



ENG Advisory Committee Member Biographies, Spring 2024

GRETCHEN BAIER is currently Executive External Strategy and Communications Leader at Dow, where she is responsible for monitoring for disruptive technologies, applying for external awards that recognize Dow products or researchers, and being the R&D liaison to Dow's sustainability goals. Previously, she was Associate R&D Director of External Technology, leading a group responsible for creating strategic external research collaborations. Earlier she was a technical leader in Ventures and New Business Development and a chemical engineer in the Process Optimization group and the Process Separations Skill Center.

Baier is on the Visiting Committee for Chemical Engineering at MIT, the Advisory Board for the MIT Practice School, the Standing Committee for the NSF Engineering Research Visioning Alliance, and Advisory Board for the Michigan Materials Research Institute at the University of Michigan. Other recent responsibilities have included Chair of the Advisory Board for the Department of Energy Critical Materials Institute, and co-Chair of the University-Industry Demonstration Partnership Project Committee. She has held Board positions for ASTRA and the Council of Chemical Research, as well as a member of the Industrial Research Institute's External Technology Network.

Prior to joining Dow, Baier was a process engineer at Dow Corning Corporation and later at Shell Oil Company. She has a B.S. in chemical engineering from M.I.T. and a Ph.D. from the University of Wisconsin at Madison.

STEPHAN BILLER is the Harold T. Amrine Distinguished Professor in the School of Industrial Engineering and the Mitchell E. Daniels, Jr School of Business at Purdue University, and serves as the Director of the Dauch Center for the Management of Manufacturing Enterprises at the Daniels School of Business. His expertise includes Smart Manufacturing, Digital Twin, Industry 4.0, and Supply Chain Management. He is passionate about how AI in the broadest sense and IoT can facilitate the Digital Transformation of large and especially small and medium manufacturing enterprises @ scale. Previously, he served as Founder and CEO of Advanced Manufacturing International, Vice President of Product Management for AI Applications & Watson IoT at IBM, Chief Manufacturing Scientist & Manufacturing Technology Director at General Electric, and Tech Fellow & Global Group Manager for Manufacturing Systems at General Motors. He is an IEEE Fellow and an elected member of the National Academy of Engineering.



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CHARLES BOTT is the Director of Water Technology and Research for the Hampton Roads Sanitation District, which he joined in 2009. He manages technology innovation and research and development for HRSD's sixteen wastewater treatment plants (249 MGD combined capacity). Bott is also an adjunct professor in the departments of civil and environmental engineering at Virginia Tech and Old Dominion University. He was formerly an associate professor in the department of civil and environmental engineering at the Virginia Military Institute (VMI) and a consulting engineer with Parsons Engineering Science.

Bott has a B.S. in civil engineering from the Virginia Military Institute, a M.S. in environmental engineering from the Johns Hopkins University, and a Ph.D. in civil and environmental engineering from Virginia Tech. He is a fellow of the Water Environment Federation (WEF) and a former member of the Science and Technology Advisory Committee to the Chesapeake Bay Program Executive Council. Bott is a Professional Engineer in Virginia, a Board-Certified Environmental Engineer, and a licensed Wastewater Treatment Plant Operator – Virginia Class I. He is a two-time winner of the WEF Harrison Prescott Eddy Medal for outstanding contribution to wastewater principles/processes research, he was a previous member of the WEF Board of Trustees, and he is a past co-chair of The Water Research Foundation and WEF Leaders Innovation Forum for Technology (LIFT) program.

Bott's technical interests include municipal and industrial wastewater treatment, as well as renewable energy generation. He has specific expertise in the areas of chemical and biological phosphorus removal, denitrification with alternative carbon sources, nitrification kinetics, nutrient recovery, deammonification/anammox, biological treatment process modeling and design, and biogas conditioning. Important areas of focus are mainstream shortcut nitrogen removal and technologies for potable reuse.

