Industry + Academia

SPARKING INDVATION IN CIVIL ENGINEERING EDUCATION

Sparking Innovation in Civil Engineering Education Summit June 10th-12th





Industry + Academia SPARKING INNOVATION IN CIVIL ENGINEERING EDUCATION

Objectives & Expected Outcomes

The 2025 ASCE Civil Engineering Education Summit brings together industry and faculty leaders to propel innovation across the civil engineering education continuum. We must all work together to reimagine education, bridge critical skill gaps, and equip the next generation of civil engineers for unprecedented opportunities and challenges. Join us as we shape the future of our profession, creating a lasting impact on our communities and the world.

At the summit, industry and academic partners will collaborate to identify, define, and create plans for:

- The top 5 essential professional skills to meet the future needs of our industry.
- The top 5 critical technical skills to harness emerging technologies, create innovative solutions, and solve our most pressing problems.
- The top 5 engaging outreach strategies to attract and scale the next generation of civil engineers.

June 10, 2025	June 11, 2025	June 12, 2025
Travel	 Breakfast & Morning Sessions: CROSS-US Recap, Intro, CEBOK Boards New Tech Rapid-Fire Briefs Workshop: Tech Skill Gaps Workforce Development TF 	 Breakfast & Morning Sessions: NSF RED Update Partnerships for ABET Priorities and Strategy Commit to Change
Lunch / Informal Meet & Greet	Lunch / Discuss TF Report	
Afternoon Sessions • Welcome and Intro • Reflection • CEBOK Update • Laying Foundation for Change • What inspires students? • Outreach Hackathon	 Afternoon Sessions Implementing Future World Vision Bridge the Collaboration Gap Perspectives on Prof Skills Workshop on Prof Skill Gaps 	Travel
Reception An evening at the Cleveland Museum of Art (walkable)	Reception Dig in with Creative Engagement Artifacts at the Think Box	

Summit Schedule at a Glance

TINKHAM VEALE UNIVERSITY CENTER

ASCE × CASE WESTERN RESERVE

First Floor (Entry Level)



Second Floor (Conference Level)



Day 1: Tuesday, June 10, 2025

12:00 PM - 12:45 PM	Opening Lunch - Meet & Greet (Buffet in Foyer, Grab a place to eat and catch up with old/new friends in the Foyer, Ballroom C or 1 st Floor)
12:45 PM - 1:00 PM	Welcome and Introductions (Ballroom A&B)
1:00 PM - 1:20 PM	Reflection on Past Summits - "Where are we now?" (Ballroom A&B) Jennifer Ogle, Chair, Glenn Department of Civil Engineering, Clemson; Chair of Innovations in Civil Engineering Working Group (ICEE WG)
1:20 PM - 1:30 PM	Civil Engineering Body of Knowledge (CEBOK) Task Committee Update & CEBOK Boards (Ballroom A&B) <i>Brock Barry, Professor of Civil Engineering, US Military Academy; Chair of</i> <i>CEBOK TC</i>
1:30 PM - 3:00 PM	 Change Management Session 1: Laying the Foundation for Change in Academia & the Workforce (Ballroom A&B) Julia Williams, Author of <u>Making Changes in STEM Education: The Change Maker's Toolkit</u> <u>Objective:</u> Develop a vision for change that reflects the needs and interests of industry and academia. Create communication that allows sharing the vision for change with others.
3:00 PM - 3:15 PM	Bio-break/Networking
3:15 PM - 3:45 PM	Inspiring Future Engineers (Ballrooms A&B) Jane Howell, Chief Communications Officer, ASCE Executive Producer, Cities of the Future & Dream Big Objective: Engaging local school systems is essential for nurturing the future engineering workforce and fostering a pipeline of skilled talent. This presentation will share successful strategies for collaboration between industry and education, focusing on innovative partnerships that inspire students to pursue careers in engineering.
3:45 PM - 5:00 PM	Workshop 1: Reimagining Outreach to Future Generations (Ballrooms A&B) <u>Objective:</u> Participate in hackathons to create civil engineering outreach activities that are appealing to next-generation students. Considerations: new tech, emerging job roles, and complex global challenges.
6:00 PM - 8:00 PM	Networking Reception at the Cleveland Museum of Art <u>Location:</u> 11150 East Blvd, Cleveland, OH 44106 (walking distance) <u>Purpose:</u> Have fun in one of the most visited museums in the world.

