

## Machine learning, augmented reality, and multi-sensor data fusion for plant phenotyping

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Rapid advances in field robotics, unmanned aerial systems (UAS), sensor and satellite technology, and computing power have facilitated exponential growth in remote sensing data and its applications.

Meanwhile, processing complex, multiscale, and multidimensional data from UAS, environmental sensors



and climate model simulations has become increasingly difficult for both scientists and public to summarize and visualize the large amount of data for agricultural and environmental assessments with direct applications to education, training and decision-making. This presentation will demonstrate recent advances on plant phenotyping and trends in vegetation remote sensing including machine learning, augmented reality, and multi-sensor data fusion. We will also discuss challenging issues in calibration of aerial images (visible, multispectral, hyperspectral, and thermal) within the context of vegetation remote sensing.