

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

Dr. Vasit Sagan, Associate Professor

Department of Earth & Atmospheric Sciences, Saint Louis University, St. Louis, MO 63108

E-mail: Vasit.Sagan@slu.edu

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 3-hour workshop will provide fundamental information on plant phenotyping and trends and latest developments in vegetation remote sensing including machine learning, augmented reality, and multi-sensor data fusion. The workshop will also discuss optical radiometry, calibration of aerial images (visible, multispectral, hyperspectral, and thermal) within the context of vegetation remote sensing.

Speaker biography

Dr. Vasit Sagan is a tenured Associate Professor with the Department of Earth & Atmospheric Sciences at Saint Louis University (SLU). He earned his Ph.D. in Cartography & GIS from Peking University in 2006. He joined the Image Sciences, Computer Sciences and Remote Sensing Laboratory (LSIIT) UMR 7005 at University of Strasbourg (also known as University of Louis Pasteur), France as a PostDoc Research Associate in 2006, prior to coming to Saint Louis University in 2007. Dr. Sagan's research focuses on environmental impacts of land cover and land use (LCLU) and climate change, with particular attention to water resources and agriculture. He develops algorithms to characterize the changes to Earth's land cover and integrate remote sensing observations with model-based approaches to understand the impacts of climate and land use changes on the water and energy cycles and ecosystems from local to global scales. He has mentored 10 doctoral, 12 master students and post-doctoral researchers and served as a member on a dozen of graduate dissertation committees. He has authored over 50 peer-reviewed journal publications, one book chapter, and presented more than 50 conference papers and workshops.