Frontiers of Big Data, Modeling, and Simulation in Urban Sustainability - A Workshop

Committee

Katherine Bennett Ensor

Co-Chair

Katherine Bennett Ensor, Co-chair, is professor of statistics in the George R. Brown School of Engineering and director of the Center for Computational Finance and Economic Systems (CoFES) at Rice University. She also serves as the faculty lead for the Professional Science Master’s program in Environmental Analysis and Decision Making. She served as chair of the Department of Statistics from 1999 through 2013. Ensor develops statistical techniques to answer important questions in science, engineering, and business with specific focus on the environment, energy, and finance. She is an expert in multivariate time series, categorical data, spatial-temporal, and general stochastic processes. She is an elected fellow of the American Statistical Association, the American Association for the Advancement of Science and has been recognized for her leadership, scholarship, service, and mentoring. She holds a B.S.E. (1981) and M.S. (1982) in mathematics from Arkansas State University and a Ph.D. in statistics from Texas A&M University (1986).

Aniruddha Dasgupta

Co-Chair

Ani Dasgupta, Co-chair, is the Global Director of WRI Ross Center for Sustainable Cities, WRI's program that galvanizes action to help cities grow more sustainably and improve quality of life in developing countries around the world. Ani guides the Ross Center in developing environmentally, socially, and financially sustainable solutions to improve people's quality of life in developing cities. Ani leads a team of global experts in sustainable transport, urban development and building efficiency, as well as its engagement across air quality, low-carbon energy, governance, water risk, and associated areas. Ani also serves as WRI Director of the Coalition for Urban Transitions, Special Initiative of the New Climate Economy (NCE), a global partnership of eight economic and policy research institutes, of which WRI is the Managing Partner. The Coalition is a major international initiative to support decision-makers to unlock the power of cities for enhanced national economic, social, and environmental performance, including reducing the risk of climate change. The Coalition provides an independent, evidence-based approach for thinking about well-managed urban transitions that ensure the growth of urban areas along with the accompanying processes to maximize benefits for people and the planet. Ani was previously at the World Bank, as Director of Knowledge and Learning, providing leadership and direction in offering knowledge services for development. An urban professional, Ani has dedicated himself to international development. He has done extensive operational work in Asia and Eastern Europe as a technical expert centered on community based development, urban environment, disaster management, solid waste management, water supply and sanitation. Ani holds a Master's Degree in City Planning and a Master's Degree in Architecture, both from Massachusetts Institute of Technology (MIT). His PhD work, at the planning school at MIT, focused on services for urban poor.

John R. Birge

Member

John Birge is the Jerry W. and Carol Lee Levin Distinguished Service Professor of Operations Management at the University of Chicago, Booth School of Business. Previously, he was Dean of the McCormick School of Engineering and Applied Science and Professor of Industrial Engineering and Management Sciences at Northwestern University. He also served as Professor and Chair of Industrial and Operations Engineering at the University of Michigan, where he also established the Financial Engineering Program. He is currently Editor-in-Chief of Operations Research, former Editor-in-Chief of Mathematical Programming, Series B, and former President of INFORMS. His honors and awards include the IIE Medallion Award, the INFORMS Fellows Award, the MSOM Society Distinguished Fellow Award, the Harold W. Kuhn Prize, the George E. Kimball Medal, the William Pierskalla Award, and election to the US National Academy of Engineering. He received M.S. and Ph.D. degrees from Stanford University in Operations Research, and an A.B. in Mathematics from Princeton University.

Lilian Coral

Member

Lillian Coral joined Knight Foundation in September 2017. Coral is Knight's director of national strategy, where she manages the national portfolio and focuses on the development of the foundation’s Smart Cities strategy. She came to Knight from the City of Los Angeles, where she served as chief data officer for Mayor Eric Garcetti. In this role, she led the mayor's directive on Open Data beyond the lens of transparency and towards his vision of a data-driven Los Angeles through the management of the City’s Open Data program, the expansion of the use of data science and analytics, and the development of user-centered digital services. Coral led the development of the GeoHub, a first-of-its kind data management solution for integrating geospatial information across the City of Los Angeles’ 41 departments, and oversaw the publishing of 1,100 city datasets and APIs, the management of five portals of operational and financial data, and the roll-out of 15+ digital services, applications and public facing dashboards. Prior to joining Mayor Garcetti, Coral spent 15 years working on a wide range of health and human services issues as an advocate and executive leader, having had the opportunity to work with labor unions, NGOs, foundations and human service agencies at all levels of government to transform the way government uses data and technology to serve its citizens. Coral has a bachelor’s degree in international studies from the University of California, Irvine and a master’s degree in public policy from the University of California, Los Angeles. She is a native of Colombia, a place from where much of her inspiration for innovation and social justice emerged.

