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Invited Speaker

Dr. Muhammad Akhtar Munir, MBZUAI



"Towards Structured and Scalable Geospatial Analysis through Dialogue-Centric Agents"

Thursday, October 16, 2025 • 1:00PM • HEC 101A • Zoom

Abstract:
Remote sensing systems now collect large amounts of data from satellites, drones, and aerial platforms. However, turning this data into useful insights still depends on slow, expert-driven processes, often built around separate tools, manual scripts, and task-specific steps. Key challenges remain: combining inputs from different sensors with varying resolutions and spectral bands, analyzing time-series data for change detection or damage assessment, and turning user questions into clear and reliable tool-based steps. To address these issues, we need AI systems that can connect multi-modal visual understanding with structured planning. This requires strong visual models trained on global-scale data, vision-language systems that can handle multi-resolution and time-series imagery, and tool-based agents that can reason about spatial layouts, distances, areas, and other geospatial measurements. Equally important are benchmarks that evaluate how well these agents understand user instructions, select the right tools, and carry out each step with accuracy and traceability. Together, these directions move us closer to interactive, transparent, and scalable analysis in Earth observation.

Bio:
Muhammad Akhtar Munir is a Postdoctoral Researcher in Computer Vision at MBZUAI, Abu Dhabi, focusing on vision-language models, model calibration, and foundation models for geospatial and climate applications. His recently completed research includes work on multi-modal vision-language systems, scalable multi-sensor backbones, and interactive reasoning frameworks for remote sensing tasks. His work has been published at top venues including CVPR, ICCV, NeurIPS, ICML, and TPAMI. He was recognized as an Outstanding Reviewer at CVPR 2025 and is actively assisting in graduate-level teaching and mentorship. His long-term goal is to develop reliable AI systems that support goal-driven analysis and decision-making in environmental and geospatial settings.