National Science Foundation
Directorate for Engineering (ENG) Advisory Committee
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Member Biographies

TILAK AGERWALA is retired vice president, Systems, at IBM Research. He was responsible for developing the next-generation technologies for IBM's systems, from microprocessor architecture and design to commercial systems and supercomputers, as well as novel Supercomputing algorithms, systems software and applications. He currently leads TKMA Consulting. Agerwala joined IBM in 1979 at the T.J. Watson Research Center and has held executive positions at IBM in research, advanced development, development, marketing and business development. His research interests are in high performance computer architectures and systems.

Agerwala is a founding member of the IBM Academy of Technology, and a Fellow of the Institute of Electrical and Electronics Engineers. He has given over 100 invited technical presentations and Keynote talks at conferences, universities, and National Laboratories worldwide. He received his B.Tech. in electrical engineering from the Indian Institute of Technology, Kanpur, India, and his Ph.D. in electrical engineering from Johns Hopkins University, Baltimore, Maryland.

GILDA A. BARABINO is the dean of The Grove School of Engineering at The City College of New York (CCNY) and Berg Professor of Biomedical Engineering, Professor of Chemical Engineering and Professor of Biomedical Education. Prior to joining CCNY, she served as associate chair for graduate studies and professor in the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University. At Georgia Tech she also served as the inaugural Vice Provost for Academic Diversity. Prior to her appointments at Georgia Tech and Emory, she rose to the rank of full professor of chemical engineering and served as Vice Provost for Undergraduate Education at Northeastern University. She is a noted investigator in the areas of sickle cell disease, cellular and tissue engineering, and race/ethnicity and gender in science and engineering. She consults nationally and internationally on STEM education and research, diversity in higher education, policy, workforce development and faculty development.

Barabino received her B.S. degree in chemistry from Xavier University of Louisiana and her Ph.D. in chemical engineering from Rice University. She is a Fellow of the American Association for the Advancement of Science, the American Institute for Medical and Biological Engineering (AIMBE) and the Biomedical Engineering Society (BMES). She was the Sigma Xi Distinguished Lecturer for 2012–2014. She has an extensive record of leadership and service in the chemical and biomedical engineering communities. She is the immediate past-president of BMES and is the president-elect of AIMBE. Barabino has over a decade of experience in leading NSF initiatives for women and minority faculty and is the founder and executive director of the National Institute for Faculty Equity.

BRUCE HORN is Distinguished Engineer at Datawire.io. Previously, he was Intel Fellow and Chief Technical Officer for the Intel Saffron Technology group, where he was responsible for driving new applications and uses for Intel Saffron's memory-based reasoning system, a fundamentally new approach in the development of intelligent devices and systems. In prior work at Intel, Horn built a team to develop advanced conversational interfaces; that team provided the spoken language technology and mobile application for the Oakley Radar Pace running and cycling coach. Prior to joining Intel, Horn was a principal research software development engineer at Microsoft, where he worked on the creation and deployment of natural language systems for Bing; worked at Powerset, where he was responsible for the computational infrastructure of the Powerset Natural Language Search System; worked at Apple, where he created and developed the Macintosh Finder, the first widely used desktop graphical user interface, among other components of MacOS; and served as a member of the learning research group at the Xerox Palo Alto Research Center, where he contributed to several implementations of the Smalltalk virtual machine. Horn holds a BS in mathematical sciences from Stanford University and an MS and PhD in computer science from Carnegie Mellon University.

LEAH JAMIESON is Ransburg Distinguished Professor of Electrical and Computer Engineering at Purdue University, John A. Edwardson Dean Emerita of Engineering, and holds a courtesy appointment in Purdue's School of Engineering Education. She is co-founder and past director of the EPICS – Engineering Projects in Community Service program. She served as the 2007 President and CEO of the IEEE and 2012-17 President of the IEEE Foundation. She has been recognized with the National Academy of Engineering's Gordon Prize for Innovation in Engineering and Technology Education, the NSF Director's Award for Distinguished Teaching Scholars, the Anita Borg Institute's Women of Vision Award for Social Impact, the National Association of Multicultural Engineering Program Advocates (NAMEPA) Dean of Engineering Champion Award, was named 2002 Indiana Professor of the Year by the Carnegie Foundation, and presented the Simon Bolivar medal from the National Ministry of Education of Colombia.

