

## 2018 AC ISE Member Biographies

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### **SUSAN K. AVERY (Chair: 2014 - 2018)**

Susan K. Avery took office as president and director of Woods Hole Oceanographic Institution (WHOI) on February 4, 2008. Avery is the ninth director in the institution's 78-year history, and the first woman to hold the position.

As an oceanographic leader with a background in atmospheric research, Avery has used her unique position to underscore the importance of ocean-atmosphere interactions in understanding whole Earth systems. Since taking the helm at WHOI, Avery has delivered Congressional testimony and presentations at scientific conferences such as the American Meteorological Society, the IEEE International Geoscience & Remote Sensing Symposium, the American Geological Union, and the Partnership for Observation of the Global Ocean (POGO), often directing her comments at the intersection of atmospheric, earth, and ocean science.

Avery has extensive experience as a leader within scientific institutions. She came to WHOI from the University of Colorado at Boulder (UCB), where she was a member of the faculty since 1982, and where she served in interim positions as vice chancellor for research and dean of the graduate school, as well as provost and executive vice chancellor for academic affairs. From 1994-2004, she served as director of the Cooperative Institute for Research in Environmental Sciences (CIRES), the first woman and first engineer to hold that position. There, she facilitated new interdisciplinary research efforts spanning the geosciences while bringing them together with social and biological sciences and helped establish a thriving K-12 outreach program and a Center for Science and Technology Policy Research.

Avery's research includes studies of atmospheric circulation and precipitation, climate variability and water resources, and the development of new radar techniques and instruments for remote sensing. The author or co-author of more than 80 peer-reviewed articles, Avery helped form an integrated science and assessment program that examines the impacts of climate variability on water in the American West. She also worked with the National Oceanic and Atmospheric Administration and the Climate Change Science Program to help formulate a national strategic science plan for climate research.

Avery is a fellow of both the Institute of Electrical and Electronics Engineers and of the American Meteorological Society, for which she also served as president. She is a member of the advisory board for the Jet Propulsion Laboratory and a past chair of the board of trustees of the University Corporation for Atmospheric Research. She has also served on numerous advisory panels, committees, and councils for the National Science Foundation, the National Research Council, the National Oceanic and Atmospheric Administration, and the National Center for Atmospheric Research.

Avery earned a bachelor's degree in physics from Michigan State University in 1972, a master's in physics from the University of Illinois in 1974, and a doctorate in atmospheric science from the University of Illinois in 1978. (*Term expires March 31, 2020*)

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#### **JAY M. COHEN**

Jay M. Cohen was commissioned into the Navy in 1968 upon graduation from the United States Naval Academy. He holds Master of Science in Marine Engineering and Naval Architecture from the Massachusetts Institute of Technology (MIT) and a joint Ocean Engineering degree from MIT and Woods Hole Oceanographic Institution.

His early Navy assignments included service on conventional and nuclear submarines. From 1985 to 1988 Cohen commanded USS HYMAN G. RICKOVER (SSN 709). Following command, he served on the U.S. Atlantic Fleet as a senior member of the Nuclear Propulsion Examining Board, responsible for certifying the safe operation of nuclear powered ships and crews. From 1991 to 1993, he commanded the submarine tender USS L.Y. SPEAR (AS 36) including a deployment to the Persian Gulf in support of Operation DESERT STORM. After Spear, he reported to the Secretary of the Navy as Deputy Chief of Navy Legislative Affairs. During this assignment, Cohen was responsible for supervising all Navy Congressional liaison.

In June 2000, Cohen was promoted in rank and became the 20th Chief of Naval Research. He served during war as the Department of the Navy Chief Technology Officer (a direct report to the Secretary of the Navy, Chief of Naval Operations and Commandant of the Marine Corps). Responsible for the \$2B+/year Navy and Marine Corps Science and Technology (S&T) Program (involving basic research to applied technology portfolios and contracting), Cohen coordinated investments with other U.S.

and international S&T providers to rapidly meet war fighter combat needs. After an unprecedented five and a half year assignment as Chief of Naval Research, Rear Admiral Cohen retired from the Navy on February 1, 2006.

