2018 - 2019

Benchmarks

DEPARTMENT OF CIVIL, ENVIRONMENTAL AND GEODETIC ENGINEERING

THE OHIO STATE UNIVERSITY

COLLEGE OF ENGINEERING

Department of Civil, Environmental and Geodetic Engineering
470 Hitchcock Hall | 2070 Neil Avenue | Columbus, OH 43210
ceg.osu.edu

***On the cover*: A late winter sunrise over the Oval.**
Photo courtesy of University Communications

TO ALUMNI AND FRIENDS

Greetings to you, our CEGE alumni and friends!

"Time and change will surely show.
How firm they friendship O-HI-O"

These closing words to Carmen Ohio unite us through many experiences around our Ohio State connection – Convocation and Graduation, Buckeye victories (and defeats), Alumni gatherings and recognitions. It was striking to me that this edition of Benchmarks quite embodies the essence of this enduring phrase.

Time and change

In the summer of 2018, the CEGE faculty and staff came together to brainstorm about strategic alignment within the changing landscape of civil, environmental and geodetic engineering practice and the many new additions to our department. 'Interdisciplinarity' emerged as an important thematic area of strength for the department. With a strong foundation in fundamental CEGE concepts, our faculty are contributing to new areas of discovery as highlighted by the faculty that we have welcomed to our department and promoted within our department in fall 2018: advanced microbiology tools to better public health exposures to microorganisms in water and air; optimized building design for lower energy impacts; careful carbon budgeting and paleographic record reconstruction to assess changing climate and precipitation patterns, and structural analysis to identify vulnerabilities and resilience within power grids.

Another important theme that we have been reflecting upon is value of what we offer to students in our programs. The many and varied student experiences highlighted in Benchmarks showcases the opportunities that students have to move beyond classroom learning to broaden their horizons. The gracious gift of time from alumni serving as Industrial Mentors allows our students an inside track to navigating the transition from student to professional in a work sector that offers so many options for holders of civil engineering and environmental engineering degrees. The notes from our Alumni highlight this very well with successes in academics, management and venture initiatives. We are also growing opportunities for students to have more hands-on and experiential experiences within their classroom training through the upgrade of lab facilities in Hitchcock and Bolz Halls

How firm thy friendship

We welcomed back Liz Riter to join the CEGE advising team this year. After some time in industry, she realized her true calling was through the support and development of the next generations of Buckeye engineers. She is particularly committed to leadership development among the many active student chapters in the department.

Finally, the long friendships and associations of students and faculty were evident as we marked the passing of two emeritus faculty, Prof. Bob Stiefel and Prof. T.H. Wu. The department received many thoughtful and inspiring remembrances in recognition of the impacts these educators had made on former students' career trajectories. As always, I encourage you to stay in touch - keep us posted about your accomplishments, volunteer as an Industry Mentor, or support our student groups and scholarships.

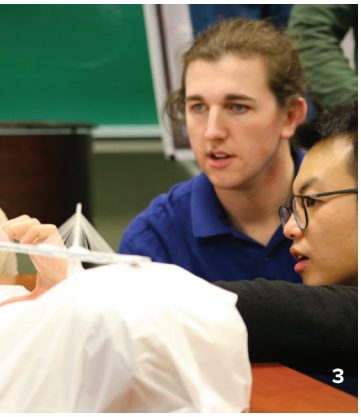
All the Best,

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

CEGExperiences

(6) James K. Mitchell, distinguished professor, emeritus, Virginia Tech, delivers the 2019 T.H. Wu Distinguished lecture, February 2019. **(7)** Linda Weavers, professor of environmental engineering, poses outside of Hitchcock Hall with a citation for distinguished service awarded to her by the Association of Environmental Engineering and Science Professors, October 2018. **(8)** CEGE student John Moody discusses Ohio State's student chapter of Professional Land Surveyors of Ohio (PLSO) with prospective members, October 2018. **(9)** Visitors enjoy the view from the observation area of the newly-opened Austin E. Knowlton Executive Terminal and Aviation Learning Center at the Ohio State University Airport, September 2018. *Photo courtesy of COE Communications* **(10)** CEGE welcomes students to the new academic year at a late summer barbecue, September 2018. **(11)** Prof. Jordan Clark (L) discusses experimental procedures for testing low cost air sensors with CEGE PhD student Yanyang Zou (R) at Ohio State's enCORE house, October 2018.