Jamieson is a member of the U.S. National Academy of Engineering, the American Academy of Arts and Sciences, a Fellow of the IEEE and ASEE, an Eminent Member of IEEE-Eta Kappa Nu, and an Honorary Member of Tau Beta Pi. She has been an advocate and activist promoting the success of women in engineering and computer science both at Purdue and through national and global professional societies. Jamieson received her S.B. in mathematics from MIT and her Ph.D. in electrical engineering and Computer Science from Princeton University, and has been awarded an honorary doctorate from Drexel University. She joined the faculty of Purdue in 1976.

MARY C. JUHAS is associate vice president in the Office of Research at the Ohio State University. In this role, she impacts the recruitment, retention and advancement of women faculty in the STEM disciplines with a goal to develop research leaders. She holds the appointment of clinical professor in the Department of Materials Science and Engineering. As the leader of Ohio State ADVANCE, Juhas directs "REACH for Commercialization™", a workshop series for women faculty inventors. She is an angel investor. She served a two-year IPA (intergovernmental personnel act) leave as program director in the Directorate for Engineering at the National Science Foundation. She was the 2015-2016 national president of the Women in Engineering ProActive Network (WEPAN) and the past chair of the Women in Materials Science and Engineering Committee of the Minerals, Metals, and Materials Society (TMS); Juhas is a Fellow of ASM International, and former ABET board member. Her scholarly research is focused on understanding microstructure/property relationships in structural metallic systems. Juhas earned a B.S. in chemistry from Seton Hill University, a Master's degree in materials science and Engineering from Carnegie Mellon University, and a Ph.D. in materials science and engineering from The Ohio State University. She was a Châteaubriand postdoctoral fellow at the University of Paris, France. Juhas has held engineering research and leadership positions at Lawrence Livermore National Laboratory and Edison Welding Institute.

ROBIN MURPHY is the Raytheon Professor of Computer Science and Engineering at Texas A&M University, director of the Humanitarian Robotics and Artificial Intelligence Laboratory and is a founding director of the Center for Robot-Assisted Search and Rescue. She helped found the fields of disaster robotics and human-robot interaction, concentrating on developing human-centered AI for ground, air, and marine robots. Her work is captured in over 150 scientific publications including the award-winning book *Disaster Robotics* and a TED talk. Murphy has deployed robots to over 27 disasters in five countries including the 9/11 World Trade Center, Hurricane Katrina, Fukushima, the Syrian boat refugee crisis, Hurricane Harvey, and the Kilauea volcanic eruption. Murphy's contributions to disaster robotics have been recognized with the ACM Eugene L. Lawler Award for Humanitarian Contributions, the AUVSI Foundation's Al Aube Award, and the Motohiro Kisoi Award for Rescue Engineering Education.

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.

DARRYLL PINES has served as Dean and Nariman Farvardin Professor of Aerospace Engineering at the Clark School since January 2009. He arrived at the Clark School in 1995 as an assistant professor and then served as chair of the department of aerospace engineering from 2006 to 2009.

During a leave of absence from the University (2003-2006), Pines served as program manager for the Tactical Technology Office and Defense Sciences Office of DARPA (Defense Advanced Research Projects Agency). While at DARPA, Pines initiated five new programs primarily related to the development of aerospace technologies, for which he received a Distinguished Service Medal. He also held positions at the Lawrence Livermore National Laboratory (LLNL), Chevron Corporation, and Space Tethers Inc. At LLNL, Pines worked on the Clementine Spacecraft program, which discovered water near the south pole of the moon. A replica of the spacecraft now sits in the National Air and Space Museum.

Pines' current research focuses on structural dynamics, including structural health monitoring and prognosis, smart sensors, and adaptive, morphing and biologically-inspired structures, as well as the guidance, navigation, and control of uninhabited aerospace vehicles. He is a fellow of the Institute of Physics, the American Society of Mechanical Engineers and the American Institute of Aeronautics and Astronautics, and he has received an NSF CAREER Award. Pines received a B.S. in mechanical engineering from the University of California, Berkeley. He earned M.S. and Ph.D. degrees in mechanical engineering from the Massachusetts Institute of Technology.