Christine A. Ehlig-Economides

Member

Christine Ehlig-Economides is currently professor and Hugh Roy and Lillie Cranz Cullen Distinguished University Chair at the University of Houston. She held a previous position as professor of petroleum engineering at Texas A&M University in the Albert B. Stevens endowed chair. She founded the Center for Energy, Environment, and Transportation Innovation (CEETI), one of four research centers in the Crisman Institute. She was attracted to Texas A&M to develop research and education in energy engineering to enable the petroleum engineering department to grow and evolve to a broader energy scope. CEETI is currently pursuing research funded by the Texas Department of Transportation and a potential collaboration with the Oak Ridge National Laboratory. She has successfully introduced a freshman level energy course that was approved for the core curriculum as a natural science elective and an Energy Engineering Certificate program. Dr. Ehlig-Economides worked for Schlumberger for 20 years in a truly global capacity. She has published more than 50 papers and has authored two patents, and has lectured or consulted in more than 30 countries. Dr. Ehlig-Economides is internationally recognized for expertise in reservoir engineering, pressure transient analysis, integrated reservoir characterization, complex well design, and production enhancement. Dr. Ehlig-Economides received her Ph.D. in petroleum engineering from Stanford University, her M.S. in chemical engineering from the University of Kansas and her B.A. in math-science from Rice University. She is also the recipient of Anthony F. Lucas Gold Medal (2010). Her professional service includes the following: executive editor of the Society of Petroleum Engineers Formation Evaluation, 1995-1996; SPE Distinguished Lecture 1997-98; and numerous posts as chairman or member of SPE committees and task forces. She recently co-chaired a steering committee for the Middle East Colloquium in Petroleum Engineering Education, was the program chairperson for the 2006 SPE Annual Technical Conference and Exhibition, and is currently co-chairing an SPE Talent and Retention Workshop on Dual Career Couples in the petroleum industry. She was a member of the National Academy of Science Committee on America’s Energy Future.

Jeanne Holm

Member

Jeanne Holm works at the cross-section of innovation, open data, and education. She is the deputy chief information officer of the City of Los Angeles, working on issues ranging from homelessness to predictive analytics. As a senior consultant with the World Bank, she worked with governments throughout the world to build robust open data ecosystems and ensure transparency. She was the evangelist for Data.Gov for the U.S. White House, leading collaboration and building communities with the public, educators, developers, and international and state governments in using open government data. She was the chief knowledge architect at NASA/JPL, driving innovation through social media, virtual worlds, gaming, and collaborative systems, including the award-winning NASA public portal (www.nasa.gov). She is a fellow of the United Nations International Academy of Astronautics and Distinguished Instructor at UCLA, leads several high-tech startups, and has more than 130 publications on information systems, knowledge management, and innovation. Her research and courses focus on data science, knowledge management, and civic innovation. Her honors include the NASA Exceptional Service Medal for leadership (twice), top 50 Women in Tech, NASA Achievement Award for her work on the Galileo and Voyager spacecraft, three Webby's from The International Academy of Digital Arts and Sciences, and she led NASA to an unprecedented three global Most Admired Knowledge Enterprise (MAKE) awards.

Lucas Joppa

Member

Lucas Joppa, Microsoft's first Chief Environmental Scientist, Lucas oversees AI for Earth, a cross-company program dedicated to deploying Microsoft's deep investments in AI research and technology in the four key areas of climate change, agriculture, water, and biodiversity conservation. As one of Microsoft's 10 AI Thought Leaders, Lucas also serves as the company's internal and external focal point on corporate matters pertaining to environmental science and the application of technology to solve sustainability challenges. Lucas serves in an advisory role as a director, advisor, or fellow through the committees and boards of numerous public, private, and non-profit organizations dedicated to science and technology. Lucas maintains an active scientific research career and has published over 100 articles in leading academic journals.