Unanimously confirmed by the US Senate, Cohen was sworn in as Under Secretary for Science & Technology at the Department of Homeland Security (responsible for DHS Research, Development, Test and Evaluation) on August 10, 2006 (the day of the British Airways liquid explosive plot in England). His success at DHS is documented in a recent National Geographic TV special "Hi- Tech War on Terror" that documents the high risk/high gain innovation portfolio which Cohen put in place to make the nation safer. The current administration continues to build on this solid foundation.

Since leaving government, Rear Admiral Cohen is now a principal in The Chertoff Group and serves on numerous corporate boards. *(Term expires August 31, 2019)*

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### **JOSÉ A.B. FORTES**

José A.B. Fortes is the AT&T Eminent Scholar and Professor of Electrical and Computer Engineering and Computer Science at the University of Florida where he founded and is the Director of the Advanced Computing and Information Systems Laboratory.

He received the B.S. degree in Electrical Engineering (Licenciatura em Engenharia Electrotécnica) from the Universidade de Angola in 1978, the M.S. degree in Electrical Engineering from the Colorado State University, Fort Collins in 1981 and the Ph.D. degree in Electrical Engineering from the University of Southern California, Los Angeles in 1984. From 1984 until 2001 he was on the faculty of the School of Electrical Engineering of Purdue University at West Lafayette, Indiana. In 2001 he joined both the Department of Electrical and Computer Engineering and the Department of Computer and Information Science and Engineering of the University of Florida as Professor and BellSouth Eminent Scholar. From July 1989 through July 1990 he served at the National Science Foundation as director of the Microelectronics Systems Architecture program. From June 1993 till January 1994 he was a Visiting Professor at the Computer Architecture Department of the Universitat Politècnica de Catalunya in Barcelona, Spain.

His research interests are in the areas of distributed computing, autonomic computing, computer architecture, parallel processing and fault-tolerant computing. He has authored or coauthored over 200 technical papers and has lead the development and

deployment of Cloud and Grid-computing software used in several cyberinfrastructures for e-Science and digital government. His research has been funded by the Office of Naval Research, AT&T Foundation, IBM, General Electric, Intel, Northrop-Grumman, Army Research Office, NASA, Semiconductor Research Corporation and the National Science Foundation.

José Fortes is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) professional society and a Fellow of the American Association for the Advancement of Science (AAAS). He was a Distinguished Visitor of the IEEE Computer Society from 1991 till 1995. José Fortes is on the Editorial Boards of the IEEE Transactions on Cloud Computing, the IEEE Transactions on Services Computing, and the International Journal on Parallel Programming. He is also a past member of the Editorial Boards of IEEE Transactions on Parallel and Distributed Systems, the ACM Journal on Emerging Technologies in Computing Systems, Cluster Computing: The Journal of Networks, Software Tools and Applications, the Journal of VLSI Signal Processing, and the Journal of Parallel and Distributed Computing. *(Term expires March 31, 2020).*

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#### **JULIO E. IBARRA**

As the Assistant Vice President for Technology Augmented Research at Florida International University, Dr. Julio E. Ibarra is responsible for furthering the mission of the Center for Internet Augmented Research and Assessment (CIARA) – to contribute to the pace and the quality of research at FIU through the application of advanced Cyberinfrastructure. He is responsible for strategic planning and development of advanced research networking services, including the development and management of the AMPATH International Exchange Point for Research and Education networks. He is the Principal Investigator of the Americas Lightpaths (AmLight), an NSF-OCI International Research Networks Connection funded project (#OCI-0963053), which involves planning and implementation of high-performance international network connections to enhance U.S. e-science initiatives in Latin America. He has been PI and Co-PI on several other NSF grants to broaden participation in science and engineering research and education through the application of Information and Communications Technology.