BIKA CARTER is the director of Global R&D Management at GlobalFoundries and oversees worldwide External R&D Partnerships. In this role she owns several strategic corporate R&D partnerships, the University Partnership Program and oversight for corporate-wide external R&D program management. Her past positions at GlobalFoundries include roles in the CTO and Business Development organizations. In these roles, she supported the CTO in R&D strategic planning and execution and negotiated key alliances with strategic partners to enhance the GlobalFoundries development pipeline.

Prior to GlobalFoundries, Carter worked as a technical business development manager for



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IMEC in Leuven, Belgium and managed a variety of technical projects under the CMOS technology group. She also worked as a product engineer at Intersil (previously Harris Semiconductor) and a process engineer at Texas Instruments. Carter holds a M.S. in materials science and engineering and a B.S. in electrical engineering, both from North Carolina State University.

Carter has been an active advocate of developing women engineers for many years. She is a steering member of Globalwomen (an internal program focused on developing women), active in external advisory roles at SWE and Women in Semiconductors, an ambassador for both Universities and K-12 programs, and mentors/coaches many early career women. Most recently, Carter championed and drove the launch of Global Journey, the first Career Re-Entry program at GlobalFoundries with a focus on targeting mid-career engineering women.

DIANNE CHONG (ret.) was vice president of research and technology in the Boeing Company.

ROBIN N. COGER is an experienced leader with a demonstrated record of success in higher education. She is the Provost and Senior Vice Chancellor for Academic Affairs and a Professor of Engineering at East Carolina University (ECU) in Greenville, North Carolina. Previously she was the Dean of the College of Engineering and a Professor of Mechanical Engineering, at North Carolina Agricultural and Technical State University (N.C. A&T) in Greensboro, NC. Prior to joining N.C. A&T, Coger served as a Professor and Center Director at the University of North Carolina at Charlotte. Her career at UNC-Charlotte spanned more than 15 years, where she served as a dedicated educator, researcher, and administrator.

Coger's technical research expertise is in solving design and performance problems related to tissue engineered organs, with special emphasis on liver replacement devices and their safe storage for off-the-shelf availability. Her work has been supported by grants from the National Institutes of Health, the NSF, and the Whitaker Foundation; and has resulted in numerous journal and conference publications in the areas of liver tissue engineering and cryopreservation, one patent, and two patent applications. Coger has been awarded for her excellence in research, teaching, and mentoring over her career, and is actively engaged in collaborations that advance faculty, innovative ventures, and student competitiveness.



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Coger is a fellow of the American Society of Mechanical Engineers and of the American Institute for Medical and Biological Engineering. She is a board member of the Greensboro Chamber of Commerce; the Advancing Minorities Interest in Engineering organization; and *FIRST* – an organization founded to inspire the interest and participation of young people in engineering, science and technology. She chairs the Council of HBCU Engineering Deans. Coger is also a member of the editorial board of the American Society of Engineering Education publication, PRISM.

Coger earned a B.S. from Cornell University and her M.S. and Ph.D. from the University of California, Berkeley, all in mechanical engineering. Coger completed her post-doctoral research as a fellow at Harvard Medical School and the Department of Surgery at Massachusetts General Hospital in Boston.

KARINA MONTILLA EDMONDS is a globally recognized visionary leader in the field of innovation, technology transfer, and commercialization. She currently serves as the Vice President and Global Lead for Academies and University Alliances at SAP. In this role, she is leading university partnerships that inspire, expose and educate students through engaging SAP curriculum. She also oversees the Sales and Engineering Academies which develop early talent and emerging leaders to build the best sales and engineering talent in the world.

Prior to joining SAP, Edmonds was the Global Lead for Cloud AI at Google in Sunnyvale, California. At Google, her primary role was to facilitate research collaborations in AI between Google Cloud and top academic researchers. Edmonds joined Google Cloud from the California Institute of Technology (Caltech) where she served as the Executive Director for Corporate Partnerships. At Caltech, she was responsible for implementing and managing an integrated strategy with the private sector and major federal funding agencies across numerous research areas.

