

UCGIS 2026 Symposium

AI Everywhere!

CyberTraining with National AI Computing Research Resources (NAIRR) Workshop

June 15, 2026 • Edward St. John Learning and Teaching Center Room 1215 • University of Maryland, College Park, MD

This workshop is part of the 2026 Symposium of the University Consortium for Geographic Information Science (UCGIS), hosted on the campus of the University of Maryland in College Park. Under the theme AI Everywhere!, the symposium examines the opportunities and challenges that the rapidly developing field of geospatial artificial intelligence (GeoAI) presents for research and education across the geospatial domain. This workshop is supported by National Science Foundation (NSF)-funded programs under award Nos. 2526748, 2519476, and 2519477.

Workshop Schedule

8:30 – 9:30 am	Breakfast and Welcome Dr. Zhe Zhang — Associate Professor, Department of Geography, Texas A&M University
9:30 – 10:30 am	Introduction to the I-GUIDE Platform Dr. Shaowen Wang — Professor, Department of Geography & Geographic Information Science and Siebel School of Computing and Data Science; Associate Dean for Natural and Mathematical Sciences, College of Liberal Arts & Sciences, University of Illinois Urbana-Champaign
10:30 – 10:40 am	Break
10:40 am – 12:00 pm	Lightning Talks (Session I) — 15 minutes each, including Q&A Dr. Samantha Arundel — Research Director, Center of Excellence for Geospatial Information Science (CEGIS), USGS Dr. Shih-Lung Shaw — Professor, Department of Geography and Sustainability, The University of Tennessee Dr. Steven Manson — Professor, Department of Geography, Environment, and Society, University of Minnesota Ms. Shoibolina Kaushik — Research Scientist, Emory University
12:00 – 12:45 pm	Lunch (provided by the project)
12:45 – 2:30 pm	NSF ACCESS for Enhancing Coastal Resilience and Sustainability Dr. Zhe Zhang — Associate Professor, Department of Geography, Texas A&M University Dr. Honggao Liu — Executive Director of High-Performance Research Computing (HPRC) at Texas A&M University Dr. Zhenhua He — Interim Director for Emerging Technologies and Research at Texas A&M High Performance Research Computing Mr. Yuan Niu — Graduate Research Assistant, Department of Geography, Texas A&M University
2:30 – 2:40 pm	Break

2:40 – 4:00 pm	Lightning Talks (Session II) — 15 minutes each, including Q&A Dr. Diya Li — R&D Software Engineer, Esri Dr. Kumar Navulur — CEO and President, Synspective USA Inc. Dr. Kai Zhang — Professor, Population and Community Health, University of North Texas Health Science Center at Fort Worth Dr. Zhuping Sheng — Professor, Civil Engineering, Morgan State University Dr. Chang Liu — Postdoctoral Researcher, Senseable City Lab, Massachusetts Institute of Technology
4:00 pm	Close of the Workshop

Presenter Biographies

Dr. Zhe Zhang

Associate Professor, Department of Geography, Texas A&M University

Dr. Zhe Zhang is an Associate Professor in the Department of Geography at Texas A&M University (TAMU), with joint appointments in the Department of Electrical and Computer Engineering and the Texas A&M Hazard Reduction and Recovery Center. She is also a member of the Gulf of America Coastal Ocean Observing System. Dr. Zhang has served as Chair of the Cyberinfrastructure Specialty Group of the American Association of Geographers and was elected to the Board of Directors of the Cartography and Geographic Information Society. She also serves as Chair of the Research Committee of the University Consortium for Geographic Information Science. Her research focuses on developing spatial decision support systems by integrating advanced cyberinfrastructure, geospatial artificial intelligence (GeoAI), and participatory design to address critical challenges in disaster management and sustainability. Her research has been funded by several federal agencies such as the National Science Foundation (NSF), National Aeronautics and Space Administration (NASA), U.S. Department of Transportation (USDOT), National Oceanic and Atmospheric Administration (NOAA), and the National Geographic Society. Dr. Zhang serves as the Co-Principal Investigator of the Texas A&M FASTER High-Performance Supercomputer and as a Co-Investigator of the Texas A&M ACES Supercomputer, both supported by the NSF. In addition, she serves as Principal Investigator on eight externally funded grants, totaling over \$3 million. She has published peer reviewed articles in several leading GIS-related journals, including the International Journal of Geographical Information Science, Annals of the American Association of Geographers, Transactions in GIS, Cartography and Geographic Information Science, and the International Journal of Digital Earth. She currently serves as an Associate Editor for the journal Computational Urban Science. Dr. Zhang has been honored to receive both the Pathways Award from Texas A&M Faculty Affairs and the National Science Foundation CAREER Award in recognition of her impactful research.

