Robotics Seminar Series

From Haptic Devices to Interactive Machines: Unlocking the Power of our Touch Sense

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Our sense of touch plays a critical role in diverse areas of our daily lives such as high-precision motor tasks, understanding and interpreting textures, and conveying and appreciating social signals. In this talk we explore the untapped potential of our haptic sense and present four devices that use the sense of touch for novel applications ranging from feature perception to education. The first is a magnetic soft device for tactile haptic actuation of the fingertip. The second is a haptic mouse prototype for blind and visually impaired individuals. The third is an interactive haptic interface which ties mathematical ideas through body syntonicity. Lastly, we present a robotic loom which takes advantage of the interdisciplinary nature of weaving to ground abstract mathematical concepts in a concrete and embodied art, view this art through an engineering lens, and integrate hands-on interdisciplinary learning into mathematics curricula.

Melisa Orta Martinez is an assistant professor in the Robotics Institute at Carnegie Mellon University, where she leads the Social Haptics Robotics and Education (SHRED) Laboratory. Her research combines the areas of robotics, haptics, human-computer interaction, and education. Her main areas of focus and interest are developing low-cost, open-source robotic technology for educational applications and understanding the effects of this technology on learning, as well as studying the sense of touch and developing novel mechanisms for human-machine interaction.

FRIDAY
Oct 18
10-11AM

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