Edmonds was appointed by the U.S. Secretary of Energy as the first full-time Technology Transfer Coordinator for the U.S. Department of Energy (DOE) in April 2010. In that role, Edmonds was responsible for working with the DOE's national laboratories to accelerate the advancement of discoveries from the laboratory to the marketplace. She has also held positions at the Jet Propulsion Laboratory and TRW, Inc. (now Northrop Grumman). Edmonds has co-authored two patent applications in the area of noise reduction for the automotive environment. As a Principal Research Scientist, her research at Northrop



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Grumman was in support of speech recognition for mobile applications.

Edmonds has been a long-standing advocate for the promotion of science, technology, engineering, and math (STEM) careers, especially for underrepresented students and women. She is a product of a STEM program herself and continues to serve as a role model and mentor to students across the country. She has been a keynote speaker, panelist, and awardee at innovation, clean energy, and STEM events across the country and has received numerous national recognition and awards. She has served as a member of the White House Speaker Bureau that promotes STEM careers to women and girls. Her advocacy for STEM spans several decades, including her role as a founding member and volunteer for Science is Fun Inc. (SIFI) while still an undergraduate at the University of Rhode Island (URI).

She frequently speaks at industry engagements and currently serves on the boards for the Institute for Pure and Applied Mathematics at the University of California, Los Angeles and was confirmed by the Rhode Island State Senate to the inaugural Board of Trustees for the University of RI in March 2020. Edmonds previously served on the boards of the URI Foundation, Caltech Alumni Foundation and ConnectEd California. She received a B.S. in Mechanical Engineering from URI, where she was inducted into its Engineering Hall of Fame in 2011 and was named a Distinguished Alumna in 2013. She holds an M.S. and Ph.D. in aeronautics with a minor in materials science from Caltech in Pasadena.

CYNTHIA FURSE is a professor in the electrical and computer engineering department at the University of Utah. She is a Fellow of the IEEE and the National Academy of Inventors. Her technological innovations and patents include development of a system to locate intermittent electrical faults on aging aircraft wiring, with which she founded a successful spin off company, LiveWire Innovation. She is also a pioneering researcher in the development of telemetry antennas for medical implants, and fast methods for predicting the statistical variation in bioelectromagnetic applications.

Furse teaches freshman circuit design, and has previously taught electromagnetics, wireless communication, computational electromagnetics, microwave engineering, and antenna design. She is a leader in the flipped classroom teaching method. She has received numerous teaching and research awards including the 2009 IEEE Harriett B. Rigas Medal for Excellence in Teaching. She is a Fellow of the IEEE and the National Academy of Inventors. She was the Associate Vice President for Research at the University of Utah from 2009 to 2019.



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Furse holds a bachelor's degree in electrical and computer engineering and a master's degree and a Ph.D. in electrical engineering, all from the University of Utah.

SAMUEL GRAHAM is Dean and Nariman Farvardin Professor of the James Clark School of Engineering at the University of Maryland.

KIMBERLY L. JONES is associate provost for faculty affairs, associate dean for research and graduate education for the college of engineering and architecture, and professor and chair for the department of civil and environmental engineering at Howard University. She holds a B.S. in civil engineering from Howard University, a M.S. in civil and environmental engineering from the University of Illinois and a Ph.D. in environmental engineering from The Johns Hopkins University. She is a Fellow of the Association of Environmental Science and Engineering Professors (AEESP) and a member of the International Women's Forum. Her research interests include water and wastewater quality, environmental policy, membrane separations, global water treatment, environmental justice, risk evaluation and environmental nanotechnology.

Jones currently serves as a Presidential Appointee to the Board of Directors of the National Institute of Building Sciences. She has served on the Chartered Science Advisory Board of the U.S. Environmental Protection Agency, where she chaired the Drinking Water Committee and was liaison to the National Drinking Water Advisory Council. She currently serves on the Advisory Committee for Environmental Research and Education at the National Science Foundation, and the Committee to Advise the U.S. Global Change Research Program of the National Academies of Sciences, Engineering, and Medicine (NASEM). She is an alternate Commissioner of the Interstate Commission on the Potomac River Basin in Washington, DC., where she chairs the committee on justice, equity, diversity and inclusion (JEDI). She also serves on the Management Board of the Consortium for Risk Evaluation with Stakeholder Participation (CRESP) and as Associate Director for Diversity in the Urban Water Innovation Network (UWIN).