(1) (L to R) CEGE alumni Josh Osam-Duodo, Jasmine Johnson and Randall Berkley discuss the Sustainable and Resilient Communities service learning project in Tanzania during an interview with the Big10 Network, July 2018. **(2)** Prof. Tarunjit Butalia (L) snaps a photo of fellow Buckeyes after they completed a service project at the Greater Cleveland Food Bank during Ohio State's Road Scholars Bus Tour, July 2018. *Photo courtesy of University Communications* **(3)** Students Raina Rotondo (L) and Connor Higgins (middle) discuss their model with Prof. Nan Hu (R) during the Structural Engineering Principles Design Exhibition, December 2018. **(4)** Geodetic engineering students explore interactive displays during an on-campus visit of the Top Con Technology Roadshow, October 2018. **(5)** Members of Ohio State's Steel Bridge take a well deserved break following a demonstration to fellow CEGE students, September 2018.



CEGE WELCOMES NEW FACULTY MEMBERS

Jordan Clark, PhD
Assistant Professor

Dr. Clark received his PhD in Civil, Architectural and Environmental Engineering and MS in Architectural Engineering from the University of Texas at Austin, where he was a member of the Building Energy and Environments Research Group. He has a BS in Civil Engineering and a BA in Philosophy from Stevens Institute of Technology.

Dr. Clark investigates the physical processes affecting energy consumption, thermal environments, and air quality in sustainable buildings.

Dr. Clark is a native Ohioan and lifelong Buckeye fan, enjoys trail running and nurses an appetite for philosophy when he can.

Natalie Hull, PhD
Assistant Professor

Professor Hull received her PhD in Environmental Engineering at the University of Colorado, Boulder, where she studied mechanisms of water disinfection by ultraviolet light and applications for small water systems as part of the DeRISK Center.

She earned a BS in Civil Engineering from the University of Kentucky and an MS in Civil Engineering with Environmental Specialization from CU Boulder.

Her research interests include the application of emerging molecular biology tools, big data analysis, and optimized treatment technologies to better understand and control microbes in water.

James Stagge, PhD
Assistant Professor

Professor Stagge received his PhD in Civil Engineering from Virginia Tech University, focusing on water resources optimization in the Washington D.C. area. He received MS and BS degrees in civil engineering from the University of Maryland.

Most recently, he served as a postdoctoral researcher in the Department of Civil Engineering at Utah State University. His research deals primarily with understanding hydrologic extremes, with the goal of decreasing drought vulnerability. His prior postdoctoral research at the University of Oslo dealt with quantifying observed and projected drought risk across Europe as part of the EU-funded Drought R&SPI project.

FACULTY SPOTLIGHT

TRIO OF PROFESSORS AWARDED TENURE

The Department of Civil, Environmental and Geodetic Engineering is pleased to announce the promotion of the following faculty members. These promotions were approved by Ohio State's Board of Trustees at its June 2018 meeting.

Gil Bohrer was promoted from the rank of Associate Professor to that of Professor. A member of CEGE's environmental engineering faculty, Prof. Bohrer directs the Ecohydrometeorology Laboratory and serves as co-director of Ohio State's Environmental Science Graduate Program. Dr. Bohrer is a supportive mentor to students at both the undergraduate and graduate levels. His innovative research integrates hydrology, ecology and atmospheric dynamics.

Michael Hagenberger was promoted from the rank of Associate Professor of Practice to that of Professor of Practice. Prof. Hagenberger is a member of CEGE's structural engineering faculty and serves as Associate Chair of CEGE as well as Associate Dean for Facilities and Capital Planning for the College of Engineering. He also directs the Sustainable and Resilient Communities service learning project in Marwa, Tanzania where Ohio State students are designing and building a water treatment and delivery system.

