IOWA STATE UNIVERSITY
DEPARTMENT OF MECHANICAL ENGINEERING

Robotic data collection in environmental and agricultural applications

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2004 Black

Abstract:
Robots are tremendously effective in controlled, factory-like environments. In contrast, making robots operate in dynamic and complex environments remains a major challenge. Robotic Sensor Networks composed of robots and wireless sensing devices hold the potential to revolutionize environmental and agricultural sciences by enabling data collection across expansive environments, over long, sustained periods of time. In this talk, I will report our progress on building such systems for two applications. The first application is on monitoring invasive fish (common carp) in inland lakes. In the second application, an unmanned aerial vehicle and a ground vehicle act as data mules and collect data for precision agriculture. After presenting results from field experiments, I will focus on the problem of designing robot trajectories to collect data from possibly mobile targets, and present recent results.

Biography:
Volkan Isler is an Associate Professor in the Computer Science Department at the University of Minnesota. He is a resident fellow at the Institute on Environment and 2010-12 McKnight Land-Grant Professor. In 2008, he received the National Science Foundation's Young Investigator Award (CAREER). He is currently chairing IEEE Society of Robotics and Automation's Technical Committee on Networked Robots. He is also serving as an Associate Editor for IEEE Transactions on Robotics. His research interests are primarily in robotics and sensor networks.

This seminar counts towards the ME 600 seminar requirement for Mechanical Engineering graduate students.