UCMERCED UNIVERSITY OF CALIFORNIA Graduate MECHANICAL ENGINEERING

Fall 2021 Graduate Seminar

Leveraging Robotics and AI for 4D Assessment of Plant and Soil Health

Dr. Jnaneshwar Das

School of Earth and Space Exploration
Arizona State University

Friday, September 24th, 2021; 2:00-3:00 pm; Location: zoom https://ucmerced.zoom.us/j/86829469944

Abstract

My talk will describe how we are leveraging robotics and artificial intelligence (AI) for precision agriculture and drylands ecosystems monitoring. I will start by summarizing results from our work in persistent monitoring of specialty crops. Then, I will transition to our recent efforts in mapping and monitoring the diversity and dynamics of drylands. Our work in collaboration with ecologists at the Arizona State University and the Desert Botanical Garden, is investigating the shading and cooling efficiency of desert tree species, for urban forestry. Concerning the cycling of organic matter in drylands, I will discuss how we are mapping plant leaf litter, and developing algorithms to better understand their collection and transport dynamics. I will close with our preliminary ideas and results from soil and root mapping.

Biography

Jnaneshwar Das holds the Alberto Enrique Behar Research Professorship at the ASU School of Earth and Space Exploration. He is also a core faculty member at the ASU Center for Global Discovery and Conservation Science. Das is the director of the Distributed Robotic Exploration and Mapping Systems (DREAMS) laboratory that leverages robotics and artificial intelligence for closing the loop on environmental monitoring, with research spanning precision agriculture, marine sciences, geomorphology, and drylands ecology. Das obtained his Ph.D. in computer science from the University of Southern California in 2014, following which, he was a postdoctoral researcher at the University of Pennsylvania in the arena of precision agriculture and cyber-physical systems. Website: https://web.asu.edu/jdas

For additional info contact Prof. Jeanette Cobian-Iñiguez (jcobian3@ucmerced.edu)