Friday, February 14, 2025
11:15 am ITE 336
(Refreshments in ITE 301 at 11 am)

Vision-Based Robotic Manipulation of Compliant Mechanisms: Research and Applications

Prof. Berk Calli

Robotic manipulation is a key functionality for enabling applications in unstructured environments. In this talk, the interplay between vision-based control, system compliance, and machine learning will be discussed for achieving reliable robotic manipulation tasks. The talk will focus on applications in robotic grasping, in-hand manipulation, and soft robot control. Various environmental robotics applications will also be discussed, including recycling robots and shipbreaking robots.

Bio:

Berk is an associate professor in Robotics Engineering Department and Computer Science Department at Worcester Polytechnic Institute (WPI). He leads the Manipulation and Environmental Robotics (MER) lab and focuses on identifying and investigating environmental research problems for robotics. He also works on fundamental research questions regarding robotic manipulation and does research on robotic grasping, control of soft robots, active vision strategies, and within-hand manipulation. His lab develops manipulation algorithms by combining techniques in computer vision, control theory, and machine learning. Prior to WPI, he was a post-doc in Yale University Grab Lab, where he worked on vision-based dexterous manipulation with underactuated robot hands. He completed his PhD at Delft University of Technology in The Netherlands, where he worked on active sensing algorithms aimed at increasing success rates of robotic grasping algorithms. He had his MS and BS degrees in Mechatronics Engineering Program of Sabanci University, Turkey.