Third U.S.-Africa Frontiers Symposium

Scientific Organizing Committee Bios

Hussam Mahmoud (Co-Chair)
George T. Abell Professor in Infrastructure
Colorado State University
Fort Collins, Colorado, United States

Hussam Mahmoud is the George T. Abell Professor in Infrastructure at Colorado State University. He obtained his BSc and MSc in civil engineering from the University of Minnesota and his PhD from the University of Illinois at Urbana-Champaign. Dr. Mahmoud's research is focused on sustainable and resilient infrastructure and communities with emphasis on developing socio-physical to capture the recovery of systems as influenced by human behavior and socio-economic policies. He has been developing models for risk-informed recovery of infrastructure with focus on hospitals and schools using complex systems analysis. He has authored over 250 publications and has given more than 120 presentations including 100 invited talks at national and international conferences and workshops. He has chaired and served on numerous technical committees, including the ASCE Committees on Fire Protection and on Multi-hazard Mitigation. Dr. Mahmoud is a Fellow of the Structural Engineering Institute and is the recipient of various awards, including the American Institute of Steel Construction early faculty career award, the American Iron and Steel Institute Robert J. Dexter Memorial Lecture award, and the Air Force summer faculty fellowship award. He has recently been selected by The National Academies among the 22 New Voices Cohort from across the U.S. He has been invited to various symposia by the U.S. National Academies, the Royal Academy of Engineering, and the Royal Institute of International Affairs. His research has received media coverage through citations and interviews in numerous venues, including Nature Climate Change, The U.S. National Academy of Engineering, Smithsonian Magazine, and CNN.

Alfred Bizoza (Co-Chair)
Professor of Agricultural Economics
University of Rwanda
Kigali, Rwanda

Prof. Alfred R. BIZOZA is a PhD holder and a Professor of Agricultural Economics from the University of Rwanda (UR). He is an influential academician and policy analyst. He has published several impactful papers and significant contribution to the drafting of various polies, strategies, national reports in Rwanda elsewhere in Africa. Furthermore, Bizoza serves in different research networks, boards, and platforms as a member, chair, or team leader. He is the Team leader of INGSA Africa Hub- Rwanda, the Chair of UR committee on Research and Innovation Agenda, he serves on the board of Africa Food Fellowship Programme, Mentor and Coach of the AGRA's CALA programme, Chair of Board of

the Authentic Word Ministries in Rwanda, and Founder and President of the High Lands Centre of Leadership for Development (HLC-L4D), a Policy Research and Mentorship Centre. Previously, Bizoza served as an Economist Board Member of the National Bank of Rwanda upon appointment by the Government's Cabinet during 2013-2018.

Asmeret Berhe
Professor of Soil Biogeochemistry
University of California, Merced
Merced, California, United States

Dr. Asmeret Asefaw Berhe is a Professor of Soil Biogeochemistry and Falasco Chair in Earth Sciences and Geology at the University of California, Merced. She previously served as the Director of the US Department of Energy's Office of Science. Her research interest lies at the intersection of soil science, geochemistry, global change science, and political ecology. Prof. Berhe's work seeks to improve our understanding of how the soil system regulates the earth's climate and the dynamic two-way relationship between soil and human communities. Numerous awards and honors have recognized her scholarly contributions and efforts to improve equity and inclusion in STEM. She is an Elected member of the US National Academy of Engineering, a Fellow of the American Geophysical Union and the Geological Society of America, and a member of the inaugural class of the US National Academies of Science, Engineering, and Medicine's New Voices in Science, Engineering, and Medicine.

Bethany Ehlmann
Professor of Planetary Science and Director of the Keck Institute for Space Studies
California Institute of Technology
Pasadena, California, United States

Bethany Ehlmann is a Professor of Planetary Science at Caltech and Director of Caltech's Keck Institute for Space Studies. Her research focuses on remote sensing techniques and instruments, the mineralogy and chemistry of planetary surfaces, astrobiology, and science policy and outreach. Her primary focus is understanding water in the solar system and the evolution of Mars and other habitable worlds by data from spacecraft missions.

Prof. Ehlmann is Principal Investigator of Lunar Trailblazer, a NASA smallsat mission with a goal to map the form, distribution, and abundance of water on the Moon and understand the lunar water cycle. She is a Participating Scientist on the Mars Science Laboratory Curiosity rover, Co-I on the Mastcam-Z and SHERLOC teams for the Mars 2020 Perseverance rover, and Co-I on the EMIT space station-based imaging spectrometer to explore Earth's dust source regions. She was also a Deputy PI of the CRISM imaging spectrometer on the Mars Reconnaissance Orbiter, a member of the science team for the Mars Exploration Rovers (Spirit and Opportunity), and an Affiliate of the Dawn orbiter team during its exploration of the largest asteroid and dwarf planet

Ceres. Prof. Ehlmann is working to propose instrument and mission concepts for Europa, Enceladus, Venus, the Moon, and asteroids.

