### Department of Rehabilitation Medicine - Neural Plasticity Research Laboratory

The Neural Plasticity Research Laboratory (NPRL) contains 750 sq. ft. space, configured as a large brain stimulation and neurophysiology testing laboratory with a smaller connecting laboratory for quiet behavioral testing. The lab contains a Magstim BiStim2 transcranial magnetic stimulation (TMS) unit (used for comprehensive neurophysiology assessment and paired-pulse neuromodulation paradigms), 70mm and 50mm figure-of-eight TMS coils (D702 and Alpha Branding Iron, MagStim Ltd), a TMS-compatible 64-channel electroencephalography (EEG) unit (BrainAmp DC, Brain Products Ltd) with active (actiCAP) and passive electrode montages (both TMS and EEG units are linked to a Rogue Research BrainSight Stereotaxic brain navigation system to co-register anatomic data with TMS delivery and EEG data collection), a 16-channel bipolar amplifier for neurophysiologic data acquisition (e.g. electromyography, accelerometry, galvanic skin response, etc.), a data acquisition system (Recorder, Brain Products Ltd) that allows analog and digital inputs including external triggers to be attached to the TMS and EEG units.

            In the behavioral testing space, there is a Microsoft Kinect for Windows system with a 47” screen for immersive virtual reality training, motor and sensory testing equipment, custom-designed computer and tablet-based platforms for assessing motor learning and functional ability, and extensive software library for data analyses. The lab is also equipped with a state-of-the-art 27” iMac with a quad core Intel I7 processor and 32GB of RAM to facilitate data analysis and processing of imaging data and four PCs for experimental data collection and additional data processing. The NPRL has all the necessary equipment to perform the proposed research activities.