Dr. Honggao Liu

Executive Director, High Performance Research Computing (HPRC), Texas A&M University

Dr. Honggao Liu is the Executive Director of High-Performance Research Computing (HPRC) at Texas A&M University, with more than 28 years of experience in research computing, computational and data sciences, and cyberinfrastructure development. He has served as PI or co-PI on over \$35 million in National Science Foundation funding, and is the PI of the NSF FASTER and ACES awards that delivered the composable FASTER and ACES supercomputers—resources made available to the national research community through the NSF ACCESS program, with ACES also serving as a National AI Research Resource (NAIRR) pilot compute resource. He earned his Ph.D. in Chemical Engineering from Louisiana State University and previously served as director of HPC at LSU before joining Texas A&M.

Dr. Shaowen Wang

Professor, Geography & Geographic Information Science / Siebel School of Computing and Data Science; Associate Dean, University of Illinois Urbana-Champaign

Dr. Shaowen Wang is a Professor in the Department of Geography and Geographic Information Science and the Siebel School of Computing and Data Science at the University of Illinois Urbana-Champaign. He also holds affiliate faculty appointments in the Department of Urban and Regional Planning and the School of Information Sciences. He currently serves as Associate Dean for Natural and Mathematical Sciences in the College of Liberal Arts and Sciences and as a Senior Faculty Fellow in the Office of the Vice Chancellor for Research and Innovation. He is the founding director of the CyberGIS Center for Advanced Digital and Spatial Studies and leads the national Institute for Geospatial Understanding through an Integrative Discovery Environment (I-GUIDE) funded by the National Science Foundation. He previously served as Head of the Department of Geography and Geographic Information Science (2017-2023) and as Associate Director of the National Center for Supercomputing Applications for CyberGIS (2010-2017). He was a Visiting Scholar at Lund University (2006) and Harvard University (2023). His research focuses on advancing CyberGIS, geospatial data science, and spatial artificial intelligence (AI) to develop scalable solutions for complex geospatial problems and sustainability challenges. He served as President of the University Consortium for Geographic Information Science (UCGIS) from 2016 to 2017 and as a member of the National Academies' Board on Earth Sciences and Resources from 2015 to 2020. He is a Fellow of the American Association for the Advancement of Science (AAAS), the American Association of Geographers (AAG), and UCGIS.

Dr. Zhenhua He

Interim Director for Emerging Technologies and Research, Research Scientist, High Performance Research Computing (HPRC), Texas A&M University

Dr. Zhenhua He is the Interim Director for Emerging Technologies and Research and a Research Scientist with Texas A&M High Performance Research Computing (HPRC), where he supports the training and research mission of the center and the NSF-funded ACES composable accelerator testbed. He earned his Ph.D. from Texas A&M University, and his expertise centers on machine learning and AI, deep-learning frameworks such as PyTorch and TensorFlow, and deploying AI/ML workloads on GPUs and emerging accelerators. He develops and teaches widely attended short courses on AI for high-performance computing that help researchers nationwide harness national cyberinfrastructure through the ACCESS and NAIRR programs. Recently named an NVIDIA Deep Learning Institute Certified Instructor and University Ambassador, he helps bridge domain researchers including those in GeoAI and coastal-resilience science with the AI technologies and computing resources needed to scale their analyses.

Dr. Samantha Arundel

Research Director, Center of Excellence for Geospatial Information Science (CEGIS), U.S. Geological Survey

Dr. Samantha Arundel is the Director of the Center of Excellence for Geospatial Information Science (CEGIS) at the U.S. Geological Survey and serves as Senior Science Advisor to the Director of the USGS National Geospatial Program. Dr. Arundel received her Ph.D. in geography from Arizona State University in 2000 and was an assistant and then associate professor at Northern Arizona University where her research focused on spatial modeling and automation of plant/climate relationships. In 2009, when she joined the USGS, she first served as raster specialist in the Ortho & Elevation section and as elevation and hydrography specialist for the Applied Research and Technology Branch. During this time, she led the contour generation development team in developing algorithms for automating contour production from 10-meter elevation data for the USTopo product; and served as the program manager for the automation of the National Elevation Dataset production, in its transition from Earth Resource Observation System (EROS) to the National Geospatial Technical Operations Center (NGTOC). In 2015, Dr. Arundel moved to the Center of Excellence for Geospatial Information Science, the research section

of the NGTOC, where she is a Research Geographer conducting research on automated terrain mapping and modeling using various techniques like traditional raster modeling, geographic object-based image analysis and machine learning.

