

2024 PUBLIC POLICY COLLOQUIUM

Fairmont, Georgetown Washington, DC February 5-7, 2024



ABOUT THE COLLOQUIUM 2024

This year the PPC will focus on the themes of artificial intelligence, U.S. technical workforce needs, the bioeconomy and quantum computing. In 2022, the US Congress and Biden Administration invested heavily in critical technology areas through passage of the historic CHIPS and Science Act, the Inflation Reduction Act, and annual appropriations. This investment continues to focus on growing the country's talent base, broadening capacity, and advancing use-inspired research around the nation; enabling tremendous opportunities for expanding engineering education and research. Federal agency and thought leaders will join deans to discuss these issues and ways that the federal government can collaborate with engineering colleges to build equitable and catalytic innovation ecosystems that enhance our national competitiveness. Deans will hear from agency leaders at the National Science Foundation, National Institute of Standards and Technology and Air Force Research Lab as well as thought leaders on innovation from leading industries. The sessions will provide insights into a new vision for federal research and education investments and pathways for engineering deans to get involved in helping to shape future activities. On February 7th, attendees will come together to advocate for critical priorities in funding and policy through in-person congressional visits. To prepare, the meeting will include discussion of the outlook for engineering education and research in 2024 and congressional visits training. The US Congress and Biden Administration are poised to make major investments in critical technology areas focused on growing our talent base, broadening capacity, and advancing use-inspired research around the nation.

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MONDAY, FEBRUARY 5, 2024

3:00 p.m. – 5:00 p.m. Imperial Wall	Registration
3:30 p.m. – 5:30 p.m. Roosevelt Room	New Dean's Orientation New and not so new deans will have an opportunity to meet one another and learn more about ASEE and specifically the Public Policy Colloquium (PPC) and the Engineering Deans Council (EDC). Focus will be on the PPC including past as well as current topics. Preparation will begin for the colloquium as well as for the meetings with your state members of Congress and their staff. Speakers: Kenneth Ball, George Mason University, ASEE EDC Chair
	W. Samuel Easterling, Iowa State University, ASEE PPC Chair Sharon Walker, Drexel University
	<u>Organizers:</u>
	Vijay Kumar, University of Pennsylvania
	Kim LaScola Needy, University of Arkansas
	Elaine P. Scott, Santa Clara University
	Cole J. Smith, Syracuse University
6:00 p.m. – 7:30 p.m. Colonnade	Opening Reception
	<u>Speaker:</u>
	Doug Tougaw, Valparaiso University, ASEE President

7:30 a.m. – 5:00 p.m. Imperial Wall	Registration
7:45 a.m. – 8:45 a.m. Grand Ballroom Lobby	Breakfast
8:45 a.m. – 9:00 a.m. Grand Ballroom	Welcome and Introduction <u>Speakers:</u> Kenneth Ball, George Mason University, ASEE EDC Chair W. Samuel Easterling, Iowa State University, ASEE PPC Chair
9:00 a.m. – 10:00 a.m. Grand Ballroom	Session 1 – US Members of Congress How Congress can help higher ed. Their perspective on various programs. How we can advocate effectively? Funding opportunities. How can we support members of Congress to develop stronger relationships. Speakers Rep. Chrissy Houlahan (D-PA) Organizers: Vijay Kumar, University of Pennsylvania Kenneth Fridley, Old Dominion University
10:00 a.m. – 10:30 a.m. Grand Ballroom Lobby	Kim LaScola Needy, University of Arkansas Networking Refreshment Break

	TUESDAY, FEBRUARY 6, 2024
10:30 a.m. – 11:45 a.m. Grand Ballroom	Session 2: Artificial Intelligence (AI) Institutes:
Grand Ballroom	This session will explore the potential pathways for leveraging the extant investments in AI Institutes to strengthen US competitiveness, inform US federal policy, and accelerate the infusion of AI knowledge in engineering curricula and the broader public.
	Speakers:
	Hal Daume, The University of Maryland-College Park
	Rebecca Hwa, The George Washington University
	Abi Ilumoka, National Science Foundation
	Georgia-Ann Klutke, National Science Foundation
	Jinjun Xiong, University at Buffalo
	Organizers:
	Sheryl H. Ehrman, San Jose State University
	Gül E. Kremer, University of Dayton
	John C. Lach, The George Washington University
11:45 a.m. – 1:00 p.m. Grand Ballroom Lobby	Networking Lunch

1:15 p.m. – 2:00 p.m. Willard Ballroom

Session 3: How can we best prepare for the US tech workforce needs throughout this decade?