SARAH RAJALA is Dean Emerita of the College of Engineering at Iowa State University. She is a former president of the American Society for Engineering Education and chaired the Global Engineering Deans Council. She was named 2016 national engineer of the year by the American Association of Engineering Societies and received the 2015 national Harriett B. Rigas Award from the Institute of Electrical and Electronics Engineers Education Society honoring outstanding female faculty.

Rajala’s previous leadership positions were at North Carolina State University as associate dean for research and graduate programs and associate dean for academic affairs in the college of engineering; and Mississippi State University as a department chair and dean of the Bagley College of Engineering. She had a distinguished career as a professor and center director prior to moving into administrative positions.

Rajala earned her bachelor's degree in electrical engineering from Michigan Technological University and master's degree and Ph.D. from Rice University. She is a fellow of the American Association for the Advancement of Science, the American Society for Engineering Education and the Institute of Electrical and Electronic Engineers.

MAXINE L. SAVITZ is a retired general manager, Technology/Partnerships at Honeywell, Inc. formerly Allied Signal. She is a member and served two terms as vice president of the National Academy of Engineering (2006-2014). Savitz was appointed to the President's Council of Advisors for Science and Technology in 2009 and served through 2017; she served as vice co-chair 2010-2017. Savitz was employed at the U.S. Department of Energy (DOE) and its predecessor agencies (1974-1983) and served as the Deputy Assistant Secretary for Conservation.

Savitz serves on the advisory bodies for Pacific Northwest National Laboratory and Sandia National Laboratories. She recently served on the Massachusetts Institute of Technology visiting committee for sponsored research activities. Past board memberships include the American Council for an Energy Efficient Economy, Jet Propulsion Laboratory, National Science Board, Secretary of Energy Advisory Board, Defense Science Board, Electric Power Research Institute (EPRU), Draper Laboratories, and the Energy Foundation. She is a member of the National Academies Division on Engineering and Physical Sciences Committee.

Savitz's awards and honors include: elected a Fellow to the American Academy of Arts and Sciences in 2013; C3E Lifetime Achievement Award in 2013; the Orton Memorial Lecturer Award (American Ceramic Society) in 1998; the DOE Outstanding Service Medal in1981; the President's Meritorious Rank Award in 1980; recognition by the Engineering News Record for Contribution to the Construction Industry in 1979 and 1975; and the MERDC Commander Award for Scientific Excellence in 1967. She is the author of about 20 publications. Savitz has served on numerous National Research Council committees and participated in multiple Academies activities. She received a B.A. in chemistry from Bryn Mawr College and a Ph.D. in organic chemistry from the Massachusetts Institute of Technology.

SUSAN SMYTH recently retired as the chief scientist for global manufacturing at General Motors and the director of GM R&D Manufacturing Systems Research Labs. In this capacity, she directed the creation of GM's global manufacturing R&D strategies and oversaw innovation and implementation of its advanced manufacturing technology portfolio.

In this position at General Motors, Smyth was responsible for manufacturing technology research and development enabling the production of world class vehicle and propulsion systems and driving innovations to enhance quality, efficiency and flexibility of GM's manufacturing systems. During her career at GM she held a variety of leadership positions in manufacturing, engineering, "big data" analytics, and research and development.

Smyth is recognized as one of the strategic technology leaders inside and outside General Motors. She served as chair of the U.S. Manufacturing Council, which advises the Secretary of Commerce on government policies and programs that affect United States manufacturing. She was the GM Executive Representative and Chair of the Manufacturing Technology Leadership Council at the United States Council for Automotive Research. She has also served as executive technology advisor to a number of prestigious research institutes (University of Michigan, MIT, Georgia Tech, Northwestern, and Shanghai Jiao-Tong University, and others).