In addition to her scientific research Prof. Ehlmann is active in policy and outreach. She served as a member of the Planetary Science and Astrobiology Decadal Survey 2023-2032 (Steering Committee member and Mars Panel vice-chair) from 2020-2022 and the National Academies Committee on Astrobiology and Planetary Science from 2016-2022. She is President of the Planetary Society, the world's largest non-profit focused on fostering space exploration, the search for life, and the protection of Earth from asteroid impacts. In 2018, she authored a children's book on solar system exploration with Jennifer Swanson and National Geographic Kids, Dr. E's Super Stellar Solar System.

Ehlmann is an American Geophysical Union fellow, 2013 National Geographic Emerging Explorer, a former Mineralogical Society of America Fellow and Distinguished Lecturer, and a recipient of the AGU's Macelwane medal, the American Astronomical Society Planetary Science Division Urey prize, and COSPAR and the Russian Academy of Science's Zeldovich medal, as well as NASA Group Achievement Awards.

Prior to her appointment at Caltech, Prof. Ehlmann was a European Union Marie Curie Fellow at the Institut d'Astrophysique Spatiale, Orsay, France. Originally from Tallahassee, FL, she earned her undergraduate degree at Washington University in St. Louis, earned M.Sc. degrees from the University of Oxford in Environmental Change and Management and in Geography as a Rhodes Scholar, and earned her M.S. and Ph.D. in Geological Sciences as a National Science Foundation graduate fellow at Brown University.

David Issadore
Professor of Bioengineering
University of Pennsylvania
Philadelphia, Pennsylvania, United States

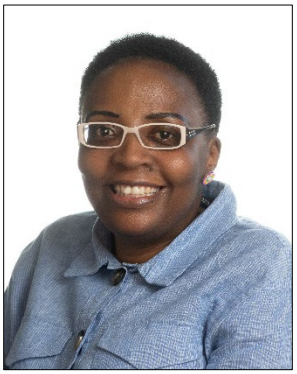
David Issadore is a professor of bioengineering at University of Pennsylvania. The Issadore lab combines microelectronics, microfluidics, nanomaterials, and machine learning to solve big problems in healthcare. His lab creates miniaturized platforms for the diagnosis of disease, develops new platforms to manufacture micro and nanomaterials, and also explores an assortment of other areas where they can leverage their engineering training to improve healthcare. This work requires an interdisciplinary approach in which engineers, scientists, and physicians work together in teams. David's academic background in electrical engineering (B.S) and applied physics (B.S., PhD) and his research fellowship in a hospital research laboratory prior to coming to Penn have helped prepare him to work and collaborate effectively on these inherently cross-disciplinary problems.

Branko Kerkez

Arthur F. Thurnau Associate Professor of Civil and Environmental Engineering
University of Michigan
Ann Arbor, Michigan, United States

Branko Kerkez is the Arthur F. Thurnau Associate Professor of Civil and Environmental Engineering at the University of Michigan, where he directs the Digital Water Lab. He is also the chief technical officer at Hyfi, steering research and development of sensing and AI technologies for urban water management. His research interests include water, data, and sensors. His group is working to enable smart water systems, which autonomously adapt themselves to changing conditions using real-time data and controls. His research projects have spanned wireless sensing of large mountain basins, real-time flood forecasting, robotics, and control algorithms for water systems. He is the founder of Open-Storm.org, an open-source consortium dedicated to freely sharing hardware, software, and case studies on smart water systems. He was recognized as a Gilbreth Lecturer by the US National Academy of Engineering in 2018 for his contributions to smart water systems. Other honors include the National Science Foundation's CAREER Award, Verizon Climate Resilience Prize, the Grand Prize for the WEF/WRF Intelligent Water Challenge, UM's1938E Award, as well as numerous teaching and research paper awards. Dr. Kerkez holds a Ph.D. and M.S. in Civil and Environmental Engineering, as well as an M.S. in Electrical Engineering and Computer Science from UC Berkeley.

