately 120 papers are published each year, examining social, economic, environmental, and administrative concerns relating to the conservation and use of water. Watkins previously served as an associate editor for the journal.

Daisy & the Engineers

A 10-year-old girl challenged a few of our engineers in a classroom activity. Her story shows why creativity is to problem-solving as engagement is to STEM education.

Ready? One. Two. Three. SMACK.

A 10-inch wooden toy truck flies down a wooden ramp, ramming into a duct-taped soda straw and cardboard barrier. Atop the truck, a boxy sensor measures the force of impact. As it crashes, a toothpick on the barrier's side cracks and bends upward. The front cardboard face crumples like a highway guardrail.

The whole set-up is round two of a lighthearted competition in a Dillman Hall conference room. At the far end of the table, an undergraduate student calls out the measurement.

"16.7 Newtons."

"Nice work, Daisy! I think you bested us again."

ENGINEERING 101: GAMES & COMPETITION

On the surface, the activity is about creating a barrier to stop a toy truck, but the competition also teaches design and construction skills with a physics base.

Designed by Drew Roberts, a civil engineering senior, under a Transportation and Civil Engineering (TRAC) Program module and updated by civil engineer Dr. Chris Gilbertson from the Center for Technology & Training (CTT) under a Michigan Department of Transportation grant, the activity encourages the teaching of STEM (with a civil engineering flavor) to students at a young age by providing well-designed learning modules to high school and middle school teachers.

The goal, Roberts says, is to teach students about impulse and momentum by solving a problem with their hands. The modified activity was presented at Family Science Night at Dollar Bay Elementary as part of an ongoing collaboration to provide quality STEM programming for underserved communities organized by BHK Child Development and the Western Upper Peninsula Center for Science, Mathematics and Environmental Education. It truly takes a village to raise support that helps get meals and science on the table for rural kids.

"I would have fallen asleep if we had done this like we do in school," Isaksson says. "But actually building something, that was fun."

She adds that the best part is competition. From the beginning, she set out to win.

"Daisy stood out from the other kids in her seriousness and sincerity. After the competition, she asked me to take a photo of her with her barrier to share back at the office… she felt like she was part of our team and a contributor to the greater good," says Gilbertson.

ENGINEERING 102: MOMENTUM & IMPULSE

To earn that victory, Isaksson had to learn about two basic principles in engineering.

Now, let's be honest, engineers get a bad rap with stereotypes that make engineering look boring. So, Gilbertson, throwing stereotype to the wind, made sure his explanation of momentum and impulse would be both entertaining and memorable. He first asked all the students to clap their hands as hard as they could; then he asked them to press their hands together as hard as they could. What he wanted them to understand is that an object in motion will have a greater impulse, a greater change in momentum, when it stops suddenly. Hence the wham/ouch feeling post-clapping.

In terms of the toy truck and barrier, everyone was competing to have the lowest impact force. The barrier should soften the blow to the truck as it rolls down the ramp and hits the backstop with the sensor. Variations in force, measured in newtons (N), relate to the barrier's effectiveness.

ENGINEERING 103: DESIGN

Isaksson's lowest score was 12.4 N on Family Science Night in Dollar Bay. Her fellow students averaged in the low 30s. The lowest score in the Center for Technology & Training office was mid-20s. Gilbertson invited Isaksson to the Michigan Tech campus for a rematch.

The great part of Isaksson's visit, he says, is that the whole office upped their game. The new office record is 17.64 N. Gilbertson, who improved his score by nearly 10 N, borrowed elements from Isaksson's design.

The key is considering whether a stronger barrier is better: "It depends on how quickly it stops the vehicle. A barrier designed to sequentially fail (break) over time can be beneficial because it can reduce the impact on the vehicle by slowing it down over time."

Isaksson used a swath of taped straws, trimmed down to the length of the toy car axle, to reduce the vehicle's speed before impact with the second piece of her barrier – a toothpick and cardboard design that crushed sequentially with impact to the front of the barrier and minimized energy transfer into the backstop.

Daisy Isaksson, a fifth-grade student at Dollar Bay Elementary, surprised one of Michigan Tech's engineers from the Center for Technology & Training by beating the results of several PhDs, professional engineers, and engineering students in a classroom activity called "Stop that Truck!"