Abdollah Shafieezadeh was promoted from the rank of Assistant Professor to that of Associate Professor. Dr. Shafieezadeh, Lichtenstein Professor, is a member of CEGE's structural engineering faculty and serves as the director of the Risk Assessment and Management of Structural and Infrastructure Systems (RAMSIS) Laboratory. He is a leader in the area of risk assessment and decision support as it pertains to the preservation and safety of civil infrastructure over its lifetime and under impacts of natural hazards.

GEODETIC ENGINEERING FACULTY MEMBER RECEIVES NASA EARLY CAREER AWARD

Lei Wang, assistant professor of geodetic engineering, was awarded the National Aeronautics and Space Administration (NASA) New Investigator Program (NIP) award in Earth Sciences. The NIP award, presented in March 2018, will enable Dr. Wang to further his research, in which he applies multiple sources of geodetic measurement data to more accurately quantify current and future environmental changes in the Greenland ice sheet.

Prior to his appointment at Ohio State in 2016, he served as Postdoctoral Research Scientist at Columbia University and as Postdoctoral Associate at the Massachusetts Institute of Technology. He earned his PhD in Geodetic Science and Surveying from The Ohio State University in 2012.

The New Investigator Program was established by NASA in 1996 to encourage integrated environments for research and education for scientists and engineers at the early state of their professional careers.

Bryan Sluis

Melissa Ryan

Sydney Gravitt

Emma van Dommelen

BUILDING WELL-ROUNDED ENGINEERS

CEGE STUDENTS EXCEL INSIDE AND OUTSIDE THE CLASSROOM

Crawling into small holes a dozen feet below the street's surface is not what most college students have in mind for their summer break. For CEGE student **Bryan Sluis** however, that is exactly what he had in mind. Bryan is among a growing number of students taking advantage of internships, research and service projects, and participation in student teams to help them prepare for their future as Buckeye engineers.

Sluis served as a civil engineering intern with the City of Columbus from summer of 2017 through the spring of 2018. His team surveyed new construction areas, marking out elevations and inspecting new storm and sewer drains. "As an intern, I basically worked as an Engineer in Training," Bryan said. Working with professional engineers enabled him to better see how the many, varied aspects of modern civil engineering projects coalesce into finished, public works.

Bryan, a Seattle native who now calls Dublin home, also serves as President of Ohio State's student chapter of the American Concrete Institute (ACI) and will travel to Tanzania in May 2019 as part of CEGE's Sustainable and Resilient Communities Maji Marwa service learning project.

Bryan Sluis tests concrete in CEGE's Structural Engineering Lab.

He encourages younger students to take advantage of these opportunities to join competition teams and outreach initiatives. "The projects help reinforce learning in classes on a more practical level," he offered. "This is a good place to learn terms you will see in (future) civil classes and build your resume. You can help with physical construction work and ask questions of higher level students."

Bryan has also worked with Weaver Consultants Group, where he assisted the firm with its landfill design and consulting work.

Finding her way

During her freshman year, recent graduate **Emma van Dommelen** started to doubt her choice of engineering as a career major. "Classes were very difficult and many of the prerequisite courses were uninteresting to me, she said.

Emma van Dommelen installs an air quailty sensor atop an Ohio State campus bus.

Engaging in CEGE research projects changed her perspective. " Seeking out the opportunity to become an undergraduate researcher at Ohio State was probably one of the best decisions I made," Emma recalled. "Research gave me an opportunity to seek out an education experience relevant to my field of study and showed me a potential future working in engineering."

A self-described active learner, van Dommelen relished the hands-on experience gained coding an online, interactive watershed model with Gaj Sivandran, former assistant professor of environmental engineering, and analyzing traffic-related pollution using mobile sensors installed on Ohio State Campus Area Bus Service (CABS) vehicles. This work was conducted with assistant professor Andy May, whose research group investigates emissions, transport and fate of air pollutants.

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BUILDING WELL-ROUNDED ENGINEERS

Story continued from page 9

Emma von Dommelen (L) and Ohio State peers test local water samples in northeastern Tanzania. *Photo courtesy of Emma von Dommelen*

Emma also traveled to Tanzania in May of 2018 as part of the Maji Marwa community-based service learning project. Working as part of a team that tested river, ground and well water, she found the experience to be transformative. "I was surprised to see how open the people of Marwa were to 20 strangers who did not speak their language. They were so welcoming and gracious."