Henrietta Langmi



Associate Professor
South African Research Chair Initiative Chair in Advanced Materials and Sustainable Energy
University of Pretoria
Pretoria, South Africa

Prof Henrietta Langmi is currently an Associate Professor and the South African Research Chair Initiative (SARChI) Chair in Advanced Materials and Sustainable Energy at the University of Pretoria, South Africa. She holds a BSc (Hons) from University of Buea, Cameroon, an MSc with Distinction from Imperial College London (United Kingdom) and a PhD from the University of Birmingham (United Kingdom). After a stint as a Postdoctoral Fellow, she became a Research Scientist at the University of New Brunswick, Canada. She later worked as a Principal Scientist and Key Program Manager for Hydrogen South Africa (HySA) Infrastructure Competence Centre at the Council for Scientific and Industrial Research (CSIR), South Africa. She serves on International Advisory Boards and Steering Committees. She is an Associate Editor for Frontiers in Energy Research: Hydrogen Storage and Production. Prof Langmi is a National Research Foundation (NRF) rated researcher. She is a recipient of the South African Women in Science Award, and the International Journal of Hydrogen Energy David Sanborn Scott Award for co-authoring the most cited paper of 2017 in the Hydrogen Storage & Distribution Category. She has also attracted highly competitive international research grants such as the EU Horizon Europe

grant and the Royal Society-FCDO grant. Her research interests lie in the development of advanced materials with potentially useful properties, especially for sustainable energy applications. Her primary research interests include hydrogen storage, porous materials, and CO2 capture and utilization.

Dimane Mpoeleng
Botswana Satellite Project Lead
Botswana International University of Science and Technology
Palapye, Botswana

Dimane MPOELENG holds a Ph.D. in Computing Science and is a member of IEEE and ACM (4974304). He completed his Ph.D. and MSc. in Computer Science at Newcastle University, UK, and earned a BSc. in Computer Science from the University of Botswana. Dr. Mpoeleng has held various positions at Botswana International University of Science and Technology (BIUST) since 2015, including ag. Director of Technology Transfer, and occasionally acting as the DVC for Research, Development, and Innovation.

Since November 2021, Dimane Mpoeleng has taken on the significant role of being the BOTSAT Project Lead, a position of great responsibility and ambition. In this capacity, he is at the helm of ensuring that Botswana achieves a remarkable milestone: the successful launch of its inaugural satellite by June 2024. BOTSAT-1 will support critical decision-making in agriculture, environmental monitoring, disaster management, and urban planning, and Education and Inspiration.

He has extensive teaching experience in computer science courses at both undergraduate and postgraduate levels. In addition to teaching, he is actively engaged in research, with a particular focus on diverse topics such as machine learning, distributed systems, and geospatial information systems. He has published numerous papers in reputable journals and conferences, showcasing his impactful research contributions.

Dimane Mpoeleng’s academic and professional journey is marked by a strong dedication to computer science education, impactful research, and leadership roles in academia. He has a rich history of teaching computer science courses at various universities, including the University of Botswana and Newcastle University. As an educator, he has successfully supervised more than thirty (30) Masters and Ph.D. postgraduate research projects, further contributing to the growth and knowledge advancement within the field. Additionally, Dimane Mpoeleng is deeply involved in various research projects, focusing on cutting-edge areas such as satellites, UAVs, drone logistics, machine learning, DNA analysis, and more. His research output, including numerous published papers and participation in research grants, underscores his commitment to advancing technology and contributing to academic and societal progress. Furthermore, his active engagement in professional memberships, service to universities, and community involvement demonstrates his multifaceted approach to promoting education, research, and technological development.

Kh Md Nahiduzzaman
Associate Professor of Urban Planning
Mohammed VI Polytechnic University
Ben Guerir, Morocco

Professor Kh Md Nahiduzzaman is a Nordic-trained Canadian urban planner with a Ph.D. in Urban Planning from the Royal Institute of Technology (KTH), Sweden, and an M.Phil. in Geography from the Norwegian University of Science and Technology (NTNU), Norway. Before joining the School of Architecture, Planning and Design (SAP+D) at Mohammed VI Polytechnic University (UM6P) in Morocco, he was a faculty member at the Faculty of Applied Science in the University of British Columbia (UBC) Okanagan, Canada. He has also taught at the Department of City and Regional Planning in King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia, and the Department of Urban Planning and the Environment in the Royal Institute of Technology, Sweden.

Currently, Prof. Nahiduzzaman is responsible for co-coordinating the PhD program and the TOP (Territorial Observatory Performance) Lab at SAP+D, UM6P. His research focuses on urban resilience, urban transformational planning, human-centered smart cities, digital twins, and indigenous knowledge in climate risk and vulnerability assessment and policies. A recognized expert in these fields, he collaborates on research projects with governments, industrial partners, and communities worldwide, including Canada, Italy, Spain, Romania, France, Germany, Czech Republic, USA, Morocco, Saudi Arabia, China, Kazakhstan, and Bangladesh.