Day 2: Wednesday, June 11, 2025

8:00 AM - 8:45 AM	Breakfast & Networking (Buffet in Foyer, Eat in Ballrooms A&B or C)
8:00 AM - 8:45 AM	Morning Bytes: CROSS-US (Ballroom C) Norma Jean Mattei, CROSS-US ExCom and Expert Panel member Objective: Overview presentation of CROSS-US, an entity of the Structural Engineering Institute (SEI) - an open and free database of reports on lessons learned from failures, near-misses, and other safety-related incidents for use in both academia and industry to advance structural safety.
8:45 AM - 9:00 AM	Recap, Plan for the Day, CEBOK Open Boards (Ballrooms A&B)
9:00 AM - 9:45 AM	 Rapid Fire Presentations on New Tech Applications in Civil Engineering (Ballroom A&B) Objective: Numerous short presentations from both industry and academia provide information about the latest tech developments 3D Printing and Field Engineering - Joel Sloan, AF Academy Al-Driven Digital Twins - Damon Weiss, CMU Wires, Roads and Real-World Challenges - Jules Lloyd, GA Transmission Data Science in CE - Don Webster, GT Teaching ML and Performance Evaluation - Scott Case, VT Technology Innovations in Industry - Alan Stadler, Wade Trim Internet of Things for Smart Cities - Adda Athanasopoulos Zekkos, Berkeley
9:45 AM - 10:00 AM	Bio-break/Networking
10:00 AM - 11:00 AM	Workshop 2: Addressing Critical Technical Skills Gaps (Ballrooms A&B) <u>Objective:</u> Identify the top 5 technical skills gaps, especially those that align with the integration of new technology in civil engineering (e.g., AI, ML, IoT, Automation, Advanced Materials, Sustainability)
11:00 AM - 12:00 PM	Update from ASCE's Transforming Our Workforce Task Committee (Ballrooms A&B) Dr. Shirley E. Clark, Professor, Environmental Engineering, Penn State Harrisburg Maria Lehman, 2023 ASCE President and U.S. Infrastructure Market Leader at GHD
12:00 PM - 1:00 PM	Lunch & Table Discussions on Workforce Development Report (Buffet in Foyer, Eat in Ballrooms A&B) Activity: Back of the napkin feedback for the ASCE Workforce Task Committee

1:00 PM - 2:15 PM	Change Management Session 2: Bridging the Gap Between Industry and Academia (Ballrooms A&B) Julia Williams, Author of <u>Making Changes in STEM Education</u> <u>Objective:</u> Opportunity to examine collaborative efforts and communicate with potential partners to build strategic relationships, learn from successes, and use techniques and strategies to improve communication.
2:15 PM - 2:30 PM	Bio-break/Networking
2:30 PM - 3:10 PM	Educating civil engineers for the future – Implementing the Future World Vision initiative and its strategic imperatives in academia (Ballrooms A&B) Bob Gilbert, Chair, Fariborz Maseeh Department of Civil, Architectural and Environmental Engineering, The University of Texas at Austin Jerry Buckwalter, Strategy Essentials
3:10 PM - 4:00 PM	 Interactive Panel: Perspectives on Emerging Professional Skill Gaps (Ballrooms A&B) Topic: The Future of Civil Engineering: Challenges and Opportunities Format: Short presentations by industry academic leaders on new developments in professional formation, followed by audience Q&A. Leadership and Reflection - Adjo Amekudzi, GT Interdisciplinary Development - Achintya Bezbaruah, NDSU Curricular Integration - Allison MacKay, OSU Social Responsibility (MOSAIC) - Freddy Paige, VT Professional Formation Across Curriculum - CJ Bolding, Clemson
4:00 PM - 5:00 PM	 Workshop 3: Defining Professional Skills Gaps (Ballrooms A&B) Objective: Collaboratively define the top 5 professional skills gaps in civil engineering, focusing on industry expectations vs. current educational offerings. Potential Topics: Self-awareness, communication, ethical decision-making, leading multidisciplinary teams, and social responsibility.
5:30 PM - 7:30 PM	Creative Reception - Sears think[box] at Case Western Location: Richey Mixon Building, 11201 Cedar Ave, Cleveland, OH Purpose: Opportunity for attendees to view and interact with potential engagement artifacts in the largest open-access innovation center/makerspace in the US. [https://case.edu/thinkbox/] Transportation: The shuttle bus will pick up conference guests from the Glidden House/Courtyard Marriott and transfer to the Sears think[box] beginning at 5:30 PM. They will also return guests back to their hotels after 7:30 PM.

