

From Model-Based to Data-Driven Remote Sensing in Environmental and Natural Disaster Management

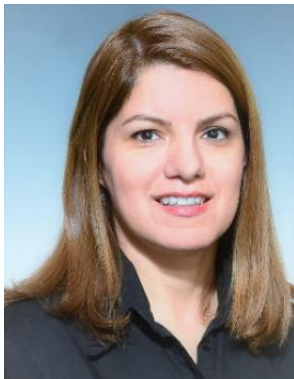
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Abstract

This presentation will discuss the transition from traditional model-based approaches to data-driven methods in remote sensing for environmental and disaster management. We focus on the fusion of geospatial data science and remote sensing to support near real-time decision-making. The growing need for rapid classification and processing of massive datasets during events such as floods and landslides highlights the value of integrating deep learning techniques. These methods enable the creation of accurate and timely maps that are essential for identifying impacted areas, assessing damage to critical infrastructure—including roads, bridges, and transportation networks—and informing vulnerability models for both inland and coastal regions. Our work also emphasizes the application of these tools to enhance transportation planning and resilience in the face of natural hazards.

Brief Bio



Leila Hashemi-Beni is an associate professor of Remote Sensing and GIS at the Department of Built Environment at College of Science and Technology, North Carolina A&T State University. She is the director of NCAT's DEAP institute of Geospatial Data Science and Remote Sensing for Flood Mapping and Impact funded by NASA. She is currently working as a PI/Co-PI on many projects supported by NASA, NSF, NOAA, Microsoft, North Carolina Collaboratory, North Carolina DoT. She is the Co-Chair of LiDAR, Laser Altimetry and Sensor Integration Working Group, International Society of Photogrammetry and Remote Sensing (ISPRS).