Dr. Ibarra has been active in initiatives to advance networking and Internet technologies for the State of Florida. He is a board member of the Florida Lambda Rail, LLC – Florida’s research and education network initiative. He served on the Governor’s IT Florida Task Force subcommittee on Infrastructure and Technology Development, as a

subject matter expert. He is co-author of the policy recommendation for the development of a Network Access Point (NAP) in South Florida to enhance the State's e-Commerce opportunities with Latin America. *(Term expires October 31, 2018).*

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### **MARGARET D. LOWMAN**

Nicknamed the “real-life Lorax” by National Geographic and “Einstein of the treetops” by Wall Street Journal, Meg Lowman pioneered the science of canopy ecology. For over 30 years, she has designed hot-air balloons and walkways for treetop exploration to solve mysteries in the world's forests, especially insect pests and ecosystem health. Meg is affectionately called the mother of canopy research as one of the first scientists to explore this eighth continent. She relentlessly works to map the canopy for biodiversity and to champion forest conservation around the world, gaining her start in the rain forests of Australia. Her international network and passion for science have led her into leadership roles where she seeks best practices to solve environmental challenges and serves as a role model to women and minorities in science.

Formerly a Professor at North Carolina State University and the founding director of North Carolina's innovative Nature Research Center at the NC Museum of Natural Sciences, Meg oversaw the creation, construction, staffing, and programming of this research wing in partnership with the NC University system. She was subsequently hired by the California Academy of Sciences to lead their twenty-first century strategy of integrating research with sustainability initiatives both local and global. As the Academy's inaugural Chief of Science and Sustainability, she re-organized internal operations to prioritize relevant science, sustainability, collections and efficient financial practices. Now she has taken on an external role as the Academy's new Director of Global Initiatives and Senior Scientist for Plant Conservation, to strategize and promote the Academy's mission for sustainability science, and to disseminate her team's accomplishments to groups ranging from elementary classes to corporate executives to international conferences.

Lowman's past leadership has included Vice President of the Ecological Society of America; Treasurer of the Association for Tropical Biology and Conservation; founder of the TREE Foundation; Board of Directors for The Explorers Club and Earthwatch; and Climate Change Adviser to Alex Sink, former CFO of the Florida cabinet. Previously,

she served as Professor and Director of Environmental Initiatives at New College of Florida, CEO of The Marie Selby Botanical Gardens, and Professor of Biology & Environmental Studies at Williams College.

Lowman's academic training includes Williams College (BA, Biology); Aberdeen University (MSc, Ecology); Sydney University (PhD, Botany); and Tuck School of Business (Diploma of Executive Management). Her numerous awards include the Margaret Douglas Medal for Excellence in Conservation Education from the Garden Club of America, Girls Inc. Visionary Award, the Mendel Medal for achievements in science and spirit, the Lowell Thomas Medal for canopy exploration, Kilby Laureate and Aldo Leopold Leadership Fellow. She has authored more than 125 peer-reviewed scientific publications, and her first book, "Life in the Treetops," received a cover review in the New York Times Sunday Book Review. Working tirelessly on sustainability initiatives at home and abroad, "CanopyMeg" was a Fulbright Senior Specialist Scholar to both India and Ethiopia; and National Geographic and National Science Foundation fund her conservation work on Ethiopian church forests. She is the proud mother of sons Edward and James, both science majors from Princeton University. (*Term expires October 31, 2018*).

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## **STEVEN W. MCLAUGHLIN**



Steven W. McLaughlin received the B.S.E.E. degree from Northwestern University, the M.S.E. degree from Princeton University, and the Ph.D. degree from the University of Michigan. He joined the School of Electrical and Computer Engineering at Georgia Tech in September 1996 where is now Steve W. Chaddick School Chair for the School of Electrical and Computer Engineering.

From 2007-2012 he was Vice Provost for International Initiatives and Steven A. Denning Chair in Global Engagement. As Vice Provost he was responsible for Georgia Tech's global engagement in research, education, and economic development. He was also President of GT Global, Inc. a not-for-profit corporation created to manage select Georgia Tech international initiatives.

In 2011 he was awarded the honor Chevalier dans l'Ordre Nationale de Merite, (Knight of the French National Order of Merit), the second highest civilian award given by Republic of France. He was the first Georgia Tech recipient of the Presidential Early

Career Award for Scientists and Engineers (PECASE) where he was cited by President Clinton "for leadership in the development of high-capacity, nonbinary optical recording formats." He also received the National Science Foundation CAREER and the Information Storage Industries Consortium Technical Achievement Award (with Dr. David Warland at UC-Davis) for this work. From 1999-2003 he was the Principal Scientist for Calimetrics where this work was commercialized (Calimetrics was acquired by LSI Logic in 2005). He received the Friend of the Graduate Student Award in 2002 from the GT Graduate Student Association and the 2009 Faculty Achievement Award from the School of ECE. He was also a co-recipient of the IEEE Communication Society & Information Theory Society Joint Paper Award (2011).