Others in the group tested different design ideas, drawing inspiration from springs, bubble wrap, crumple zones from automobiles, and crash barriers used on today's roads. The materials used in the competition strongly influence what will be a successful design. Designs that tried to mimic modern crash barriers did not fare as well due to the limitations of the materials and construction techniques. Out-of-the-box designs like Isaksson's made the most out of the materials.

"Engineering is about compromise and doing the best you can with the resources at hand," says Dr. Tim Colling, CTT Director.

ENGINEERING 104: GET CREATIVE

Kids are naturally curious and creative—and so are the most successful engineers. Cultivating an engineer's mindset is about equipping young minds with tools, and less imposing rules. Students like Isaksson start out tinkering with challenges and puzzles, grow to understand the science behind the problems, and learn to engineer.

"And that process simply can't be boring or students won't engage," says Roberts.

Isaksson's mom, Page, says her daughter already thinks like an engineer and there is a lot of chaos and productivity that accompanies her creativity.

Creativity spurs investment that leads to hard work that ends with dedication. What we learn from the humble cardboard of "Stop that Truck!" is that creativity is the fountain of youth for new ideas. And some ideas we hope stick around.

"Yeah, I think I do want to be a civil engineer someday," says Isaksson.

Department News

2016 WATER FESTIVAL

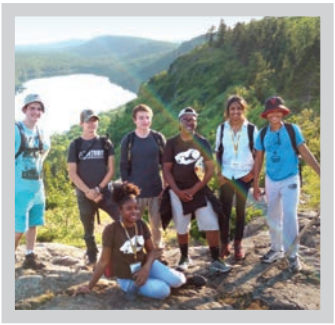
Nearly 900 students in grades 4-8 from 13 schools in Houghton, Baraga, Gogebic, and Ontonagon Counties participated in the Water Festival at Michigan Tech's Great Lakes Research Center on October 12, 2016. The Water Festival provided an opportunity for students to learn about and celebrate our most precious natural resource—the Great Lakes!

A wide variety of topics from science and engineering to history and music were presented. Students participated in four sessions from a total of 30 sessions offered throughout the day. The sessions were led by Michigan Tech scientists, staff, graduate and undergraduate students, as well as, community organizations, businesses and government agencies. Topics included remotely-operated-vehicles, Isle Royale wolves and moose, leave no trace outdoors, cleaning wastewater, touring the U.S. Coast Guard vessel, and much more.

The 2016 Water Festival was made possible with funding from Michigan STEM Partnership, Michigan Tech Center for Water & Society, and the Great Lakes Stewardship Initiative.

DETROIT HS STUDENT VISIT

Eighteen high school students from 13 Detroit schools spent a week (June 20-25) visiting the Upper Peninsula and Michigan Tech, all expenses paid, exploring careers in natural resources, environmental science, and engineering. They won the opportunity by writing an essay and submitting two letters of recommendation.



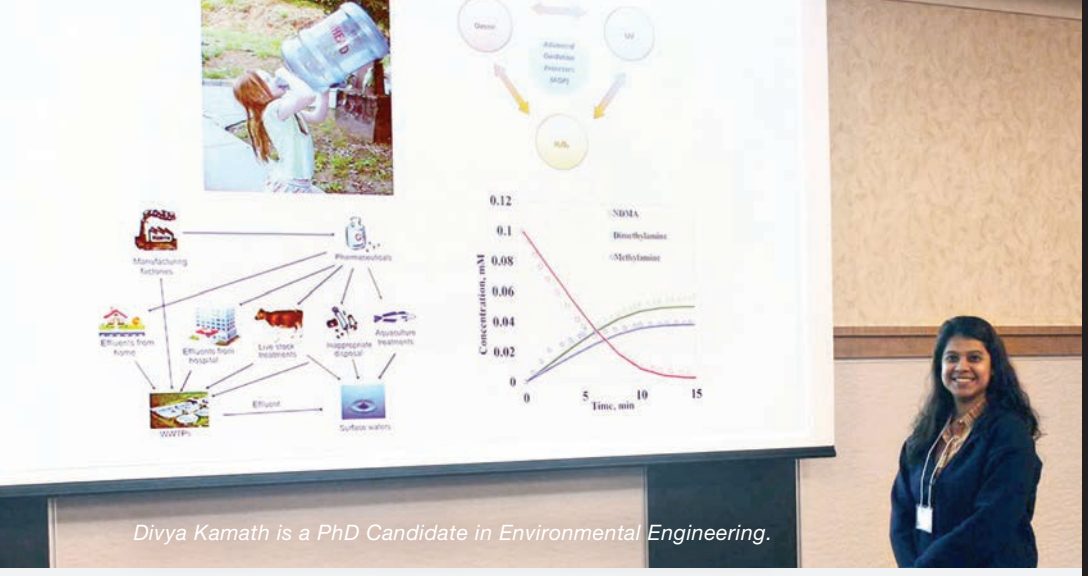
They investigated invasive earthworms at the USDA Forest Research Lab, assessed the health of local streams and wetlands with Dr. Rod Chimner, and participated in a four-hour scientific journey aboard the Michigan Tech research vessel Agassiz with Dr. Marty Auer (CEE) and Detroit native and Michigan Tech environmental engineering senior, Terrianna Bradley. In addition, they visited Seney National Wildlife Refuge, Pictured Rocks National Lakeshore, and spent a full day at Porcupine Mountain Wilderness State Park with Chief of Interpretation, Bob Wild, and the Ottawa National Forest Conservation Education Specialist, Joe Panci.