Prof. Nahiduzzaman has secured over $5 million in research grants from prestigious national and international funding agencies. He has (co-)authored more than 100 scientific manuscripts in highly regarded journals, books, and proceedings. His recent book, “Making Sense of Planning and Development for Post-Pandemic Cities,” by Springer, provides a timely roadmap for transformational planning in the post-pandemic cities. His contributions to non-structural flood mitigation, floodplain mapping, and land use planning strategies in BC have had significant impact on provincial policies.

He serves as Executive and Book Review Editor of the Journal of Urban Management (Elsevier), Editor-in-Chief of the City Development: Issues and Best Practices (ICCCASU) journal, and Editorial Board Member of the Journal of Urban Planning and Development (ASCE). He actively participates in various national and international scientific committees and think tanks, e.g., ICCCASU (International Conference on Canadian, Chinese and African Sustainable Urbanization), ICCSA (International Conference on Computational Science and Its Applications), the African Smart City Forum, the Casablanca Smart City Conference, and International Conference of the Arab Society for Computation in Architecture, Art and Design (ASCAAD), etc.

Prof. Nahiduzzaman is currently a visiting scholar at the Department of Regional Development, Public Sector Administration and Law at Tomas Bata University in Zlín, Czech Republic.

Catherine Nakalembe
Assistant Professor
University of Maryland
College Park, Maryland, United States

Dr. Catherine Nakalembe is an Assistant Professor at the University of Maryland's Department of Geographical Sciences. Her research focuses on using remote sensing and machine learning to improve smallholder agriculture, food security, early warning, and disaster assessment. She also serves as the Africa Director of NASA Harvest and the Agriculture and Food Security Thematic Lead for NASA SERVIR Applied Sciences. Dr. Nakalembe has received numerous awards and honors for her work, including the prestigious Al Sumait Prize, the 2022 Golden Jubilee Medal (the highest civilian award in Uganda), the 2020 Africa Food Prize (the preeminent award recognizing an outstanding individual or institution that is leading the effort to change the reality of farming in Africa), and a 2019 GEO Individual Excellence Award for her dedication to improving food security in Africa through the enhanced use of Earth observations.

Marian Quain
Chief Research Scientist and Associate Professor
CSIR College of Science and Technology
Accra, Ghana

Prof. (Mrs.) Marian D. Quain is the Deputy Director-General of the Council for Scientific and Industrial Research (CSIR), Ghana. She is a Chief Research Scientist with the CSIR, and an associate Professor with the CSIR College of Science and Technology (CCST). Her office is responsible for setting the research priorities of the Council in line with Government policy, resource mobilization, quality assurance, monitoring, and evaluation of the research outputs in the thirteen (13) institutions of CSIR. She holds a PhD (Botany-Plant Physiology) from University of Ghana, Legon, and a certificate in Administration and Management from the GIMPA. Her research interest is biased towards Biotechnology.

She has gained training as a Biotechnologist at world-renowned organizations in Germany, Austria, China, South Africa, the United States of America, the United Kingdom, Libya, and Nigeria. Prof. Quain has also participated in a number of conferences, workshops, and training programs.

She is a celebrated and award-winning Research Scientist. In 2018, she received the American Society of Plant Biologist (ASPB) Excellence in Education Award. In 2013 she received the National best Research Scientist award in Ghana and in 2022, the African Agricultural Technology Foundation (AATF) celebrated her for contribution to Biotechnology in the subregion.

Mbulisi Sibanda
Lecturer and Researcher
University of the Western Cape
Cape Town, South Africa

Mbulisi Sibanda is a Lecturer and researcher in the Department of Geography, Environmental Studies, and Tourism at the University of the Western Cape, Cape Town, South Africa. His research agenda focuses on Environmental Science, with a specialization in GIScience and Earth Observation applications. Sibanda is passionate about interdisciplinary and transdisciplinary collaboration. His expertise lies in GIScience and Earth Observation within agroecological landscapes, particularly in plant water use, productivity analysis, and land-use change. His research endeavors leverage remotely sensed data and machine learning techniques to contribute to scholarly debates on sustainability, spatial distribution, and changes in agro-ecosystems and wildlife habitats, especially in the context of climate change, food security, and agricultural production. Currently, Sibanda is focused on harnessing technologies such as drones to address critical environmental issues. This includes enhancing the resilience of smallholder farming systems to climate variability. His work integrates Earth Observation science, data, and technologies for monitoring agricultural crops.