Day 3: Thursday, June 12, 2025

8:00 AM - 8:45 AM	Breakfast & Networking (Buffet in Foyer, Eat in Ballrooms A&B or C)
8:00 AM - 8:45 AM	Morning Bytes: NSF RED Update(Ballroom C) Adjo Amekudzi, GT Jennifer Ogle, Clemson Objective: Update on the progress of NSF Revolutionizing Engineering Departments grants in two civil engineering programs and opportunity for Q&A.
8:45 AM - 9:00 AM	Recap and Preparing for the Wrap Up (Ballrooms A&B)
9:00 AM - 9:30 AM	Leveraging Academic-Workforce Partnerships for Accreditation (Ballrooms A&B) Yvette Pearson, Associate Dean for Academic Affairs and Strategic Initiatives School of Natural Sciences & Mathematics Associate Dean for Effectiveness and Accountability Erik Jonsson School of Engineering & Computer Science; The University of Texas at Dallas
9:30 AM - 10:15 AM	(5-5-5) Prioritizing Strategic Focus Areas in Technology, Professional Formation, and Outreach (Ballrooms A&B)
10:15 AM - 10:30 AM	Bio-break/Networking
10:30 AM - 11:45 AM	Change Management Session 3: Convergence Workshop (5-5-5) <i>Julia Williams, Author of <u>Making Changes in STEM Education</u> <u>Objective:</u> Participants will outline the steps needed to implement changes identified during the summit - this includes setting goals, assigning responsibilities, and timelines. Attendees commit to changes they are willing to work on through academia and industry partnerships. Participants develop their poster/elevator pitch so they can share it when they return home.</i>
11:45 AM - 12:00 PM	Summit Summary & Call to Action

HOW WILL YOU SPARK INNOVATION IN CIVIL ENGINEERING EDUCATION?







ADJO AMEKUDZI

Professor Adjo Amekudzi-Kennedy studies how integrated systems—built, natural, social, and informational—can support smarter, more sustainable development. Her research focuses on systems and sustainability engineering to enhance resilience and equity in infrastructure. A prolific author and educator, she teaches civil and infrastructure systems at Georgia Tech and co-founded its Global Engineering Leadership Minor. She is the founding Chair of ASCE's Committee on Sustainability and the Environment and has served on several national boards, including the NRC's Board on Infrastructure and the TRB's Transportation Asset Management Committee. She is a fellow of ASCE and a member of the National Academy of Construction.

ADDA ATHANASOPOULOS-ZEKKOS

Dr. Adda Athanasopoulos-Zekkos is an Associate Professor of Civil and Environmental Engineering at the University of California, Berkeley. Previously, she was a faculty member at the University of Michigan from 2008 to 2019. She earned her M.Sc. and Ph.D. in Geotechnical Engineering from UC Berkeley. Adda's research focuses on soil liquefaction, seismic slope stability, and the resilience of flood protection systems under extreme loading, including earthquakes and hurricanes. She has received numerous honors, including the NSF CAREER Award, multiple ASCE awards, and the 2024 Buchanan Lectureship. A past president of USUCGER, she has also participated in several GEER missions and is advancing new technologies for geotechnical monitoring, design, and reinforcement.