He is a co-founder of Whisper Communications, a physical-layer security company established in 2009 to commercialize technologies developed in his research group. He was previously Deputy Director of Georgia Tech - Lorraine - the European Campus of the Georgia Institute of Technology - in Metz, France from 2006-2007. He was a Ken Byers Professor from 2000-2012 and President of the IEEE Information Theory Society in 2005. He has held positions at Booz, Allen and Hamilton, AT&T Bell Labs, and Eastman Kodak. From 1992-1996 he was on the Electrical Engineering faculty at the Rochester Institute of Technology.

His research interests are in the general area of communications and information theory. His research group has published in the areas of coding and signal processing for wireless communications and data storage channels; privacy and data security, physical layer security, forward error correction and equalization for optical networks; quantum key distribution, wireless and RFID security; and inference in social media networks. He has published more than 250 papers in journals and conferences and holds 36 US patents. He has served as the research and thesis advisor to more than 50 students at the bachelors, masters, doctoral and post-doctoral levels.

He served as the President of the IEEE Information Theory Society in 2005, is a Fellow of the IEEE and served as an Associate Editor for Coding Techniques for the IEEE Transaction on Information Theory. He also served as the Publications Editor for that journal from 1995-1999. He co-edited (with Sergio Verdu) Information Theory: 50 Years of Discovery (Wiley/IEEE Press, 1999). *(Term expires October 31, 2018).*

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## **ANNE PETERSEN**

Anne Petersen is Founder and President of Global Philanthropy Alliance, a foundation making grants in Africa. She also is Research Professor, Center for Human Growth and Development and core faculty with the Africa Studies Center which focuses on STEM, University of Michigan. She serves on several voluntary boards or committees for government, foundations, and scientific or community-based organizations. For example, she is co-chair of the Advisory Board for CALIT2, an organization in 2000 to create IT advances and from them from the UC university system to industry in California and beyond. She is Board Secretary of CRDF Global. She was the inaugural chair of the Jury for the million SF research prize given by the Jacobs Foundation.

Prior to her move back to Michigan, Petersen was Professor of Psychology at Stanford University, and Deputy Director, Center for Advanced Study in the Behavioral Sciences, where she instituted new practices for fellow selection and fundraising. For a decade Petersen was Senior Vice President for Programs and Corporate Officer at the WK Kellogg Foundation, among the largest in US. She was responsible for all Kellogg programs, in US, Latin America, and Africa. Among her accomplishments there, she established a learning system that would permit the Foundation to capture and track lessons learned from program work.

Petersen was US President nominated and Senate confirmed as National Science Foundation Deputy Director/COO, with responsibilities for all science and engineering research and education programs. She was the first woman to hold either of the top two positions at NSF.

Petersen was the first Vice President for Research at the University of Minnesota, as well as Graduate Dean, and Professor (Institute for Child Development and Department of Pediatrics.) At Penn State University for a decade, Petersen was Department Head and then founding Dean of the College of Health and Human Development. She was Professor of Health and Human Development. Prior to Penn State, Petersen was University of Chicago faculty and Associate Director of the MacArthur Foundation Health Program.

Petersen has authored 13 books and over 300 articles, on adolescent and gender issues (health and development, cognition, evaluation and research methods, and higher education), and recent focuses on global issues. Her honors include election in the 1990's to the National Academy of Medicine (National Academy of Science,

Engineering, and Medicine) and Fellow in several scientific societies including AAAS, APA (three divisions), and founding Fellow of APS. She co-founded the Society of Research on Adolescence, was President of several scientific societies, including the International Society for the Study of Behavioral Development.

Petersen earned all her degrees at the University of Chicago: BA mathematics, MS statistics, PhD measurement, evaluation, and statistical analysis. (*Term expires October 31, 2018*).