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Jones has served on the Water Science and Technology Board of the National Academy of Sciences, and the Board of AEESP, where she was Secretary of the Board. She has served on several committees of the NASEM, including the Committee on Environmental Engineering for the 21st Century: Addressing Grand Challenges. She also served as the Deputy Director of the Keck Center for Nanoscale Materials for Molecular Recognition at Howard University and on the Center Steering Committee of the Center for the Environmental Implications of Nanotechnology (CEINT).

Jones has received the Researcher of the Year award from Howard University, a Top Women in Science Award from the National Technical Association, the Outstanding Young Civil Engineer award from University of Illinois Department of Civil and Environmental Engineering, an NSF CAREER Award, an Outstanding Leadership and Service and Outstanding Faculty Mentor award from Howard University, and Top Women Achievers award from Essence Magazine.

GREG KEOLEIAN is the Peter M. Wege Professor of Sustainable Systems at the University of Michigan and serves as Director of the Center for Sustainable Systems, which he cofounded 30 years ago in 1991. He has appointments as Professor in the School for Environment and Sustainability (SEAS) and as Professor in the Department of Civil and Environmental Engineering. He earned his PhD in Chemical Engineering from the University of Michigan in 1987. His research develops and applies life cycle models to enhance the sustainability of technology and guide energy transitions and climate solutions. In 2007, he launched and directs the Engineering Sustainable Systems dual degree program between the School for Environment and Sustainability and the College of Engineering to train a new breed of engineers in sustainable systems. Keoleian was recently named to the Reuters Hot List of the world's top climate scientists.

TSU-JAE KING LIU was born in Ithaca, NY in 1963 and raised in the San Francisco Bay Area. She earned her B.S., M.S. and Ph.D. degrees in electrical engineering (EE) from Stanford University. In 1992 she joined the research staff at the Xerox Palo Alto Research Center, where she worked on thin-film transistor technology for large-area electronics applications. In 1996 she joined the faculty of the Department of Electrical Engineering and Computer Sciences (EECS) at the University of California, Berkeley, where she has taught and conducted research on semiconductor logic and memory devices and technology, and



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has held a number of administrative leadership positions. She began her tenure as Dean of the College of Engineering in July 2018. Liu has authored or co-authored over 550 publications and holds close to 100 patents. She is a fellow of the Institute of Electrical and Electronics Engineers (IEEE), an elected member of the U.S. National Academy of Engineering, a fellow of the National Academy of Inventors, and a member of the Board of Directors for Intel Corporation and for MaxLinear, Inc. Her awards and honors include the Intel Outstanding Researcher in Nanotechnology Award, Semiconductor Research Corporation Aristotle Award, IEEE Electron Devices Society Education Award, and the Defense Advanced Research Projects Agency (DARPA) Significant Technical Achievement Award for her role in the development of the FinFET, an advanced transistor design used in all leading-edge computer chips today.

JAMES R. MARTIN II is the Vice Chancellor for STEM Research and Innovation at the University of Pittsburgh. Previously, he was the U.S. Steel Dean of Engineering in the Swanson School of Engineering. Prior to joining Pitt, Martin served as the Bob Benmosche Professor and Chair of the Glenn Department of Civil Engineering at Clemson University.

Prior to Clemson, Martin spent more than 20 years on the civil engineering faculty at Virginia Tech and served five years as director of the Disaster Risk Management Institute. His professional career focused on earthquake engineering and risk assessment of natural hazards. He taught undergraduate and graduate courses in geotechnical and earthquake engineering, foundation engineering and disaster risk management, among others.