Smyth has been recognized for her technical and business achievements with numerous national and international awards. She was made a Fellow of the Society of Manufacturing Engineers in 2015 and was elected to the National Academy of Engineering in 2018. She has a Bachelor of Science degree in Physics, a Master of Science degree in Optoelectronics and Information Technology, and a Doctorate in Physics from the Queen's University of Belfast, Northern Ireland.

STEFANIE TOMPKINS is the vice president for research and technology transfer at the Colorado School of Mines. She has spent much of her professional life leading scientists and engineers in developing new technology capabilities.

She spent 10 years in industry, as a senior scientist and later assistant vice-president and line manager at Science Applications International Corporation, where she conducted and managed research projects in planetary geology and imaging spectroscopy. Later, as a DARPA program manager, she created and led programs in ubiquitous GPS-free navigation as well as in optical component manufacturing. She has also served as a DARPA office director and the acting deputy director of the agency.

Tompkins received a Bachelor of Arts degree in geology and geophysics from Princeton University and Master of Science and doctor of philosophy degrees in geology from Brown University. She also served as a military intelligence office in the U.S. Army.

JEANNE M. VANBRIESEN is the Duquesne Light Company Professor of Civil & Environmental Engineering and Engineering & Public Policy at Carnegie Mellon University, where she also serves as the Vice Provost for Faculty. She is a fellow of the American Society of Civil Engineering (ASCE) and of its Environmental and Water Resources Institute (EWRI), as well as a fellow of the Association of Environmental Engineering and Science Professors (AEESP).

VanBriesen holds a B.S. in Education and a M.S. and Ph.D. in Civil Engineering from Northwestern University. She is a licensed professional engineer. Her research is in environmental systems, including detection of biological agents in water systems, bromine-containing disinfection by-products in drinking water, and impacts of energy extraction on water systems. VanBriesen has served on the board of the Association for Environmental Engineering and Science Professors and the U.S. EPA Science Advisory Board. She is currently the Chair of the Board of the Consortium for the Advancement of Hydrologic

Sciences (CUAHSI).

VanBriesen has been an Aldo Leopold Leadership Fellow and she has received numerous awards, including the 2015 American Society of Civil Engineers Margaret S. Petersen Award and the 2009 American Society of Civil Engineers Pittsburgh Chapter Professor of the Year. VanBriesen was a selected presenter at the National Academy of Engineering Indo-U.S. Frontiers of Engineering Symposium on Infrastructure in 2008, and an invited speaker at the National Academy of Engineering Education Symposium in 2010. She was selected as a National Academy of Engineering Gilbreth Lecturer in 2011.

JELENA VUČKOVIĆ is the Jensen Huang Professor in Global Leadership in the School of Engineering, a professor of electrical engineering and (by courtesy) a professor of applied physics at Stanford University, where she leads the Nanoscale and Quantum Photonics Lab. She is also a director of Q-FARM, Stanford-SLAC Quantum Science and Engineering Initiative, and is affiliated with Ginzton Lab, PULSE Institute, SIMES Institute, Stanford Photonics Research Center (SPRC), SystemX Alliance, and Bio-X at Stanford.

Upon receiving her Ph.D. from the California Institute of Technology (Caltech) in 2002, Vučković worked as a postdoctoral scholar at Stanford. In 2003, she joined the Stanford Electrical Engineering Faculty, first as an assistant professor (until 2008), then an associate professor (2008-2013), and finally as a professor of electrical engineering (since 2013). She has also held visiting positions at the Max Planck Institute for Quantum Optics (MPQ) in Munich, Germany (2019), at the Institute for Advanced Studies of the Technical University in Munich, Germany (2013-2018), and at the Institute for Physics of the Humboldt University in Berlin, Germany (2010-2013).

Vučković has received many awards including Distinguished Scholar of the Max Planck Institute for Quantum Optics - MPQ (2019), Hans Fischer Senior Fellowship from the Institute for Advanced Studies in Munich (2013), Humboldt Prize (2010), Marko V. Jaric award for outstanding achievements in physics (2012), DARPA Young Faculty Award (2008), Chambers Faculty Scholarship at Stanford (2008), Presidential Early Career Award for Scientists and Engineers (PECASE in 2007), Office of Naval Research Young Investigator Award (2006), Okawa Foundation Research Grant (2006), and Frederic E. Terman Fellowship at Stanford (2003). She is a Fellow of the American Physical Society (APS), of the Optical Society of America (OSA), and of the Institute of Electronics and Electrical Engineers (IEEE).

