An Invitation for all SCS:

SCS Faculty Candidate: **Rebecca Pierce Khurshid**

Wednesday, February 22nd **10:00 AM NSH 3305**

Host: David Wettergreen

RI

Teleoperated Robots: From Tools to Teammates

An artist sculpting a block of marble, a magician pulling a card from thin air, and a surgeon performing a difficult emergency procedure all highlight the brilliant human ability to manipulate the physical world. And yet, even as these high-skill tasks push the limits of human capability, they remind us of the boundary of human dexterity. In this talk, I will present my past, present, and planned research to allow humans of all skill and ability levels, as well as their robotic counterparts, to accomplish previously impossible tasks.

I will begin with an overview of my research aimed to better enable humans to teleoperate robots under direct control. The ideal direct-control teleoperation system would enable the operator to complete a given task at least as easily as if he or she were to complete the task directly with his or her own hands. My research improves the usability of teleoperation systems through a human-centered design approach. Specifically, I leverage prior knowledge of the human motor and sensory systems to increase the transparency of and presence provided by teleoperation systems. I will then describe my ongoing research, which investigates the use of shared control and shared autonomy in teleoperation. Finally, I will end with my future plans to expand my research to other areas of collaborative and assistive robotics.

Bio:

Rebecca Pierce Khurshid is a postdoctoral associate in the Interactive Robotics Group at MIT, where she works to enable human-robot teams to achieve more than either humans or robots can achieve alone. Specifically, she is investigating how humans can best teleoperate robots and how varying levels of robot autonomy affect the team's performance. She arrived at MIT after completing her PhD and master's degrees in Mechanical Engineering and Applied Mechanics at the University of Pennsylvania. Her doctoral research leveraged previous scientific knowledge of the human sensory-motor system to design interfaces that allowed a human to teleoperate a humanoid robot. She received an NSF Graduate Research Fellowship to support her work. Prior to Penn, she earned her bachelor's degree in Mechanical Engineering at Johns Hopkins.