From left to right: *Ruth Oppliger, Claire Bradford, Hailey Goupille, Kristina Rushlau, Terrianna Bradley, Samantha Fentress, Courtney Fournier, Charlie Butler, Nathan Ecker, Xi Zhu, and Aaron Jessmore. Oppliger, Bradford, and Goupille are wearing naguas gifted to them by their host community.*

INTERNATIONAL SENIOR DESIGN PROGRAM

For two weeks in August, 11 students (eight CEE, two GMES, one ME) traveled to Panama as part of the CEE International Senior Design (iDesign) program. After a day at the City of Knowledge in Panama City, they divided into three teams and traveled to rural, indigenous communities in the Comarca Ngäbe-Bugle in western Panama. Hosted by Peace Corps Volunteers at the sites, they collected data for their fall semester senior design projects—two water supply systems and a river crossing, respectively. Other trip highlights included visits to the Panama Canal and the Biomuseo (Biodiversity Museum), a rest day at the beach, and a close encounter with a sloth family.

The trip was led by professor David Watkins and research engineer Henrique "Kiko" de Melo e Silva. Professor of Practice Mike Drewyor is assisting with mentoring the design teams in the fall term.



Divya Kamath is a PhD Candidate in Environmental Engineering.

Three Minute Thesis (3MT) Competition

The Three Minute Thesis (3MT) competition, held on Oct. 12, featured 10 speakers from departments across the University. The 3MT celebrates the research of graduate students across the world. The competition supports their capacity to effectively explain their research in three minutes, in a language appropriate to a non-specialist audience.

Six of the students who participated advanced from the preliminary heats to compete in the finals. The winner of the competition, who will advance to the Midwestern Association of Graduate School's 3MT Competition in April, was Divya Kamath (Environmental Engineering PhD candidate) with a presentation on improving water quality with aquesous phase advanced oxidation processes. Muraleekrishnan Menon's presentation on improving wind turbine rotors using active flow-control devices took second. The audience selected Leigh Miller's (civil engineering Peace Corps Master's International (PCMI) student) presentation on the protection of clean water in Panama as their favorite for the People's Choice Award.

The event was sponsored by the Graduate Student Government and the Graduate School. Thank you to all of the judges, volunteers, and competitors who helped make the event a success.

Leigh Miller is a returning PCMI Civil Engineering student.

aci 2015 Outstanding University

MICHIGAN TECH AWARDED 2015 OUTSTANDING UNIVERSITY BY ACI

Michigan Tech was named a 2015 Outstanding University by the American Concrete Institute. This level of national achievement was awarded to only 15 universities in 2015. The award was announced during ACI's Spring 2016 Concrete Convention and Exposition Opening Session and Awards Program in Milwaukee, Wisconsin on April 17. Faculty and students from the Department of Civil and Environmental Engineering and the Department of Materials Science and Engineering have been active in ACI through convention participation, research publications and presentations, and technical committee leadership.