Vučković is a member of the scientific advisory board of the Max Planck Institute for Quantum Optics - MPQ (in Munich, Germany), of the Ferdinand Braun Institute (in Berlin, Germany), and a board member of SystemX at Stanford. Currently, she is also an Associate Editor of ACS Photonics, and a member of the editorial advisory board of Nature Quantum Information and APL Photonics.

GREGORY WASHINGTON is Professor of Mechanical and Aerospace Engineering and the Stacey Nicholas Dean of Engineering of the Henry Samueli School of Engineering at the University of California, Irvine.

Washington has been involved in multidomain research for the last 20 years. His core area of interest lies in modeling and control of dynamic systems. During this time, he has been involved in the following applications: the design and control of mechanically actuated antennas, advanced control of machine tools, the design and control of hybrid electric vehicles, and structural position and vibration control with smart materials. He is internationally known for his research on ultra-lightweight structurally active antenna systems and other structures that involve the use of "smart materials."

Washington is the author of more than 150 technical publications in journals, edited volumes, and conference proceedings. Washington received an NSF Career Award, the Ohio State University Harrison Award for Excellence in Engineering Education and Research, two best paper awards (one with his students), and numerous other awards. Washington has served on several advisory boards in industry, government and academia, including the Air Force Scientific Advisory Board.

YANNIS C. YORTSOS is the dean of the University of Southern California Viterbi School of Engineering and the Zohrab Kaprielian Chair in Engineering, a position he holds since 2005. Prior to that he served from 2001 to 2005 as Associate Dean and then as Sr. Associate Dean for Academic Affairs. Yortsos joined the USC faculty of Chemical and Petroleum Engineering in 1978. He served as chair of the Department of Chemical Engineering between 1991 and 1996. Since 1995 he also holds the Chester Dolley Professorship. He received a B.S. (Diploma) degree in chemical engineering from the National Technical University of Athens, Greece, and M.S. and Ph.D. degrees from the California Institute of Technology, all in chemical engineering. His research area is in fluid flow, transport and reaction processes in porous media with specific application to the subsurface.

Yortsos was elected to the National Academy of Engineering in 2008, where he has also served as secretary, vice-chair and chair of Section 11. Since July 2017, Yortsos serves as a member of the NAE Council. In 2011 he was awarded the distinction of honorary member of the AIME, in 2013 he was elected as Associate member of the Academy of Athens, in 2014 he received the Ellis Medal of Honor and since 2017 he holds an honorary degree from Tsinghua University. He was on the peer review team for the Yucca Mountain Nuclear Waste Disposal and served on the NRC Committees for the 2017 report on a New Vision for Center-Based Engineering Research as well as the 2017 report on The Value of Social, Behavioral, and Economic Sciences to National Priorities.

As dean of engineering, he articulated in 2008 the concept of Engineering+, positioning engineering as the enabling discipline of our times, and has been actively engaged in the effort to "change the conversation about engineering". Along with colleagues at Duke University and Olin College, he co-founded in 2009 the Global Grand Challenges Scholars Program, now adopted by many universities in the US and overseas. He organized and hosted at USC in Fall 2010 the Second Grand Challenges Summit, which spurred in 2013 the Global Grand Challenges Summits.

Since 2012, Yortsos is the chair of the Diversity Committee of the Engineering Deans Council, in which capacity he has spearheaded an engineering diversity initiative, now adopted by more than 210

engineering deans nationwide. In recognition of these initiatives, the USC Viterbi School of Engineering received in 2017 the ASEE President's Award. Yortsos is the P.I. of the NSF I-Corps Innovation Node Los Angeles, established in 2014 as a partnership between USC, Caltech and UCLA. Between 2011 and 2015 he served on the Executive Committee of the Engineering Deans Council and on the Executive Committee of the Global Engineering Deans Council.