Dr. Shih-Lung Shaw

Chancellor's Professor and Alvin and Sally Beaman Professor, Department of Geography and Sustainability, The University of Tennessee

Dr. Shih-Lung Shaw is Chancellor's Professor and Alvin and Sally Beaman Professor in the Department of Geography and Sustainability at the University of Tennessee, Knoxville. His research interests cover transportation geography, geographic information science, space-time analytics, and human dynamics, especially on topics related to transportation planning and modeling, air transportation, time geography, human dynamics in hybrid physical-virtual world, space-time GIS, and GIS for transportation. Shaw is an elected Fellow of the American Association for the Advancement of Science (AAAS) and an elected Fellow of the American Association of Geographers (AAG). He also is a recipient of the Edward L. Ullman Award for outstanding contributions to the field of transportation geography and the Outstanding Scholar Award in Regional Development and Planning from the American Association of Geographers (AAG). Dr. Shaw served as President of the University Consortium for Geographic Information Science (UCGIS) as well as Department Head and Interim Associate Provost for International Education at the University of Tennessee, Knoxville. He is the lead editor of Springer's Human Dynamics in Smart Cities book series and an editorial board member of several academic journals, including Annals of the American Association of Geographers, International Journal of Geographic Information Science, Journal of Transport Geography, and Travel Behaviour and Society.

Dr. Steven Manson

Professor, Department of Geography, Environment, and Society, University of Minnesota

Dr. Steven Manson is a professor in the Department of Geography, Environment, and Society at the University of Minnesota in the Twin Cities. Dr. Manson combines environmental research, social science, and geographic information science to understand complex human-environment systems. He is a Fellow of the Institute on the Environment and Scholar of the College in the College of Liberal Arts. He was the Associate Dean for Research and Graduate Programs in the College of Liberal Arts. He is a past NASA New Investigator in Earth-Sun System Science and NASA Earth System Science Fellow, and among other awards, received the Sustainability Science Award from the Ecological Society of America and University of Minnesota McKnight Land Grant Professorship. Dr. Manson and colleagues have garnered over \$40 million in funding from the National Science Foundation, National Institutes of Health, and Department of Justice to advance big human-environment data. He is the Principal Investigator (PI) for the National Historical Geographic Information System (NHGIS) and International Historical Geographic Information System (IHGIS). He is also on the teams for the Integrated Public Use Microdata Series (IPUMS), IPUMS Terra, and the Institute for Geospatial Understanding through an Integrative Discovery Environment.

Ms. Shoibolina Kaushik

Information Analyst, Emory University

Shoibolina Kaushik is an Information Analyst in the Department of Environmental Sciences at Emory University, where she works within an interdisciplinary team on a Gates Foundation-funded project in Ethiopia, where she has contributed to developing automated GeoAI pipelines for malaria vector-control using remote sensing imagery. She holds master's degree in computer science from Emory University, during which she helped develop a novel GeoAI pipeline to reduce manual feature extraction effort from 300 hours to 9, enabling scalable road network extraction from more than centuries' worth of Atlanta's historical raster maps while preserving road-network topology for GIS workflows. Previously, she has also worked on building accessible low-cost clinical health analysis tools for the vulnerable population. Her background bridges machine learning, computer vision, and data engineering across geospatial and health applications, and her interests center on applying AI and computational methods to spatial and

historical data.

Mr. Yuan Niu

Graduate Research Assistant, Department of Geography, Texas A&M University

Mr. Yuan Niu is a Ph.D. student and Graduate Research Assistant in the Department of Geography at Texas A&M University in the Cyberinfrastructure and Spatial Decision Intelligence research group. He holds a master's degree in urban planning from Peking University. His research interests include Cyberinfrastructure-powered GeoAI, spatial causal reasoning, and spatial representation learning.