With the coming return of semiconductor manufacturing to the US, with the development of an AI-based economy, and with massive tech advances in sectors including energy, manufacturing, healthcare, entertainment, and others, there is an immediate and pressing need to train students at all levels to meet the tech workforce needs. To meet this goal, we need to

1) increase participation in pre-college STEM-based programs, ensuring that we are broadening the reach to those who are traditionally underrepresented in STEM including BIPOC, women, and those from rural communities;

2) develop new onramps into associate, bachelor's, and graduate degrees, including creating pathways from high school through community college degrees, bachelor's, and graduate degrees; and

3) ensure that our country remains welcoming to the talents of the best students from around the world, at the undergraduate and graduate levels, and create pathways so that they may remain in the US to productively contribute to our tech economy.

<u>Speakers:</u>

Jeanne Batalova, Migration Policy Institute Ron Martin, Micron Technology Barry Johnson, NSF Division Director for TIP Rosalyn Hobson Hargraves, NSF Division Director for DUE

Organizers:

Oscar Barton, Jr., Morgan State University Wendi Beth Heinzelman, University of Rochester Cole J. Smith, Syracuse University

2:00 p.m. – 3:15 p.m. Grand Ballroom	Session 4: Bioeconomy The "Bioeconomy" was originally defined to be about agriculture and forestry providing resources for fuels, chemicals and products to society. However, the past few years and in particular a report by the White House in 2023 has expanded the term to include the role of the biotechnology sector to advance the economy in a sustainable fashion with an emphasis on biomanufacturing in support of everything from low-carbon-intensity chemicals and materials to food security to supply chain resilience. The session will discuss some existing efforts in this area as well as government programs targeting further development. Speaker: Robert Brown, <i>Iowa State University</i> Sarah Glaven, <i>OSTP</i>
	Organizers: Oscar Barton, Jr., Morgan State University Aaron F. Bobick, Washington University in St. Louis Alexander L. Wolf, University of California, Santa Cruz
3:15 p.m. – 3:45 p.m. Grand Ballroom Lobby	Networking Refreshment Break

3:45 p.m. – 4:45 p.m. Grand Ballroom

Session 5: Navigating Quantum Computing: Challenges and Opportunities in Higher Education, Industry, and Government

Few disciplines are surrounded by as much hope, potential, and excitement as the field of quantum information systems, and quantum computing in particular. However, with such attention inevitably comes unrealistic hype and misunderstandings of the field. As engineering deans grow their commitments to quantum research and education, it is incumbent upon us to hone in on the most promising and realistic transformations that are on the horizon in the field of quantum computing. Deans must then leverage that information to advocate for policies and funding that will allow universities to lead research in this area and provide suitable platforms to engage students in quantum computing education. The educational consideration is vital to workforce development efforts in this area, which lag behind areas such as artificial intelligence. This session hosts speakers from three different backgrounds who are leaders at the cutting edge of quantum computing. The discussion will focus on the biggest challenges facing quantum computing in the coming years, how universities can best partner with government and industrial research labs, and how both future research needs and anticipated applications of quantum computing might drive policy considerations in the coming decade.

<u>Speakers:</u>

Joseph Broz, IBM Rajeeb Hazra, Quantinuum Michael Hayduk, Air Force Research Lab Information Directorate

Organizers:

Kazem Kazerounian, University of Connecticut **Cole J. Smith,** Syracuse University

TUESDAY, FEBRUARY 6, 2024		
4:45 p.m. – 5:30 p.m. Grand Ballroom	Preparation for Congressional VisitsThis session will discuss how to use Wednesday's congressional visits to advance ASEE's policy goals, and provide an overview of the talking points and materials for these meetings. The session will also explore best practices for conducting congressional meetings and how to prepare your group.Speaker: 	
6:00 p.m. – 7:30 p.m. Roosevelt Room	Closing Reception Speaker: Jacqueline A. El Sayed, ASEE Chief Executive Officer and Executive Director	

WEDNESDAY, FEBRUARY 7, 2024

All Day Group Meetings with Members of Congress and Staff



JEANNE BATALOVA

Migration Policy Institute

Jeanne Batalova is a Senior Policy

Analyst and Demographer at the Migration Policy Institute. She is also Manager of the Migration Data Hub, a one-stop, online resource with the latest facts, stats, and maps covering U.S. and global data on immigration and immigrant integration. Her areas of expertise include the impacts of immigrants on society and labor markets; social and economic mobility; and the policies and practices regulating the immigration and integration of highly skilled workers and foreign students.

Dr. Batalova earned her PhD in sociology, with a specialization in demography, from the University of California-Irvine; an MBA from Roosevelt University; and bachelor of the arts in economics from the Academy of Economic Studies, Chisinau, Moldova.