Internationally recognized for his research on earthquakes, Martin has served as an earthquake engineering consultant on more than 100 major infrastructure projects, and has contributed to improved earthquake building code standards in the central and eastern United States. He is regularly called upon to serve on field teams after earthquakes strike and was the team leader for the NSF-sponsored study of the 2011 earthquake in Virginia and Washington, D.C., and has led similar studies in Turkey and Japan.

Martin earned a B.S. in civil engineering from The Citadel, and an M.S. and Ph.D. in civil engineering from Virginia Tech. He has received numerous national, state and university awards for research, teaching and professional service, including the American Society of Civil Engineer's Norman Medal, the highest honor for published work in his field. He was inducted into the civil engineering department's Academy of Distinguished Alumni at Virginia Tech in 2015.



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DANIELLE MERFELD is Senior Vice President and Chief Technology Officer at Hanwha Qcells, the leading solar PV manufacturer who recently made the largest investment in clean energy manufacturing in US history. Until early 2023 she was at GE Renewable Energy, where she led technical efforts to develop differentiated products and services across the broadest renewable energy portfolio in the industry, including onshore wind, offshore wind, solar PV, batteries, hydro and grid solutions. She has been a champion for sustainability and diversity efforts throughout her career and was elected to the National Academy of Engineering in 2021. Merfeld received her B.S. degree in electrical engineering from the University of Notre Dame, and Ph.D. in electrical engineering from Northwestern University. She is on the Board of Trustees at the University of Notre Dame and serves on the Export Import Bank of the United States Council on Climate.

SANJAY NATARAJAN is a senior vice president and general manager of the Components Research organization at Intel Corporation. He is responsible for Intel's internal semiconductor research, external engagements with universities and consortia, and government engagements worldwide related to semiconductor R&D. During his 31-year career in the semiconductor R&D industry, Natarajan led the development of Intel's 14nm process technology, and, prior to that, he led development of Intel's industry-leading 32nm process technology. In addition to Intel, Natarajan has held senior executive positions at Applied Materials, where he led a group developing new types of semiconductor equipment focused on extending Moore's Law. Outside of work, Natarajan is a research professor in the department of mechanical and materials engineering at Portland State University. He also serves on the Advisory Boards to the Deans of Engineering at Portland State University and Carnegie Mellon University. He is an IEEE member and received his B.S., M.S., and Ph.D. in electrical engineering from Carnegie Mellon University.

FRANKLIN M. ("LYNN") ORR, JR. served as Under Secretary for Science and Energy at the U.S. Department of Energy from December 2014 to January 2017. He was director of the Precourt Institute for Energy at Stanford from its establishment in 2009 to 2013. He served as director of the Global Climate and Energy Project at Stanford from 2002 to 2008. Orr was the Chester Naramore Dean of the School of Earth Sciences at Stanford University from 1994 to 2002. He has been a member of the Stanford faculty since 1985 and holds the



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Keleen and Carlton Beal Chair of Petroleum Engineering in the Department of Energy Resources Engineering, and he was a Senior Fellow at the Woods Institute for the Environment and the Precourt Institute for Energy. His research activities focus on how complex fluid mixtures flow in the porous rocks in the Earth's crust, the design of gas injection processes for enhanced oil recovery, and CO₂ storage in subsurface formations. Orr is a member of the National Academy of Engineering. He served as vice chair of the board of directors of the Monterey Bay Aquarium Research Institute until 2014 and rejoined that board in 2017. He chaired the Advisory Panel of the Packard Fellowships for Science and Engineering for the David and Lucile Packard Foundation until 2014, rejoining that panel in 2017, and was a foundation board member from 1999 to 2008. He is a member of the ClimateWorks Foundation Board of Directors.

