### Department of Neurology - Motion Capture Lab

**Motion Capture Lab**: The motion capture room measures 19 x 32 ft with a 9-foot ceiling. The capture area measures 10 x 15 ft. The motion capture system is from Motion Analysis Corporation and includes 14 Osprey cameras with a resolution of 640 x 480. These cameras capture data at a rate of 120 frames per second. Eight are located near the ceiling and the remaining six are at waist height. The software is the latest version of Motion Analysis’ Cortex software version 7.2.6.1828. There are two computer stations within the lab for data collection and analysis.  Overlapping fields of view of the IR-DVCs define the 150 m³ capture space.  The motion capture system is capable of triangulating and recording, in real-time, the instantaneous 3-D coordinates of each IR reflective spatial marker attached to the subject’s skin or clothing prior to motor testing.  We use an array of 60 of these spatial markers applied to a standardized set of bony landmarks (augmented Helen Hayes Full Body Marker Set).  Each marker is an IR-reflective sphere with a diameter of either 12 mm for upper body placements or 19 mm for placements on the lower extremities.  Each marker includes an attachment disk of comparable size.  The markers are attached to the subject with medical-grade, disposable, double-stick adhesive disks. Marker coordinates are computed in real-time from the synchronized video recordings.  Regardless of marker size, the motion capture system records the synchronous location of each marker’s spatial centroid at 120 Hz (frames/s), with calibrated error of < 0.7 mm in all 3 dimensions.  Each marker is identified and tracked in real-time by matching its relative location within the moving cloud of 60 markers to a topological template of the subject’s own marker-clad body recorded immediately prior to motion testing.