Helping the villagers in Marwa plan for a future that includes a steady source of clean, drinkable water, opened Emma's eyes to the potential of humanitarian engineering. "It's so much more than just calculations and construction," she offered. "For me, it shows how hard work and compassion can really make a long-term impact on human lives."

A native of Columbus, Ohio, Emma continues her work helping to engineer clean drinking water for the public at Hazen and Sawyer, where she serves as an Assistant Engineer.

Inspired to serve

Two dozen high school students, many of them young women, toured the interior and exterior of Ohio State's enCORE House. In the middle of the crowd, **Melissa Ryan** smiled and eagerly discussed the student-built structure's innovate net zero design. Ryan, a senior in environmental engineering, came to Ohio State from her home state of Connecticut to pursue her passions for sustainable engineering and service to others. Being a Buckeye has allowed her to satisfy both pursuits.

"I absolutely love talking to (younger) students," she said. "It has become my passion at Ohio State." Ryan became involved in the university's student chapter of Society of Women Engineers (SWE) where she directed the group's outreach efforts. Her team worked to double the number of outreach

High school students tour Ohio State's enCORE House, November, 2018

events the group sponsored each year, garnering recognition from the College of Engineering and Ohio State's Office of Student Life for its efforts.

Melissa Ryan (center) and local middle school students discuss how engineers make buildings more eco-friendly during a SWE outreach event.

Melissas intends to inspire young people and young women, in particular, to consider engineering as a future educational and career path. "I hope that it's easy for them to visualize themselves in my shoes in a few years," she said.

The event held at the enCORE house also afforded Melissa the opportunity to discuss her research work with Prof. Jordan Clark, who joined Ohio State's faculty in September, 2017. Clark's team evaluates low-cost air quality sensors for their application in smart building systems - specifically for the control of air quality in buildings. The enCORE House served as one of the test sites for the group.

"On the first day of the semester, Dr. Clark discussed his research in class," Ryan recalled. After class, she expressed her interest in the project during a conversation with Prof. Clark. Shortly thereafter, Melissa joined his research group. She encouraged the students at enCORE to take similar initiative when they find a subject they are passionate about. "Just like them, I want my career to be based on my core values."

BUILDING RELATIONSHIPS

CEGE MENTOR PROGRAM GROWS

Sydney Gravitt has kept very busy while studying civil engineering at Ohio State. In addition to her class workload, the senior also volunteered as a College of Engineering Ambassador, participated in Ohio State's STEP Research Program and served as a resident advisor in Jones Tower.

As she prepared for her future career, the Ashland, Ohio native wanted to gain even more insight and experience into what it's really like to work in her chosen field. "I wanted to be able to listen to an experienced engineer and gain some of their wisdom," she offered.

Rickard Sicker (L), President of RAS Civil Engineering with Sydney Gravitt (R).

Sydney is one of nearly 40 undergraduate students who participate in CEGE's Industry Mentor Program. Participants in the program share and receive real-world career guidance, information on current and future industry trends and personal experiences from the workplace. Working with her mentor Rickard Sicker (BS '78, CE), Sydney visited civil and geotechnical firms as well as active jobsites. "This was a great experience and I thank Mr. Sicker for investing in me."

Associate Development Officer Courtney Ross is a staunch advocate for the burgeoning program. "The benefits of learning from those that have come before you are invaluable," she stated. "If alumni are looking for a way to connect with students and pay forward, the Mentor Program is a great opportunity to make your mark on the future of the sector."

*Contact **Barry Tolchin,** Manager of Academic Advising at **tolchin.5@osu.edu** to learn more.*

FACILITIES UPDATE

NEW GEOTECHNICAL LABORATORY DEBUTS

On February 9, 2018, students, faculty and friends of the department celebrated the grand opening of the **CTL Engineering Lab** in Hitchcock Hall. In the completely renovated space, students will test the properties of soils as construction materials.