Constantine Kontokosta

Member

Constantine Kontokosta is an assistant professor of urban informatics at the NYU Center for Urban Science and Progress (CUSP) and the NYU Tandon School of Engineering, Department of Civil and Urban Engineering, is the director of the Urban Intelligence Lab, and is the deputy director for academics at CUSP. He holds a faculty appointment as visiting professor of computer science at the University of Warwick, and is affiliated faculty at the Marron Institute for Urban Management. He is also the principal investigator and head of the CUSP Quantified Community research facility, a groundbreaking project under way at three districts in New York City – at the Hudson Yards development in New York City; in Lower Manhattan; and in Red Hook, Brooklyn – that is building sensor-enabled urban neighborhoods to study the impact of the built environment on wellbeing and human behavior. As one of the first faculty to join CUSP, Kontokosta is part of the CUSP founding leadership team, setting the Center's strategic priorities and leading the design and implementation of its academic programs in urban data science. He serves as faculty engineer-in-residence at the NYU Tech Incubators, where he mentors cleantech and smart city start-up companies from early stage idea refinement to technology demonstration and deployment. He is a 2017 recipient of the NSF CAREER award for his research in urban informatics for smart, sustainable cities. Dr. Kontokosta's research lies at the intersection or urban planning, data science, and systems engineering, focusing on using big data and new sensing technologies to better understand the dynamics of physical, environmental, and social systems in the urban environment. His work has been published in leading academic journals in fields including science, economics, urban policy and planning, and engineering, and he has two forthcoming books, one on data-driven city operations and planning and the other on the subject of big data and urban sustainability. He collaborates with numerous city agencies in the United States and internationally on issues of urban sustainability and resilience policy and planning and city operations, including a multi-year effort to lead data analysis on building energy efficiency with the NYC Mayor's Office of Sustainability. Dr. Kontokosta's work has been featured in the Wall Street Journal, New York Times, CNN, NPR, Fast Company, CityLab, Bloomberg News, Financial Times, APS Physics, and ASCE's Civil Engineering Magazine, among other national and international media outlets. Dr. Kontokosta holds a Ph.D., M.Phil, and M.S. in urban planning, specializing in urban economics and econometrics, from Columbia University, an M.S. in real estate finance from New York University, and a B.S.E. in civil engineering systems from the University of Pennsylvania. He is a licensed Professional Engineer, a member of the American Institute of Certified Planners, a USGBC LEED Accredited Professional, and has been elected a fellow of the Royal Institution of Chartered Surveyors (RICS). He is a recipient of the IBM Faculty Award, the Google IoT Research Award, the C. Lowell Harriss Fellowship, the HUD Doctoral Dissertation Award, the Charles Abrams Award, and Teaching Excellence and Outstanding Service Awards at NYU, and has been named a Fulbright Senior Specialist. In addition, he is an accomplished real estate entrepreneur, and has served as vice chair of the Suffolk County Planning Commission and on the boards of the UNEP, SBCI, and RICS.

David Maier

Member

David Maier is Maseeh Professor of Emerging Technologies at Portland State University. Prior to his current position, he was on the faculty at SUNY-Stony Brook and Oregon Graduate Institute. He has spent extended visits with INRIA, University of Wisconsin–Madison, Microsoft Research, and the National University of Singapore. He is the author of books on relational databases, logic programming, and object-oriented databases, as well as papers in database theory, object-oriented technology, scientific databases, and data streams. He is a recognized expert on the challenges of large-scale data in the sciences. He received an NSF Young Investigator Award in 1984, the 1997 SIGMOD Innovations Award for his contributions in objects and databases, and a Microsoft Research Outstanding Collaborator Award in 2016. He is also an ACM Fellow and IEEE Senior Member. He holds a dual B.A. in Mathematics and in Computer Science from the University of Oregon (Honors College, 1974) and a PhD in Electrical Engineering and Computer Science from Princeton University (1978).

José M. Moura

Member

José M.F. Moura is the Philip and Marsha Dowd University Professor at Carnegie Mellon University (CMU), with the Departments of Electrical and Computer Engineering and, by courtesy, BioMedical Engineering. He is a corresponding member of the Portugal Academy of Science, an Institute of Electrical and Electronics Engineers (IEEE) Fellow, and a fellow of the American Association for the Advancement of Science (AAAS). He holds a D.Sc. in electrical engineering and computer science, M.Sc. and E.E. degrees from the Massachusetts Institute of Technology (MIT) and an E.E. degree from Instituto Superior Técnico (IST, Portugal). He was a visiting professor at MIT (2006-2007, 1999-2000, and 1984-1986), a visiting scholar at University of Southern California (Summers of 1979-1981), and was on the faculty of IST (Portugal). In the academic year 2013-2014, he was a visiting professor with New York University and the Center for Urban Science & Progress (CUSP), on sabbatical leave from CMU. Moura's research interests are in statistical signal and image processing. He is working in the new area of Big Data and network science, with particular emphasis on distributed decision and inference in networked systems and graph-based data. Research projects include signal processing on graphs and analytics for Big Data, distributed detection in sensor networks, robust detection and imaging by time reversal, bioimaging, SPIRAL, DSP on Graphs, SMART, and image/video processing. Besides industrial funding, his work has been sponsored by several Defense Advanced Research Projects Agency, National Institutes of Health, Office of Naval Research, Army Research Office, Air Force Office of Scientific Research, and National Science Foundation grants, as well as several industrial grants. Moura received the IEEE Signal Processing Society Award for outstanding technical contributions and leadership in signal processing and the IEEE Signal Processing Society Technical Achievement Award for fundamental contributions to statistical signal processing. He is on the board of directors of the IEEE and served as IEEE Division IX Director (2012-2013). He was the president of the IEEE Signal Processing Society (2008-2009). He was editor-in-chief of the IEEE Transactions on Signal Processing and acting editor-in-chief for the IEEE Signal Processing Letters. He was on the editorial board of several journals, including the ACM Transactions on Sensor Networks and the IEEE Proceedings. He was on the steering committee of the IEEE International Symposium on Bioimaging (ISBI) and is on the steering committee of the ACM/IEEE International Symposium on Information Processing in Sensor Networks (IPSN).