CONSTRUCTION ESTIMATING COMPETITION

The Michigan Tech Civil Engineering team took third place in Heavy Construction Estimating Competition at the Associated Schools of Construction Region 3 Competition. The event was held in Downer's Grove, Illinois on October 12-15, 2016. The team was advised by Professor of Practice, Mike Drewyor and Dr. Kris Mattila.

From left to right: *Andrew Moser, Charles Hubbard, Wyatt Smith, Jenna Tillman, Jordan Negro, and Samantha Anderson.*

Michigan Tech/TUFTS Team Wins Prestigious ASCE Award

The American Society of Civil Engineers (ASCE) has announced that Steven C. Chapra, Rasika K. Gawde, Martin T. Auer, Rakesh K. Gelda and Noel R. Urban will receive the Society's 2016 Horner Award for their paper entitled, Sed2K: Modeling lake sediment diagenesis in a management context, published in the Journal of Environmental Engineering in 2015.

Dr. Martin Auer

The Horner Award is made annually, recognizing the paper, published in an ASCE journal making the most valuable contribution to the environmental engineering profession.

The award-winning paper is based on a mathematical model (Sed2K) developed by Chapra, the Louis Berger Chair in Civil and Environmental Engineering at Tufts University. Application and testing of the model was led by Gawde who recently received the PhD in Environmental Engineering from Michigan Tech and is now a post-doctoral fellow at the Horn Point Laboratory of the University of Maryland Center for Environmental Science.

Gelda also received the doctorate in Environmental Engineering from Michigan Tech and is presently a Research Scientist with the Bureau of Water Supply, Water Quality Science & Research at the New York City Department of Environmental Protection. Auer and Urban are faculty in the Michigan Tech Department of Civil and Environmental Engineering.

Dr. Noel Urban

TAMC Honors CTT Director

From left to right: *Victoria Sage, Dr. Chris Gilbertson, Dr. Tim Colling, Chris Codere, and John Kiefer.*

The Michigan Transportation Asset Management Council (TAMC) has honored **Dr. Tim Colling**, PhD, PE (CEE) with the 2016 TAMC Carmine Palombo Individual Award. Colling is the Director of the Center for Technology and Training (CTT) and is an adjunct faculty in the Department of Civil and Environmental Engineering. The award was presented by TAMC Chair Joanna I. Johnson at the annual TAMC Fall Conference in October. Colling acknowledged that while the honor is called an individual award, it reflects the work and dedication of the entire CTT team at Michigan Tech.

Colling worked as a civil engineering consultant for 10 years prior to starting at Michigan Tech. In 2010, Colling assumed the responsibilities of director, including leadership of the Michigan Local Technical Assistance Program (LTAP). Colling and his team at CTT provide basic and advanced training on a wide array of topics to support the management of transportation systems.

Engineering Flint's Water Future

Auer aboard the Agassiz with teachers from Flint.

The Ride the Waves Program sponsored by General Motors and the Michigan Tech Center for Science & Environmental Outreach hosted 13 Flint-area middle and high School teachers and community partners for a four-day teacher institute at Michigan Tech's Great Lakes Research Center from July 18-21. The funding covered transportation and lodging, a day on the Agassiz research vessel, and all field trips and instruction, with the option to earn one Michigan Tech graduate credit.

This special interdisciplinary program addressed three major focus areas: the Flint River watershed, drinking water treatment, and wastewater treatment. Teachers conducted stream water quality measurements, amphibian monitoring, wetland assessments, drinking and wastewater treatment lab activities, and interacted with environmental engineers—Dr. Daisuke Minikata and Dr. Martin Auer. Teachers received classroom resources to take home—WET Curriculum & Activity Guide for K-12 and Michigan's Environmental Education Curriculum Support (MEECS) Water Quality Unit, in addition to a web portal with additional resources.

Water Reuse Using Reverse Osmosis

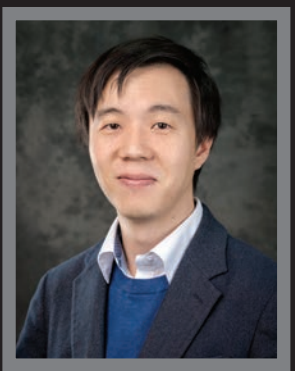
Dr. Daisuke Minakata

Water reuse is receiving increasing attention as a strategy that can improve reliability and drought resistance of water supplies. Civil and Environmental Engineering faculty, **Dr. Daisuke Minakata,** was awarded new funding from a collaborating university to develop a comprehensive model that can predict the removal efficiency of numerous organic chemicals in the reverse osmosis (RO) process in reclaiming wastewater.