The opening of the lab signals the return of the Geotechnical Engineering Laboratory (CIVILENG 3541) to CEGE's undergraduate curriculum. This course is a critical component of civil engineering education, according to Professor of Practice Daniel Pradel. “Before you can build a building you need to have stable ground,” he said. In the lab course, students learn how to conduct tests to identify different types of soils, identify their properties and determine if they’re suitable as construction materials.

Just as buildings require solid ground for their foundations, students require a solid foundation of skills to prepare them for their futures as Buckeye engineers. The CTL Engineering Lab offers students hands-on experience that connects theory to practice, which was part of the inspiration behind Columbus-based CTL Engineering's $200,000 gift to support the new lab.

“We are very interested in having people go into the STEM fields, particularly into civil and environmental engineering, because that’s a major part of our business,” CTL President and CEO C.K. Satyapriya stated. “We think this is a way for us to bring more people into the field and have them trained so they will be available for industry to hire.”

Pradel already sees improvement in student learning as a result of these new practical expereinces. “When you do the tests, it’s very different from learning it from the books,” he said. “This ability to visualize things is really important."

Candi Clevenger, COE Communications, contributed to this article.

Prof. Daniel Pradel (second from left) and CTL Engineering President and CEO C.K. Satyapriya (under G in sign) join students to celebrate the opening of the CTL Engineering Lab. *Photo courtesy of COE Communications.*

TRANSFORMING THE STUDENT EXPERIENCE

Renderings courtesy of ms consultants, inc.

NEW DESIGN STUDIO TO DEBUT IN 2020

CEGE students will soon begin a new era of experiential learning with the impending design and construction of the **Kokosing Design Studio,** a flexible space that will become the hub for capstone courses - the culminating, senior year, project experiences that prepare students for real-world feats of engineering.

The project continues a long-standing partnership between Ohio State and Columbus-based Kokosing, one of the nation's largest family-owned construction companies. “The company’s financial contribution for the new design studio is a natural extension of our long-term partnership with the University,” said Brian Burgett (BS ‘73, CE), president and CEO. “Ohio State is continuing on an exciting trajectory and I can’t wait to see where it leads."

Brian Burgett

The 14,000 square foot space in Bolz Hall will feature an Autocad lab, collaborative space for students to work in teams or to engage visiting professional engineers, and flexible space for guest lectures, career events and presentations. More than 150 computer stations with state-of-the-art software will be integrated, and undergrads and grad students will be able to access the space to study and collaborate at all hours. “The vision for the new student centered space is to create an environment where students can collaborate with each other, faculty, and industry professionals as they prepare for their future careers,” Michael Hagenberger, Associate Chair of CEGE said. “It will also foster a sense of community by creating a space where students can work and socialize with other members of our department.”

COE Communications contributed to this article.

See page 19 for more facilities news.

ALUMNI SPOTLIGHT

The Department of Civil, Environmental and Geodetic Engineering is extremely proud of its 7,000-plus living alumni worldwide. These Buckeye engineers are leaders in industry, government, academia and in their respective communities.

CEGE GRAD RECEIVES CAREER AWARD

BILL HAYWOOD AMONG 15 ALUMNI HONORED

Bill Haywood (L) poses with Dean David Williams (R) at the 2018 Excellence in Engineering and Architecture Awards. *Photos courtesy of COE Communications*

Bill Haywood (BS '78, CE) was honored with the College of Engineering's Distinguished Alumni Award for Career Achievement during the 2018 Excellence in Engineering and Architecture Awards on November 2nd.

Mr. Haywood is a senior energy executive with 35 years of experience in refining, energy and biofuels, both domestically and internationally. Currently, as president of Haywood Energy Consulting, he consults with investors on new projects, merger/acquisition, integration and positioning of assets. He is also a partner in Wai Ventures, a robotics solution company.

At the awards celebration, Dean David Williams, the Monte Ahuja Endowed Dean's Chair, congratulated Mr. Haywood and his peers on the " the tremendous impact they have on our world through their teaching, entrepreneurship, leadership, innovation and service."