ROBERT BROWN

lowa State University

Dr. Brown is Anson Marston

Distinguished Professor in Engineering and Gary and Donna Hoover Chair in Mechanical Engineering at Iowa State University. He is the founding director and currently co-director of ISU's Bioeconomy Institute. He holds courtesy appointments in chemical and biological engineering, agricultural and biosystems engineering, and food science and nutrition. He is a Fellow of the National Academy of Inventors and a Fellow of the American Institute of Mechanical Engineers. His research interests include advanced biofuels, plastics upcycling, and carbon negative energy. Dr. Brown has written over 300 scientific papers and has been awarded 26 US patents. He wrote Biorenewable Resources: Engineering New Products from Agriculture, widely used as a textbook around the world.



Vice President, Quantum Supercomputing Programs IBM Thomas J. Watson Research Center

Dr. Broz has responsibility for leading IBM Quantum's quantumcentric supercomputing programs and adoption of advanced quantum computing capabilities. He joined IBM Quantum in March 2021 after serving as the founding Executive Director of the federally chartered Quantum Economic Development Consortium (QED-C) under the National Quantum Initiative Act. He has supported DOE, DOD, Air Force, Army, Navy, DHS, NIH, NIAID, DOJ, and other departments through agency research, consulting contracts, and advisory boards. Prior to the QED-C, he served as Vice President of Applied Sciences at SRI, where he led laboratories in applied science, government business development, and technical and business strategy. He also served as VP of Business Development and Research at Titanium Metals, and Laboratory Director of Tenneco, Inc., where he was responsible for product development, manufacturing operations, quality, technology, and environmental management across corporate divisions worldwide.

Dr. Broz served as a White House Fellow for the Office of Science and Technology Policy in the administration of George H.W. Bush. He was a British American Fellow at Johns Hopkins SAIS, and a Senior Fellow for National Security and Energy at NORC at the University of Chicago. He has a BS in physics from the Massachusetts Institute of Technology and a PhD in physics from the Swiss Federal Institute (ETH) in Zurich.





Hal is a Volpi-Cupal endowed

Professor of Computer Science and Language Science at the University of Maryland, where he leads TRAILS , an NSF & NIST-funded institute on Trustworthy AI; he is also a Senior Principal Researcher at Microsoft Research NYC. His research focus is on developing natural language processing systems that interact naturally with people, promote their self-efficacy, while mitigating societal harms.



SAMUEL EASTERLING

Iowa State University

W. Samuel Easterling serves

as the James L. and Katherine S. Melsa Dean of Engineering and Professor of Civil, Construction and Environmental Engineering at Iowa State University. He received his BS and MS degrees in civil engineering from West Virginia University, and his PhD in structural engineering from Iowa State University. Prior to returning to Iowa State as dean

JOSEPH BROZ

in 2019, Easterling spent 32 years on the faculty at Virginia Tech, where he served as head of the Via Department of Civil and Environmental Engineering from 2009-2019. He was active in university governance at Virginia Tech, serving as president of the faculty senate, chair of the commission on faculty affairs; chair of the commission on research; and a member of university council.

Easterling is an accomplished educator, scholar and administrator and is a registered Professional Engineer. He is active in professional organizations including the American Institute of Steel Construction, American Society of Civil Engineers and American Society for Engineering Education. He presently serves on the Committee on Specifications for AISC and is Chair of the ASEE EDC Public Policy Committee. Easterling's primary research interests are in the areas of composite and cold-formed steel structures, and he has received numerous awards for his research and professional service. He is a Distinguished Member of the American Society of Civil Engineers, a Fellow of the Structural Engineering Institute and a Distinguished Member of the Structural Stability Research Council.



ROSALYN HOBSON HARGRAVES

NSF Division Director for DUE

Dr. Hargraves is Division Director for the Division of Undergraduate Education (DUE), in the NSF Directorate for Education and Human Resources, which strengthens STEM education at two- and four-year colleges and universities. Dr. Hargraves is a Professor of Electrical and Computer Engineering at Virginia Commonwealth University and previously served as an Intermittent Expert for NSF's Directorate for Education and Human Resources.

In addition to STEM education, Dr. Hargraves' research interests also include diversity, equity, and inclusion in higher education, machine learning, biomedical signal and image processing, and the role of science and technology in international development. Dr. Hargraves received her bachelor's, master's, and doctorate degrees in electrical engineering from the University of Virginia. During her 25 years at Virginia Commonwealth University (VCU), Dr. Hargraves co-founded the VCU College of Engineering Department of Electrical Engineering, and has served in numerous leadership roles, including Associate Vice President for Inclusive Excellence, Director of the Virginia Commonwealth University – University of KwaZulu Natal International Partnership, Associate Dean in the College of Engineering, and Interim Cochair in the School of Education Department of Teaching and Learning.



