



LSGS & RILS RESEARCH SEMINAR

From Observations to Understanding: AI for Multi-scale Agricultural Remote Sensing

📅 **28 OCT 2026 (WED)**

🕒 **10:30 - 11:30**

📍 **Z211, POLYU**

🌐 **ENGLISH**

Prof. Ran MENG

Professor

Faculty of Computing

Harbin Institute of Technology (HIT)



ABSTRACT

Agricultural landscapes are observed through field measurements, UAV imagery, and satellite time series. Each provides a different view of crop conditions, yet connecting these observations across spatial scales, acquisition times, and sensing modalities remains a major challenge. How can AI help turn these diverse observations into a coherent and reliable understanding of agricultural systems?

Drawing on recent research in Beidahuang, Northeast China, this talk will explore how AI can connect multi-source remote sensing observations with field-based measurements to support crop monitoring. It will discuss approaches to extracting complementary information, estimating crop traits, and characterizing spatial and temporal variability. These applications will motivate broader methodological questions: how to align observations across scales, combine spectral and structural information, as well as environment data, and develop models that generalize across fields and growing seasons. In addition, the talk will introduce recent explorations of foundation models and AI agents, examining their potential to improve knowledge transfer, coordinate analytical tools, and integrate new observations into an evolving assessment of crop conditions. The aim is to connect practical agricultural challenges with broader research questions in AI and remote sensing, and to identify opportunities for future collaboration.

BIOGRAPHY

Dr. Ran Meng is a professor at the Faculty of Computing, Harbin Institute of Technology (dual disciplines: Computer Science and Technology & Intelligence Science and Technology), Director of the Virtual Teaching and Research Office for Strategic Emerging Fields under the Ministry of Education's "101" Plan, and concurrently leads the Agricultural Remote Sensing direction at the National Key Laboratory of Smart Farm Technology and Systems. He has been invited to serve as Associate Editor of Remote Sensing of Environment, a top remote sensing journal. His research focuses on multimodal spatiotemporal artificial intelligence, intelligent remote sensing interpretation, and geospatial intelligence, committed to enabling artificial intelligence to learn transferable, interpretable, and trustworthy spatial knowledge from multi-source data including satellites, UAVs, meteorological data, the Internet of Things, and ground observations, and to apply it to monitoring, prediction, and decision-making for agricultural and eco-environmental systems. He has published more than 60 papers in authoritative journals in the field, of which 30 are first-author or corresponding-author papers on top journals (e.g., RSE, ISPRS, TGRS), 3 papers recognized as ESI Highly Cited Papers and journal Best Paper of the Year awards. He has deeply participated in and guided the construction of the agricultural remote sensing technology system of Beidahuang Group, and the technologies he developed have been promoted and demonstrated across 61,000 mu (approximately 4,067 hectares) in state-owned farms.

Moderator:

Prof. Tiangang YIN, Assistant Professor of LSGS, member of RILS

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