CENTER FOR COGNITIVE SCIENCE

University at Buffalo, State University of New York

Wednesday, April 17, 2002

280 Park Hall
North Campus
2:00 pm –3:30 pm

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"Designing Haptic and Multimodal Interfaces for Teleoperation and Virtual Environments Systems: A Cognitive Scientist's Perspective"

I will approach the design of haptic (tactual) and multimodal interfaces for teleoperation and virtual environments from a cognitive scientist's point of view. The haptic system is a neural system that uses inputs to mechanoreceptors that are embedded in skin, muscles, tendons and joints. Many living organisms use haptics to learn about the concrete world and its properties by means of purposive manual exploration. In this talk, I will present selected results from my research program on human haptics. First, I will discuss a series of psychophysical studies concerning the nature and consequences of exploratory manual movements for human haptic perception under conditions of free exploration and brief, initial contact. Then, I will explore the contribution of spatially distributed fingertip forces to our human sensory and perceptual capacities. As the human operator is an integral component of haptic and multimodal interfaces for teleoperation and virtual-environment systems, it is critical that we match the design characteristics of the hardware and software systems to the capabilities and limitations of the human operator. For each of the research projects above, I will also propose a number of design principles based on the scientific outcomes.

Refreshments will be available
Everyone is welcome to attend!

For information please call the Cognitive Science Office at (716) 645-3794 or check
http://wings.buffalo.edu/cogsci/html/2002spring.htm