MICHAEL HAYDUK

Deputy Director, Information Directorate

Air Force Research Laboratory, Rome, NY

Dr. Hayduk is the Deputy Director, Information Directorate, Air Force Research Laboratory, Rome, New York. The directorate's mission is to lead the development and integration of Air Force warfighting information technologies for Command, Control, Communications, Computers, Intelligence, and Cyber. Dr. Hayduk plays a key role in overseeing an annual budget of over \$1.5 billion, leading the activities of over 1,200 employees. Upon completion of his graduate studies, he served as a research engineer where he developed ultrafast solid state pulsed lasers for optical communication systems. He became the acting Chief for the Electro-Optic Components Branch in which he led the development of components and subsystems for advanced radio frequency and electro-optic AF sensor systems.

He then became the Chief of the Emerging Computing Technology branch leading fundamental and exploratory research and development in nanocomputing, quantum computing [I WOULD INSERT A COMMA HERE BUT NOT SURE IF "quantum computing and optical computing" is one phrase] and optical computing for advanced computing architectures. From 2011 to 2019, while in the role of Chief of the Computing and Communications Division, he led the discovery, development, and integration of affordable computing, networking, and communications technologies. With over 50 journal and conference papers published and one US patent, Dr. Hayduk is a senior advisor for the Quantum Information Science research portfolio for AFRL. He earned a BS from Clarkson University, an MS from the University of Virginia, and his PhD from Cornell University, all in electrical engineering.



RAJEEB HAZRA

Chief Executive Officer Quantinuum

Dr. Hazra is CEO of Quantinuum

and has more than three decades of experience in supercomputing, quantum, and technical roles across the globe. Prior to joining Quantinuum, he served as the General Manager, Compute and Networking Business Unit at Micron Technologies, and spent 25 years at Intel Corporation, leading the Enterprise and Government Group, Technical Computing Group, Supercomputer Architecture and Planning, and Systems Technology Research. Before joining Intel in 1995, Dr. Hazra was with the Lockheed Corporation based at NASA's Langley Research Center. He has a PhD and a master's degree in computer science from the College of William and Mary in Virginia, and a bachelor's degree in computer science from Jadavpur University in Kolkata, India, and holds 16 patents.



CHRISSY HOULAHAN

(D-PENNSYLVANIA)

US House of Representatives

Chrissy Houlahan is an Air Force veteran, engineer, entrepreneur, educator, and the first woman ever to represent Pennsylvania's 6th District in Congress. She earned her engineering degree from Stanford University and her MS in technology and policy from MIT. Houlahan helped lead B Lab, the organization that launched the B Corporation movement. She served as a Teach for America chemistry teacher, and led a nonprofit helping underserved US students build literacy skills.

On the US House Foreign Affairs Committee, she led bipartisan legislation to address global malnutrition, signed into law in 2022. She was awarded the US Chamber of Commerce Abraham Lincoln Leadership for America Award, honoring lawmakers for their work supporting a free enterprise system, and three Congressional Management Foundation Democracy Awards for her outstanding achievement in Transparency and Accountability, Constituent Services, and Workplace Environment.



REBECCA HWA

The George Washington University

Dr. Hwa is professor

and department chair of computer science at The George Washington University. Dr. Hwa's research sits at the intersection of natural language process, machine learning, and human computer interaction. Her work focuses on developing machine learning methods that reveal the hidden syntactic and semantic structures within languages. These methods have applications in diverse domains, including health, education, and the social sciences. Some of her recent projects include: modeling student behaviors in revising argumentative essays, identifying symbolisms in multimodal rhetorics, and recognizing group biases in social media.



ABIODUN (ABI) ILUMOKA

NSF Division of Undergraduate Education (DUE)

Abi currently serves as program director for engineering education in the Division of Undergraduate Education (DUE) at NSF. Prior to joining NSF, Abby was a Professor of Electrical and Computer Engineering at the University of Hartford in Connecticut, a position which she held for 25 years. Her current research interests include engineering education and complex adaptive systems optimization. Tackling complex systems such as the national K-16 STEM education enterprise requires interdisciplinary research. Abi's research focus within DUE is to use her experience and background in engineering research and engineering education to optimize NSF funding decisions in undergraduate STEM education and to broaden participation in STEM through the development of adaptive models that accurately model the US K-16 STEM education enterprise. She earned the Ph.D. degree in Electrical and Computer Engineering from Imperial College of Science and Technology, London, England.



