Abstract

When you touch objects in your surroundings, you can discern each item’s physical properties from the rich array of haptic cues you experience, including both the tactile sensations arising in your skin and the kinesthetic cues originating in your muscles and joints. Although physical interaction with the world is at the core of human experience, few computer and machine interfaces provide the operator with high-fidelity touch feedback, limiting their usability. Similarly, autonomous robots rarely take advantage of touch perception and thus struggle to match the manipulation capabilities of humans. This talk will describe several research projects from Professor Kuchenbecker’s laboratory, including data-driven haptic texture rendering, vibrotactile feedback of tool vibrations for robotic surgery, and robotic learning of haptic adjectives.