ACHINTYA BEZBARUAH

Achintya Bezbaruah is the Gerts Presidential Professor and Interim Chair of Civil, Construction, and Environmental Engineering at North Dakota State University. His research in environmental nanotechnology, focused on water and agriculture, is funded by agencies like NSF and USDA. He is President of the Sustainable Nanotechnology Organization, a two-time Fulbright Scholar, and active in ASCE's EWRI. He founded NDSU's Grand Challenges Scholars Program and helped launch its Environmental Engineering undergraduate degree. Under his leadership, departmental research funding has doubled. He holds degrees from the University of Nebraska–Lincoln, IIT Bombay, and Assam Engineering College.



CJBOLDING

Dr. Candice "CJ" Bolding is a Visiting Lecturer in Clemson University's Glenn Department of Civil Engineering, where she supports the professional formation of civil engineering students. Her teaching emphasizes skills for academic, professional, and collaborative success. Dr. Bolding's research explores structured learning environments, sense of belonging, and critical consciousness in STEM education, with a focus on systemic factors affecting student outcomes. Her work aims to enhance student engagement, persistence, and preparation for the evolving demands of the engineering profession. She is passionate about creating inclusive learning spaces that empower all students. Outside of academia, she enjoys mentoring, community outreach, and exploring creative pursuits.









JERRY BUCKWALTER

Gerald (Jerry) Buckwalter is a consultant specializing in strategic planning for business, engineering, and technology. He is Director of Innovation at Atlas International, Partner at the ARES Institute, and Board member of the Center for Public Policy Innovation. Formerly ASCE's Chief Innovation Officer, he developed a future-focused model for the built environment. Jerry was Corporate Director of Strategy at Northrop Grumman and served on the National Infrastructure Advisory Council under Presidents Bush and Obama. He has held leadership roles with the National Homeland Defense Foundation and the Defense Science Board. He holds a Physics degree from Monmouth University and studied further at King's College, GWU, and MIT.

SCOTT CASE

Scott Case received his PhD degree from Virginia Tech in 1996 and has been a faculty member at Virginia Tech since 1997. His technical research interests are in the experimental characterization and modeling of engineering materials and structures. Recent activities include the response of lightweight structural materials to combined fire and mechanical loading as well as accelerated test method development to support long-term durability predictions for adhesives and fiber-reinforced composites. He is currently the Reynolds Metals Professor in the Via Department of Civil and Environmental Engineering and Associate Department Head for Undergraduate Studies. In this administrative role he works to support faculty and student success through data-driven decision making.

SHIRLEY CLARK

Dr. Shirley E. Clark (Ph.D., P.E., BC.WRE, F.EWRI) is a professor of environmental engineering and Acting Director of the School of Science, Engineering, and Technology at Penn State Harrisburg. She holds degrees from Washington University and the University of Alabama at Birmingham. Her research focuses on stormwater treatment systems, urban hydrology, and the environmental impacts of land development. A former consulting engineer, Dr. Clark has served on expert panels for the National Academies, the Chesapeake Bay Program, and the Pennsylvania Water Resources Advisory Committee. Within ASCE, she is past president of EWRI and remains active in leadership and climate collaboration initiatives.

ROBERT GILBERT

Dr. Robert Gilbert is Chair and Professor of Civil, Architectural and Environmental Engineering at The University of Texas at Austin. He holds the Cockrell Family Chair of Departmental Leadership #3 and the Nasser I. Al-Rashid Chair in Civil Engineering. An expert in geotechnical engineering, his work focuses on performance reliability and risk management for systems such as offshore foundations, slope stability, and waste containment. Dr. Gilbert earned his B.S., M.S., and Ph.D. in Civil Engineering from the University of Illinois at Urbana-Champaign and is known for integrating risk-based approaches into engineering practice.