Wastewater reclamation plants use a combination of membrane and reverse osmosis technologies with advanced oxidation to make sure that trace level of organic chemical contaminants such as pharmaceuticals, personal care products, endocrine disrupting chemicals, and disinfection by-products are effectively removed using multi-barrier concepts.

The RO model will use a combination of a mathematical model and sophisticated computational chemistry molecular modeling. The team hopes to utilize this tool as a holistic predictive tool to predict the removal efficiency for the new chemical compounds that may be under consideration of future regulations.

New Faculty



Dr. Hyungchul Yoon

Dr. Hyungchul Yoon joins Michigan Tech's Department of Civil and Environmental Engineering as an assistant professor. He earned his PhD in Civil Engineering from the University of Illinois, Urbana-Champaign and received his certificate in foundation of teaching at the Center for Innovation in Teaching and Learning there.

Yoon has been a mentor at the Smart Structure Technology Laboratory at the University of Illinois, Urbana-Champaign. He has had numerous publications in journals such as the Journal of Computing in Civil Engineering. He has also given oral presentations in Osaka, Japan; San Juan, Puerto Rico; and Stanford, California.

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ZURICA NAMED 2016 NEW PRINCIPAL OF THE YEAR

Josephine Zurica has been named the 2016 American Council of Engineering Companies of New York (ACEC New York) New Principal of the Year. She is only the second woman to receive this award given to an ACEC New York member who has been a principal for less than five years.

Zurica received a Peace Corps International MS from Michigan Tech in Environmental Engineering in 2006 and joined Dagher Engineering in 2007 after serving in the Peace Corps in Panama. She became principal for Dagher in 2013 at the age of 34.

IWANICKI ELECTED AS CRA PRESIDENT

James Iwanicki '89 – BS, Civil Engineering has been elected President of the County Road Association (CRA) of Michigan. Iwanicki has been with Marquette County Road Commission for 17 years and was recognized in 2014 as CRA Rural Engineer of the Year.

BANONIS SELECTED AS MANAGER

Michigan Technological University alumnus, **Michelle Banonis,** has been selected as the Bay Delta Office Manager for the Bureau of Reclamation's Mid-Pacific Region effective March 21, 2016. Banonis most recently served as the Mid-Pacific Region's Special Assistant to the Regional Director as well as lead efforts on California Water Fix.

Banonis obtained her Bachelor of Science in Environmental Engineering from Michigan Tech where she is also a member of the Presidential Council of Alumnae (PCA). She also holds a Juris Doctor from Humphreys College Laurence Drivon School of Law and is a licensed attorney in California.

BAREITHER 1 OF 10 NAMED AS NEW FACES OF CIVIL ENGINEERING

Michigan Tech alumnus **Kyle Bareither** has been named one of 10 "New Faces of Civil Engineering" by the American Society of Civil Engineering (ASCE). Each year the ASCE recognizes 10 young, diverse, and talented engineers that highlight the next generation of civil engineering leaders.

Bareither currently works at Natural Resources Technology (NRT), an environmental consulting firm headquartered in Milwaukee, Wisconsin. He also serves as president of ASCE's Wisconsin section Southeast Branch Younger Member Group (YMG) and is a member for the YMG's STEM Expo, a program that provides hands-on STEM activities for local K-12 students.

After a successful battle with Stage IV Hodgkin's Lymphoma in 2010, Bareither decided that he wanted to give as much of his time helping others. He volunteers his time with Imerman Angels – an organization created to provide one-on-one support for those facing cancer – and the Leukemia and Lymphoma Society.

Bareither is a '07 Michigan Tech Environmental Engineering alumnus.

Michigan Technological University

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CIVIL AND ENVIRONMENTAL ENGINEERING

2016 concrete canoe at the Cherry Festival in Traverse City, Michigan.

Concrete Canoe

The Michigan Tech Concrete Canoe team defended their title at the regional level and earned eighth place at the ASCE National Competition in Tyler, Texas. The 2016 canoe, Denali, was inspired by the 100th anniversary of the National Park Service.

Learn more: **cee.mtu.edu/asce/canoe**

SPRING 2017 DEPARTMENT NEWS