ISMAEL PAGÁN-TRINIDAD is professor and chair of the department of civil engineering and surveying at the University of Puerto Rico at Mayagüez (UPRM) since 1994. He earned a B.S. and M.S. in civil engineering at UPRM. He also conducted Ph.D. studies (ABD) at the University of Illinois at Urbana-Champaign. His main professional interests focus on teaching and research initiatives to enhance engineering education for Hispanics to create pathways to advanced degrees in engineering which can help develop outstanding professionals and entrepreneurs in the nation's workforce. Pagán-Trinidad's main educational and research interests, presentations and publications have focused on tropical climate, hydrology, hydraulics, urban drainage, mitigation of natural hazards, engineering education, and resilience of civil infrastructure and integrated civil engineering design.

Pagán-Trinidad is the Principal Investigator of the project Education for Improving Resilience of Coastal Infrastructure sponsored by the Department of Homeland Security - Coastal Resilience Center of Excellence (DHS-CRC), which is co-led by the University of North Carolina at Chapel Hill and Jackson State University in Jackson, Mississippi. He is the liaison of the Educational and Research Partnership Agreement between UPRM and the Engineer Research and Development Center (ERDC). He has been the principal investigator and program manager of the UPRM-ERDC Internship Program for the past 28 years.

Pagán-Trinidad is a co-founding member of the board of the Puerto Rico Construction Cluster, which fostered initiatives to enhance sustainable activities and job opportunities that stimulate the Island's economic and infrastructure development. He is a co-founding



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member of the board of the Puerto Rico Materials Characterization Center. He is a founding member and vice president at large of the Latin American and Caribbean Consortium of Engineering Institutions.

LANCE C. PÉREZ was named dean of the University of Nebraska-Lincoln College of Engineering in May 2018, following two years as interim dean. An experienced academic and campus leader, Pérez previously was associate vice chancellor for academic affairs and dean of graduate studies at the university. He has been a faculty member in the Department of Electrical and Computer Engineering since 1995, where he holds the Omar H. Heins Professorship in Electrical and Computer Engineering.

In his previous administrative positions, Pérez was responsible for faculty and leadership development, promotion and tenure, instruction technology and classroom facilities' improvements, and graduate education. He led the implementation of \$30 million in improvements to academic facilities and played a pivotal role in the university's entrance into the Big Ten Committee on Institutional Cooperation.

As a faculty member, he has won numerous teaching awards and has been principal investigator or co-principal investigator on more than \$15 million in federally funded research. His research interests include signal and information processing, engineering education and faculty leadership development. From 2008-10, Pérez was a program director in the Division of Undergraduate Education at the National Science Foundation.

He has a B.S. in electrical engineering from the University of Virginia, and an M.S. and Ph.D. in electrical engineering from the University of Notre Dame.

DONNA RILEY is the Jim and Ellen King Dean of Engineering and Computing at the University of New Mexico.

JULIE ROSS is the Paul and Dorothea Torgersen Dean of Engineering at Virginia Tech.

BRUCE J. TROMBERG is the Director of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) at the National Institutes of Health (NIH) where he oversees a portfolio of research programs focused on developing, translating, and commercializing



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engineering, physical science, and computational technologies in Biology and Medicine. In addition, he leads NIH's Rapid Acceleration of Diagnostics innovation initiatives (RADx Tech/ATP) to increase SARS-COV-2 testing capacity and performance. His laboratory, the Section on Biomedical Optics (SBO) in the National Institute of Child Health and Development (NCHD), develops portable, bedside, non-contact and wearable technologies for quantitative, sensing and imaging of tissue composition and metabolism. Prior to joining NIH in January 2019, he was a professor of Biomedical Engineering and Surgery at the University of California, Irvine (UCI). During this time he served as director of the Beckman Laser Institute and Medical Clinic (BLIMC) (2003-2018) and the Laser Microbeam and Medical Program (LAMMP), an NIH National Biomedical Technology Center at the BLIMC (1997-2018). Tromberg specializes in the development of optics and photonics technologies for biomedical imaging and therapy. He has co-authored more than 450 publications and holds 24 patents in new technology development as well as bench-to-bedside clinical translation, validation and commercialization of devices. Tromberg has trained >80 students and fellows, is co-founder of the Biophotonics company Modulim, Inc, and has served on numerous advisory boards in academia, industry, government, and private foundations.