JANE HOWELL

iJJane Howell, ASCE's Chief Communications & Strategy Officer oversees ASCE's corporate and strategic communications, establishing and amplifying the ASCE brand globally. She served as executive producer of the award-winning IMAX film and educational projects, Dream Big: Engineering Our World and Cities of the Future. She has also led the development of high-profile public and media outreach programs including the Report Card for America's Infrastructure.



MARIA LEHMAN

Maria Lehman, 2023 ASCE President, is the U.S. Infrastructure Market Leader at GHD, bringing over 40 years of experience in both public and private civil engineering sectors. She has held executive roles at Parsons, the New York State Thruway Authority, and Erie County, NY. A licensed Professional Engineer, Maria has managed over 700 infrastructure projects—from \$10,000 to \$3.9 billion—including Design-Build and Public-Private Partnerships. She earned her BS in Civil Engineering, Magna Cum Laude, from SUNY Buffalo. A dedicated ASCE leader since 1983, Maria has served on numerous boards and committees and has received multiple national and state engineering awards.



JULES LLOYD

iJuliann Lloyd works full time as a Transmission Line Engineer at Georgia Transmission, where she specializes in the routing and design of high-voltage power lines and manages complex utility relocation projects across the state. She is also a Clemson alumna and current MS candidate in Civil Engineering, focusing on transportation systems. Drawing from industry experience, she developed a handson case study for Clemson's undergraduate transportation courses to teach roadway and utility conflict resolution. Passionate about bridging education and practice, Juliann is committed to preparing future engineers to thrive in multidisciplinary, real-world environments.



JENNIFER OGLE

Dr. Jennifer Ogle is a professor and department chair of Civil Engineering at Clemson University, and served as Principal Investigator on Clemson's \$2M NSF RED grant to revolutionize the curriculum and culture of the department. She currently chairs the ASCE Innovations in Civil Engineering Education working group. A Champion of Change for Women in STEM recognized by President Obama, Dr. Ogle is a passionate advocate for inclusive leadership, student success, and purpose-driven education. Dr. Ogle earned her BS/MS from the University of Tennessee and her PhD from Georgia Tech - all in civil engineering. She is a member .of the NAS TRB Safety Performance committee and her research focuses on making better design decisions to reduce traffic injuries and fatalities on our roads.



FREDDY PAIGE

Dr. Frederick ("Freddy") Paige is an Assistant Professor in the Vecellio Construction Engineering and Management Program at Virginia Tech and Assistant Director of the Virginia Center for Housing Research. He founded the STILE Research Group, which explores the intersection of Society, Technology, Infrastructure, and Learning Environments. A co-founder of VTDITC: Hip Hop Studies at Virginia Tech, Dr. Paige is active in ASCE MOSAIC, CIT-E, and NSBE. His research focuses on developing sustainable infrastructure and educating an informed public. A three-time Clemson graduate, Dr. Paige brings a versatile background in utilities, sustainability, and education to his scholarship and community engagement.





YVETTE PEARSON

Dr. Yvette E. Pearson is the Founder of The PEER Group and a nationally recognized leader in advancing equity, sustainability, and inclusion in STEM. A registered Professional Engineer and Fellow of ASCE and ASEE, she brings over 30 years of experience in academia and consulting, with efforts that have secured over \$40M in funding for STEM initiatives. She serves as a Commissioner on ABET's Engineering Accreditation Commission and has received honors such as ASCE's President's Medal and ABET's Claire L. Felbinger Award. Dr. Pearson is also the author of Making a Difference and host of the ENGINEERING CHΔNGE® podcast, with global audiences in over 80 countries.

