

Haptic Microscopy: Human Interaction for Microrobotics

Sinan Haliyo

Institute of Intelligent Systems and Robotics

Sorbonne University

Abstract

Manufacturing at small scales is a challenge requiring in most cases a human operator in the loop. However his perception of the task is impaired seriously because of the lack of feedback quality. This can be improved sensibly by providing additional sensory modalities: notably the haptic sense is a key element of human dexterity. In this talk I'll mention some approaches to implement this sensory coupling between the microscale and the operator. These techniques lend themselves naturally to coupling manual control with automation, similar to many successful applications of robotic technologies, such as surgical robotics or robotic space exploration.

Biography

SINAN HALIYO is currently an Associate Professor at the Institute of Intelligent Systems and Robotics (ISIR), Sorbonne University, Paris, where he leads the 'Multiscale Interactions' Lab. He has been active in the field of microrobotics since 1999 on topics including control and design issues, physical interactions and user interfaces for microscale applications in assembly, characterization and user training. He also takes a particular interest on human-computer interaction issues in remote handling and teleoperation, especially with haptics and multimodal interfaces.