BARRY JOHNSON

NSF Division Director for TIP

Dr. Johnson joined the University of

Virginia in 1984 as an assistant professor in the department of electrical and computer engineering after working at Harris Corp. for several years, and in 1998 became director of the university's Center for Safety-Critical Systems. From 2006 to 2011 Dr. Johnson was the Engineering School's associate dean for research.

While at University of Virginia, Dr. Johnson acted as a consultant to more than a dozen companies and government agencies. In 2001 he co-founded the biometric security company Privaris, Inc., where he served as chairman of the board of directors and, for nearly four years, as president and chief executive officer. In 2010, Johnson became the founding president and executive director of the Commonwealth Center for Advanced Manufacturing—a partnership between academia and industry to speed technology transfer. He served on the CCAM board of directors as chair for two years and then as a board member through the present. In 2012, he began serving as chairman of the board of directors for the Commonwealth Center for Advanced Logistics Systems. He also served as a board of directors member for the Commonwealth Center for Aerospace Propulsion Systems.

Dr. Johnson earned his bachelor's degree, master's degree, and PhD in electrical engineering, all at the University of Virginia. His expertise is in techniques for the design and analysis of safety-critical systems. He has investigated architectures and algorithms to ensure the safety of hardware/ software systems, and he has developed methods for modeling, analyzing, and predicting the safety of these systems. He has published more than 150 technical articles, and he is an inventor on 29 issued patents. Dr. Johnson's work has been recognized with many awards, including the Frederick Emmons Terman Award, the C. Holmes MacDonald Award. and the Alan Berman Research Publications Award. He won the Alumni Board of Trustees and University of Virginia Endowment Fund Young Teacher Award, State Council of Higher Education for Virginia Outstanding Faculty Award, and the University of Virginia Engineering Foundation Outstanding Faculty Award. He has been active in IEEE as both a committee member and editor. and in 2006 was named a Fellow of IEEE for his contributions to fault-tolerant computing. He served as president of the IEEE Computer Society in 1997.



GEORGIA-ANN KLUTKE

National Science Foundation

Dr. Klutke is Program Director

for the Operations Engineering (OE) program in the Engineering Directorate at NSF. She retired in 2015 from a long academic career, most recently in industrial and systems engineering at Texas A&M University, where she is an emeritus professor. The following year she joined NSF, where she is also actively engaged in crosscutting initiatives such as CAREER, Disrupting Operations of Illicit Supply Networks, Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science, and Al Institutes, among other activities. She earned her BS in mathematics and MS in biostatistics from University of Michigan, MS in operations research from Wayne State University, and PhD in industrial engineering and operations research from Virginia Tech College of Engineering.

SOPHIA MAGILL



lowa State University

Magill has served as director of federal relations

since 2015 in the office of the president. In those responsibilities, she advocates on behalf of the university's federal priorities by promoting research, higher education, and science activities, and leveraging campus expertise to increase federal support and expand awareness of the university in Washington, DC.

Magill is engaged in the higher education community, having served as chair of the Council on Governmental Affairs (CGA) at the Association of Public and Land-Grant Universities (APLU). She currently serves as CGA liaison to the Council of Academic Affairs. Before joining the university, she served at the US Agency for International Development. Magill earned a bachelor's degree in political science from Iowa State University, and her master's degree in public administration from the University of Illinois Chicago.



RON MARTIN

Micron Technology REWRITTEN FROM LINKEDIN PAGE--CONFIRM

Martin is Senior Manager for Talent Acquisition at Micron Technology. Most of his experience lies in the research and development of semiconductors. He has also worked for a start-up medical device company in optics research and development, and for University of Pennsylvania as a research operations engineer. Before earning his BS in materials science and engineering at Drexel University, he earned a BS in physics at Morehouse College.



JINJUN XIONG

University at Buffalo

Dr. Jinjun Xiong is a computer scientist who specializes in

using artificial intelligence for social good, including creating Al solutions for educational and sustainability challenges. His research focuses on developing novel AI algorithms for computer vision, natural language processing and speech processing; software and hardware cooptimization and computer architecture innovation for AI algorithms and solutions; and large-scale benchmarking platforms for AI models' reproducibility and AI systems' characterization and optimization.

As director of the University at Buffalo's Institute for Artificial Intelligence and Data Science, he brings together faculty researchers, private businesses, and government agencies to promote multidisciplinary research and curriculum development. He is also the scientific director and co-director for the National AI Institute for Exceptional Education, which is creating artificial intelligence solutions to assist children with speech and language challenges.

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