Photo courtesy of South Dakota State University

BERDANIER NAMED DEAN AT SDSU

Bruce W. Berdanier (BS '80, CE, PhD '95, CE) was appointed dean of the Jerome J. Lohr College of Engineering at South Dakota State University in May 2018.

A renowned researcher in the field of surface water quality and wastewater treatment, Dr. Berdanier had previously served as dept. head of Civil and Environmental Engineering at SDSU as well as dean of the School of Engineering at Fairfield University in Connecticut.

Photo courtesy of WSP USA

TRANSPORTATION ENGINEER ASSUMES LEADERSHIP POSITION FOR WSP USA

Nancy Lyon-Stadler (MS '88, CE) was named Cleveland Office Lead for WSP USA, an engineering and consulting firm with over 500 locations worldwide.

In her new position, which was announced in July 2018, Lyon-Stadler will oversee the northeast Ohio office's management team, product delivery, client relations and new business development activities.

Prior to joining the WSP team in 2015, Nancy spent over 30 years designing and building transportation projects in both the private and public sectors, including service as a civil engineering officer in the United States Air Force.

An accomplished athlete, she was a member of the USA Triathlon Teams in 2017, 2016, 2015 and 2013. Lyons-Stadler currently serves as a member of the USA Triathlon Ambassadors team, offering advice to aspiring athletes in her community.

TRIO OF RECENT GRADS BEGIN ACADEMIC APPOINTMENTS

Photo courtesy of A. Matheny

Ashley M. Matheny (BS '10, CE, MS '13 CE, PhD '16, CE) was appointed Assistant Professor, Dept. of Geological Sciences, Jackson School of Geosciences at the University of Texas, Austin in July 2017.

Dr. Matheny teaches courses in hydrology and directs the Matheny Ecohydrology Research Group which seeks to better understand the role vegetation plays in land-atmosphere exchange.

Photo courtesy of M. Soto

Mariantonieta Gutierrez Soto (MS '12, CE, PhD '17, CE) joined the University of Kentucky's College of Engineering as Assistant Professor, Dept. of Civil Engineering in 2017.

Dr. Soto directs the Smart Structures Research Lab which investigates and innovates the next generation of resilient, smart structures.

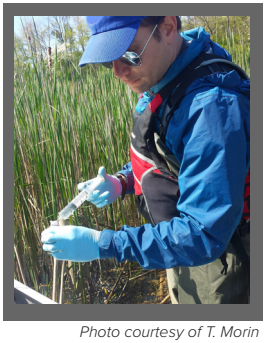


Photo courtesy of T. Morin

Timothy H. Morin (PhD '17, Env. Sci.) was appointed Assistant Professor, Environmental Resources Engineering, in the College of Environmental Science and Forestry at the State University of New York in 2018.

Based in Syracuse, Dr. Morin studies the carbon cycle in wetlands as director of the Morin Biogeochemistry and Micrometerology lab.

RESEARCH

MAKING SPACE EXPLORATION HEALTHIER

CEGE RESEARCHERS STUDY MICROBIAL GROWTH ABOARD THE INTERNATIONAL SPACE STATION

We all want our homes to be healthy indoor environments, free of bacteria and other potentially disease-causing microorganisms. The same goes for the astronauts and cosmonauts whose "home" is the International Space Station (ISS), which orbits more than 200 miles above the Earth's surface.

Mold and other bacteria can adversely affect the health of astronauts and can potentially compromise the structural integrity of the spacecraft. In order to create a healthier environment for those working in space, Professor **Karen Dannemiller's** research group is evaluating dust and other environmental factors such as moisture, found aboard the ISS.

Sarah Haines (L) and Karen Dannemiller (R), receive control samples from the International Space Station, May 2018

Dannemiller and her collaborators have been awarded a grant by NASA's Space Biology Program to conduct the study, *Humidity and microbial growth in International Space Station dust (HUMID*). The team, which includes graduate students **Sarah Haines** and **Ashleigh Bope**, will incubate, at various levels of relative humidity (RH), dust samples returned to Earth from the ISS. The samples are extracted for their DNA and the resulting list of bacteria and fungi present will serve as the basis for determining the environmental health of the space station.

