



TEXAS A&M  
Institute of  
Data Science

# Texas A&M Institute of Data Science Seminar Series

## Geography, Mapping, and the Nation's Energy Mission: An Oak Ridge Experience



Oak Ridge National Laboratory (ORNL) has been a pioneer in embracing geography as a key disciplinary competency and, since the late 1960s, has focused on developing novel approaches to geographic data analysis and utilizing emerging computing platforms. With increasing spatial and temporal resolutions of geographic data including satellite imagery, there is a compelling opportunity to converge AI/machine learning, high-performance computing, and space-based and terrestrial data sources to answer new, local to planet-scale questions about the world we live in. However, the challenge in processing large volumes of high-resolution earth observation and simulation data by traditional GIS has been compounded by the drive towards real-time applications and decision support. As a world leader in high performance computing (HPC), ORNL has coupled HPC with a breadth of geospatial science capabilities to address demanding challenges in geospatial science to both mapping and human dynamics. Drawing from our experience at Oak Ridge National Laboratory providing scientific and programmatic support for federal agencies, this presentation will highlight progress and challenges of some of the emerging data analysis and computational approaches, including high performance computing, illustrated with population and urban dynamics, sustainable energy and mobility, and climate change science.

### **Budhendra 'Budhu' Bhaduri, Ph.D.**

Director, Geospatial Science and Human  
Security Division,  
Oak Ridge National Laboratory

**Date:** Monday, October 2nd, 2023

**Time:** 2:00 – 3:00 pm, US Central Time

**Location:** **Blocker 220**

**Online:** **998 4499 3279 (ID) & 724615 (PWD)**

**Faculty host:** Xinyue Ye, Urban AI Lab

## Biography

Dr. Budhendra "Budhu" Bhaduri is a Corporate Research Fellow and the director of the Geospatial Science and Human Security Division at Oak Ridge National Laboratory (ORNL). In that capacity, he is responsible for a research portfolio focusing on novel implementations of geospatial science and technology across energy, environment, and national security missions across the U.S. Government agencies, including the Department of Energy, the Department of Defense, and the Department of Homeland Security. Dr. Bhaduri is a Fellow of the American Association for the Advancement of Science (AAAS), the American Association of Geographers (AAG), and currently serves on the Geographical and Geospatial Sciences Committee of the National Academy of Sciences. He is a founding member of the U.S. Department of Energy's Geospatial Sciences Steering Committee and is a recipient of the Department's Outstanding Mentor Award for his dedicated service to the department for developing future workforce for the nation. Dr. Bhaduri received his Ph.D. in Earth & Atmospheric Sciences from Purdue University. He has a MS from Kent State University, and a M.Sc. and a B.Sc. in Geology from University of Calcutta, India.

You can also click this link to join the seminar <https://tamu.zoom.us/j/97496884861?pwd=Y2ZXRERyMU1EY1A2d2ZNS1QOTDIxdz09>.



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For more information about TAMIDS seminar series, please contact Ms. Jennifer South at [jsouth@tamu.edu](mailto:jsouth@tamu.edu)