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### **CAROLINE WAGNER**

Dr. Caroline S. Wagner, a faculty member at the John Glenn College of Public Affairs, teaches public policy and leadership. She holds the Ambassador Milton A. and Roslyn Z. Wolf Chair in International Affairs, and she served as the Director of the Battelle Center for Science & Technology Policy from 2011-2017, all at The Ohio State University in Columbus, Ohio. Dr. Wagner's scholarship focuses on science, technology and innovation. Dr. Wagner earned a doctorate from the University of Amsterdam in Science and Technology Dynamics; she received a Master of Arts degree in Science, Technology and Public Policy from George Washington University; and she holds a Bachelor of Arts from Trinity College. Prior to joining Ohio State's faculty in 2011, Dr. Wagner was a policy analyst working with and for government in a career that spanned more than thirty years and three continents. At The RAND Corporation (1994-2005), she served as deputy to the director of the Science & Technology Policy Institute—a think tank for the White House Office of Science and Technology Policy. She has also served twice as a staff member for the U.S. Congress, and as an analyst for the U.S. Department of State. She lived and worked in Seoul, South Korea (1988-1990) and Leiden, Netherlands (2001-2005). She is an elected member of the Council on Foreign Relations and a distinguished fellow of the American Association for the Advancement of Science. (*Term Expires April 30, 2020*).

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## **NAI-CHANG YEH**

Nai-Chang Yeh earned a B.Sc. from National Taiwan University (1983) and a Ph.D. from Massachusetts Institute of Technology (1988). She is Professor of the Physics and the Fletcher-Jones Foundation Co-Director, Kavli Nanoscience Institute at California Institute of Technology.

Dr. Yeh's principal research field is experimental condensed matter physics, with special emphasis on correlated electronic systems (e.g., high-temperature superconductors, colossal magnetic perovskites), topological matter (e.g., topological insulators and superconductors), spintronics, low-dimensional systems (e.g., graphene, graphene nanoribbons, carbon nanotubes, nanoparticles and quantum dots), nanoscience and nanotechnology, scanning probe microscopy, energy research (e.g., development of photovoltaic and fuel cells, supercapacitors), and precision measurements using superconducting cavity-stabilized oscillators.

Her professor honors include: Eminent Visiting Professor, Universiti Brunei Darussalam (UBD), Brunei (2014–2015); Visiting Chair Professor, Center for Nano and Micro Mechanics (CNMM), Tsinghua University, Beijing, China (2012–2014); Wu Chien-Shiung Distinguished Lectureship, National Central University, Taiwan (2012); Fellow, American Association for the Advancement of Science (2007); Fellow, American Physical Society (2004); Distinguished Alumni Award, Department of Physics, National Taiwan University (2003); Fellow, The Institute of Physics, UK (2001); Achievement Awards, Southern California Chinese-American Faculty Association (2001); Outstanding Young Researcher Award, International Organization of Chinese Physicists and Astronomers (OCPA) (1998); Packard Fellowship for Science and Engineering (1992–1997); and Sloan Research Fellowship (1990–1992).

Professor Yeh has also served on many national and international committees and professional activities. Some of her recent roles include: Handling Editor, Reviews in Physics, Elsevier, The Netherlands, (2015–present); President, International Organization of Chinese Physicists and Astronomers (OCPA) (2013–2014); International Advisor, Tsien Excellence in Education Program (TEEP), Tsinghua University, Beijing, China, (2014–present); Member, International Advisory Committee, Chinese High Magnetic Field Laboratory (CHMFL), (2009–present); Member, International Advisory Board, Taiwan Comprehensive University System, Taiwan (2013–present); Member at Large, Division of Condensed Matter Physics, American Physical Society, USA (2011–2014); Member, Presidential Science Prize Selection Committee (Physical Sciences), Taiwan (2011, 2013, 2015); Member, Presidential Search Committee, National Taiwan University, (July 2012–March 2013); Honorary

Member, Institute of Theoretical and Applied Physics, Turkey, (2010–present); Member, Scientific Advisory Board, Center of Electronic Correlations and Magnetism, University of Augsburg, Germany (2008–present); Member, External Advisory Committee, National High Magnetic Field Laboratory (NHMFL), USA, (2004–present). (*CEOSE Liaison Term expires August 31, 2019*).

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