Over time, Ohio State and its partners at the University of Romstock's Center for Life Science Automation (CELISCA) will develop an automated version of this system, which will allow crews to analyze the environmental health of the ISS without having to send samples back to Earth.

Dr. Dannemiller also sees opportunities for implementation of such a system in other built environments such as submarines and aircraft. "We can simulate various conditions in the lab to learn more about the potential for microbial growth in both spacecraft and built environments on Earth," she said. "The knowledge we gain can ultimately lead to enhanced design of these systems."

Awareness of the health of the microbiome aboard the ISS will enable astronauts to adjust their behavior or to assume additional cleaning and sanitizing tasks to improve their living conditions. As NASA plans more sophisticated, future missions, optimizing the health of its flight crews and spacecraft while limiting the risk to the planet and its population after that spacecraft returns, become even more critical.

Professor and Neil Armstrong Chair, Mechanical and Aerospace Engineering, John Horack, co-investigator on *HUMID*, said that Dannemiller's work "will give us better insight into the microbiome of closed human spaceflight environments for better health protection of the crew and flight hardware as we move from ISS to beyond low-Earth orbit."

RAIDERS OF THE LOST DATA

NEW INSIGHT INTO PAST RESEARCH

While Associate Professor of Transportation Engineering Benn Coifmann's team was researching faulty vehicle trajectories in current transportation data, he was struck with inspiration.

Why couldn't these research methods be used to address Ohio State professor Joseph Treiterer's seminal traffic flow research from the 1960's? For years, Treiterer had captured aerial images of Columbus interstate traffic patterns. His research had attained near mythical status in the research community despite the fact that the data sets were never shared and were eventually lost without a trace.

With the help of Ohio Dept. of Transportation archivists, who located paper printouts of Treiterer's original reports, and PhD candidate, Lizhe Li (above left), Coifmann's team was able to recover Treiterer's original trajectories. The research and resulting paper earned him the Greenshields Prize from the Transportation Research Board Committee on Traffic Flow Theory and Characteristics.

OUTREACH

GIVING THE GIFT OF PLAY

TOY ADAPTATION PROGRAM RECONFIGURES TOYS FOR CHILDREN OF ALL ABILITIES

Children with special needs can now access their toys independently thanks to a program started by faculty and staff members in the College of Engineering. The **Toy Adaptation Program** (TAP) facilitates workshops to teach engineering students and community members how to adapt toys for children with disabilities.

CEGE student Mike Caddell adapts a toy during a TAP lab session, October 2018.

Prof. Rachel Kajfez

Elizabeth Riter

In 2013, Prof. Rachel Kajfez, assistant professor in the Department of Engineering Education and Elizabeth Riter, academic advisor in CEGE, started the program to provide hands-on educational opportunities to engineering students and to pay forward. "We saw the need for adapted toys and were excited that our students could easily contribute to this need," Riter said.

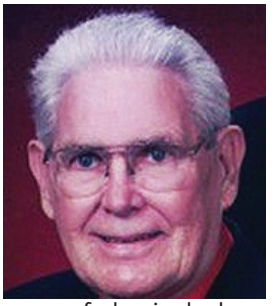
In campus labs, students and volunteers from industry add an external port to each electronic toy so that an accessible switch can activate the toy without compromising the original functionality. The adapted toys are then donated to organizations or directly to families.

TAP strengthened its bond with communities throughout Ohio by offering workshops where families work with team members to adapt toys for their own children. The program's Toys For All Tots event, held annually at Nationwide Children's Hospital, serves dozen of families from the midwest region each year.

Riter is proud of the work that participants in the TAP do on behalf of children with special needs. "It's an amazing thing to be able to have such a positive impact on both those learning the skill and those using the toys in our community." *Learn more about the Toy Adaptation Program at* ***u.osu.edu/osutap/***

IN MEMORIAM

Robert (Bob) Stiefel



The Department of Civil, Environmental and Geodetic Engineering expresses it sadness regarding the death on April 4, 2018 of Robert (Bob) C. Stiefel, professor emeritus of the College of Engineering.

