

NEUROREHABILITATION Research Laboratory

402 Robinson Hall

Director:

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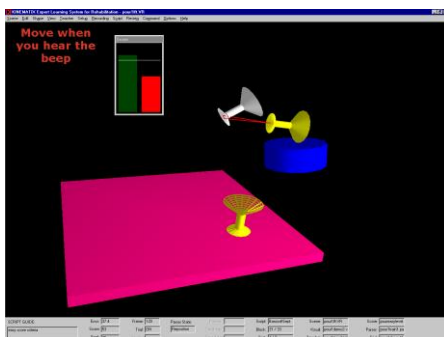
John Corsino, BS, DPT student

Lindsey Dick, BS, DPT student

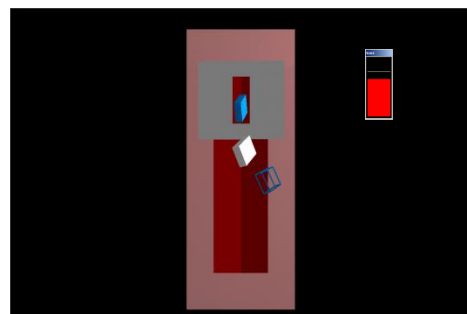
Douglas Murray, DPT student

Our mission is to develop new and more effective methods to rehabilitate patients with motor control deficits. In particular, we are interested in patients who have suffered neurological impairments following stroke or traumatic brain injury. We are involved in the study of sensorimotor contributions to motor control and learning, and in the development and application of newer technologies to assist neurorehabilitation. Projects include the study of motor learning and generalization using virtual environments, studies of hand motor control through the use of an instrumented glove in patients with stroke and healthy subjects, development of two novel rehabilitation devices (Smart Glove and NU Virtual Ankle and Balance Trainer) in collaboration with Prof. Constantinos Mavroidis, NU Engineering, and studies of motor retraining for patients with stroke in a rehabilitation setting in Japan, with Prof. Toshiaki Tanaka, University of Tokyo.

Major equipment in the laboratory includes a large screen back-projection 3-D stereo display system for use with virtual reality/ environments (VR); infrared-based stereo glasses; Polhemus 6 DOF motion tracking system (4 channel); Cyberglove instrumented glove, laboratory developed VR software for motor retraining; laboratory developed prototypes of a low cost instrumented glove with VR interface (SmartGlove) and balance training and ankle rehabilitation device with VR interface (NUVABAT).



Pouring Task



Reaching w/ Grasp Task

Virtual Reality for Motor Retraining after Stroke or Brain Injury



SMARTGLOVE

Development of Novel Devices for NeuroRehabilitation
In Collaboration w/ Prof. Mavroidis, NU Engineering