JULIA WILLIAMS

Julia M. Williams is the author of Making Changes in STEM Education: The Change Maker's Toolkit (2023). She recently retired as Professor of English at Rose-Hulman Institute of Technology, where she was Principal Investigator on the NSF RED Participatory Action Research project, supporting faculty change efforts across 26 engineering programs. A founding team member of the Making Academic Change Happen Workshop, her research focuses on academic change, assessment, and professional communication. Dr. Williams has received grants from NSF, Microsoft, and HP, and numerous honors, including the IEEE Schlesinger Award and ASEE Sterling Olmsted Award. She is widely published in venues such as the Journal of Engineering Education and IEEE Transactions on Professional Communication.



JOEL SLOAN

Colonel Joel Sloan, PhD, PE, F.ASCE, is Professor and Head of the Department of Civil and Environmental Engineering at the United States Air Force Academy. He leads a team of 21 faculty and staff in the design and teaching of 30 core and elective civil engineering courses, in scholarship across a variety of civil and environmental engineering topics, and in developing officers of character to lead in the Air and Space Forces. His research spans engineering education, columnsupported embankments, and lunar regolith characterization. A distinguished graduate of the Academy, he holds graduate degrees from the University of Colorado Boulder and Virginia Tech. Col. Sloan chairs ASCE's Department Heads Coordinating Council and serves on the ASCE Committee on Education.







ALAN STADLER

Alan Stadler, Ph.D., P.E., is a seasoned civil engineer with experience spanning private consulting, academia, and the federal government. As Wade Trim's Conveyance Practice Lead, he oversees projects ranging from asset rehabilitation to new infrastructure for added capacity. Alan specializes in heavy civil engineering with a focus on water/wastewater systems, program management, and geotechnical engineering. His work includes water distribution systems, stormwater infrastructure, wind farm design, and green building solutions. Known for integrating emerging technologies, he effectively leads complex projects and diverse teams. Alan holds BS and MS degrees from The Ohio State University and a Ph.D. from the University of Colorado, all in Civil Engineering.

DONALD WEBSTER

Dr. Donald Webster, Ph.D., P.E., is the Karen & John Huff School Chair and Professor in the School of Civil & Environmental Engineering at Georgia Tech, where he has served since 1997. His research in environmental fluid mechanics explores how fluid motion and turbulence affect biological systems, with contributions spanning sensory biology, biomechanics, experimental techniques, and bio-inspired design. He is a Sustaining Fellow of the Association for the Sciences of Limnology and Oceanography (ASLO) and a Fellow of ASCE. Dr. Webster has received numerous honors for teaching and innovation, including the Felton Jenkins Jr. Hall of Fame Faculty Award and the Class of 1934 Award for Innovative Use of Education Technology.

DAMON WEISS

Damon Weiss is a Professor of the Practice in Civil & Environmental Engineering at Carnegie Mellon University, where he teaches graduate courses on digital twins and advanced infrastructure systems. He holds an M.S. from Carnegie Mellon and a B.S. from the University of Virginia, with 28 years of experience in digital modeling, urban systems, and data-informed design. Weiss co-founded Ethos Collaborative, a Pittsburgh-based firm focused on sustainable, community-centered urban design. His work bridges emerging technologies—like AI, simulation, and geospatial analytics—with the human scale of infrastructure to support climate resilience, equity, and performance in the built environment.

SPECIAL THANKS TO THE INNOVATIONS IN CIVIL ENGINEERING EDUCATION WORKING GROUP

ICEE WG Membership:

Leslie Nolen (ASCE) Jennifer Ogle, Clemson (Chair) Luciana Barroso, Texas A&M Juan Caicedo, USC Sarah Christian, CMU Christina J Curras, UW Platteville Kevin Hall, U of A Libby Jones, UNL Dawn Lehman, UW Daniel Linzell, UNL Anthony Massari, OSU Audra Morse, MTU Edwin Nagy, UM Logan Perry, UNL John Popovics, Illinois Jack Puleo, UD Andrew Ramsburg, Tufts Joel Sloan, USAF Academy Brett Story, SMU Venkatesh Uddameri, Lamar Derin Ural, Miami Beth Wittig, CCNY-CUNY David Dzomback , CMU









HOW ARE YOU SPARKING INNOVATION?