BK21 산학연 초청 세미나

From Drones to Satellites: Remote Sensing and AI for Environmental Monitoring

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Abstract

Understanding environmental conditions and their changes requires observations across multiple spatial and temporal scales. Advances in remote sensing and artificial intelligence offer new opportunities to translate these observations into information that supports monitoring and decision-making. This seminar will present an overview of research integrating ground-based measurements, drone imagery, airborne observations, and satellite data for agricultural and environmental applications. Particular attention will be given to the use of RGB, multispectral, thermal, and LiDAR data to characterize vegetation structure, monitor crop growth and stress, and assess spatial variability. Research examples will illustrate how image processing, three-dimensional reconstruction, and machine learning can support high-throughput plant phenotyping and the assessment of agricultural and forest environments.

Biography

Anjin Chang is an assistant professor in the Department of Biosystems and Agricultural Engineering at Michigan State University, where he leads the Geospatial Digital Agriculture Lab (GDAL). He received his Ph.D. from the Department of Civil and Environmental Engineering at Seoul National University in 2011. Prior to joining Michigan State University, Dr. Chang held faculty and research positions at Tennessee State University and Texas A&M University–Corpus Christi. His research focuses on remote sensing, geospatial engineering, and artificial intelligence for agricultural and environmental applications. His research group integrates observations from ground-based sensors, drones, airborne platforms, and satellites to characterize vegetation, monitor environmental conditions, and support data-driven decision-making. His current work includes high-throughput plant phenotyping, crop stress and disease monitoring, and the integration of multi-scale and -dimensional remotely sensed data for agricultural applications.