Colloquium on Digital Transformation Science

- December 2, 3 pm CT

Quantifying Carbon Credit over U.S. Midwestern Cropland Using AI-Based Data-Model Fusion

Kaiyu Guan, Blue Waters Associate Professor of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign

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In this talk, we will first provide an overview of the background on agriculture carbon credit, and then focus on the quantification of field-level carbon credit, including the issues in the conventional methods, and our proposed “System-of-Systems” solution that leverages various sources of sensing data, process-based modeling, and AI-based Model-Data Fusion methods, to achieve field-level, accurate, scalable, and cost-effective quantification.

Kaiyu Guan is the Blue Waters Professor at the University of Illinois at Urbana-Champaign. He got his PhD at Princeton University and was a postdoctoral scholar at Stanford University. His research group uses satellite data, computational models, field work, and AI to address how climate and human practices affect crop productivity, water resource availability, and ecosystem functioning. He has published over 100 papers in leading scientific journals and leads over 15 federal grants from NASA, NSF, DOE, and USDA. He is the recipient of an NSF CAREER Award, the NASA New Investigator Award, the AGU Early Career Award in Global Environmental Change, and was a Blavatnik National Award for Young Scientists Finalist.

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