Dr. Diya Li

R&D Software Engineer, Esri

Dr. Diya Li is a Research and Development Software Engineer on the ArcGIS 123 team at Esri, specializing in agentic AI for ArcGIS software. He earned his Ph.D. from the Cyberinfrastructure and Spatial Decision Intelligence research lab in the Department of Geography at Texas A&M University. His research interests include spatiotemporal modeling, social sensing, and generative AI, with applications in flood mapping and data sharing. Dr. Li has received several honors, including the ISPRS Jack Dangermond Best Paper Award, and first place in the Texas A&M Data Science competition.

Dr. Kumar Navulur

CEO and President, Synspective USA Inc.

Dr. Kumar Navulur is the Chief Executive Officer and President of Synspective USA Inc., which develops and operates Synthetic Aperture Radar (SAR) satellites and provides SAR data and analytics solutions.

He has over 30 years of experience in the Geospatial industry. He received his PhD from Purdue University in GIS and Remote Sensing. He was recognized as 2019 Distinguished Purdue Alumni. Dr. Navulur sits on the board of directors of Open Geospatial Consortium (OGC). He is the author of the book entitled "Multi-Spectral image analysis using object-oriented paradigm", He holds several patents in the field of remote sensing.

Dr. Kai Zhang

Professor, Department of Population and Community Health, University of North Texas Health Science Center at Fort Worth

Dr. Kai Zhang is a Professor in the Department of Population and Community Health at The University of North Texas Health Science Center at Fort Worth. Dr. Zhang received a PhD degree in Environmental Health and a MA degree in Statistics at the University of Michigan, and a MS degree and a BS degree in Environmental Engineering from Tsinghua and Southeast University in China, respectively. Dr. Zhang's research interest focuses on characterizing climate-related exposures, reducing the human health effects associated with disasters, and exploring the role of social and environmental stressors (air pollution, natural environment, built environment, and green space) in relation to chronic diseases. Dr. Zhang serves as the Secretary of the International Society of Exposure Science (ISES). He is also an Associate Editor for *Science of the Total Environment* and the *Journal of Exposure Science and Environmental Epidemiology*. His research has been featured in prestigious international journals, including *Nature Medicine*, *Nature Climate Change*, *Nature Communication*, *Science Advances*, *Circulation*, *Circulation Research*, *American Journal of Respiratory and Critical Care Medicine*, *Environmental Health Perspectives*, and *Environmental Science & Technology*, among others.

Dr. Zhuping Sheng

Professor, Department of Civil and Environmental Engineering, Morgan State University

Dr. Zhuping Sheng is a professor at Morgan State University, Baltimore, Maryland. He received his Doctoral degree from the University of Nevada, Reno USA, his M. Sci. degree from the University of Chinese Academy of Sciences, Beijing, China, and his B. Eng. degree from Tongji University, Shanghai, China. He is a registered Professional Engineer (P.E.), certified Professional Hydrologist, and Fellow of

American Society of Civil Engineers (ASCE). He had over 40 years of research and practice experience in water resources engineering and geomechanics. His research focuses on understanding hydrological processes within rivers, aquifers, and watersheds, as well as assessing and mitigating geological hazards such as land subsidence, earth fissures, landslides, and floods. He has served many roles in professional societies, such as ASCE, American Water Resources Association (AWRA) and American Institute of Hydrology (AIH), chairing committees, organizing symposia, specialty conferences and technical sessions, and developing standard guidelines. Before joining MSU, he has worked as faculty for 20 years and Center Director at Texas A&M AgriLife Research Center, Hydrogeologist at El Paso Water Utilities, Research Associate at Nevada Bureau of Mines, and Geoscientist for the Chinese Academy of Sciences.

Dr. Chang Liu

Postdoctoral Researcher, Senseable City Lab, Massachusetts Institute of Technology

Dr. Chang Liu is a Postdoctoral Researcher at the Senseable City Lab within the Massachusetts Institute of Technology (MIT). She completed her Ph.D. at the University of New South Wales (UNSW), Sydney, Australia. Her research centers on deep learning, computer vision, and spatiotemporal data applied to urban environments, including post-disaster building-damage assessment and the use of multi-source remote sensing and street-view imagery to support evidence-based planning and urban resilience.