Professor Stiefel served on the faculty of CEGE from 1971 until he retired in 1996. As director of the Ohio Water Resources Center (WRC) from 1973 - 1995, he encouraged and supported research in the area of physical, chemical and biological treatment processes for water and wastewater. Today, the WRC leadership team, inspired by Professor Stiefel's example, remains committed to the center's mission of environmental research and stewardship.

Colleagues and students both recognized Dr. Stiefel's impact at Ohio State. He was the recipient of the Lichtenstein Award for Faculty Excellence in 1983 and, in 1989, was honored with The Charles Ellison MacQuigg Award for Outstanding Teaching. Presented to a faculty member who has demonstrated, in a superior manner, interest and willingness to help students, and in improvement of the high reputation of the College of Engineering, and outstanding teaching ability, the award is especially meaningful to a faculty member as students in the college nominate and elect the recipient.

Tien-Hsing (T.H.) Wu

The Department of Civil, Environmental and Geodetic Engineering expresses it sadness regarding the death on June 7, 2018 of Tien-Hsing (T.H.) Wu, professor emeritus of the College of Engineering.

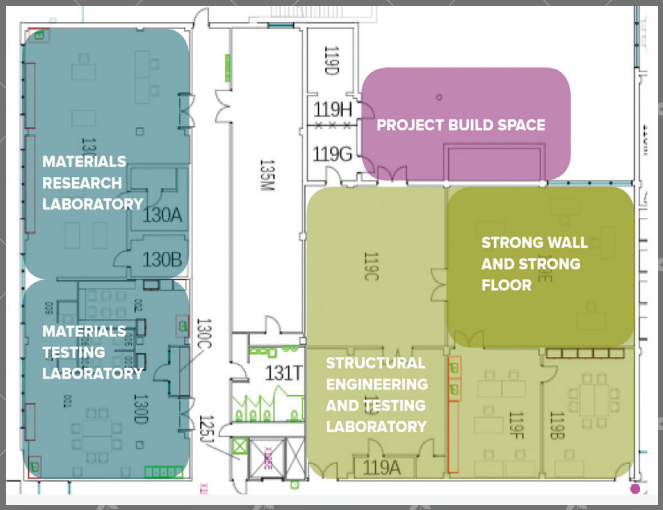
Professor Wu served on the faculty of CEGE from 1965 until he retired in 1994. He served as Department Chair from 1992 - 1994. Dr. Wu performed research on the strength properties of soil and rock, stability of embankments and natural slopes, soil reinforcement and risk and reliability for foundations and slopes.

Peers and colleagues consistently recognized Professor Wu's professional accomplishments. His awards include the U.S. Antarctica Service Medal (1967), the Ohio State University College of Engineering Research Award (1988), the ASCE State-of-the Art Award (1990) and the Ralph B. Peck Award from the Geo-Institute (2008). Prof. Wu was elected an Honorary Member of ASCE in 2006.

BUILDING FOR THE FUTURE

The Department of Civil, Environmental and Geodetic Engineering continues to renovate and equip our outdated materials laboratories in Bolz Hall to support continued growth in our department, enhance student education and align with our new practice-oriented curriculum.

The reimagined space will include multiple facilities. **Materials Research and Testing Laboratories** will allow us to build on existing capacity and expand research and testing capabilities. The **Structural Engineering and Testing Lab** will feature a large testing facility with a strong wall and strong floor to enable full-scale testing of components. A **Project Build Space** in the adjacent service yard will give students and faculty a dedicated build space to work on projects — including concrete canoes, steel bridges, research test specimens and materials lab specimens.



*Contact **Courtney Ross** at **614-688-2784** or **ross.697@osu.edu** to learn more.*

Benchmarks

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Photography by Kevin Satterfield except where indicated and as follows:

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Courtesy of Bryan Sluis, Melissa Ryan, Sydney Gravitt and Emma von Dommelen

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(1) Courtesy of Emma von Dommelen

Page 11

(1) Courtesy of Melissa Ryan

(2) Courtesy of COE Development

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(1) Courtesy of Brian Burgett

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(1) (2) Courtesy of COE Communications

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TIME AND CHANGE

The Oval, looking east, The Ohio State University, 1915
Photo courtesy of University Archives