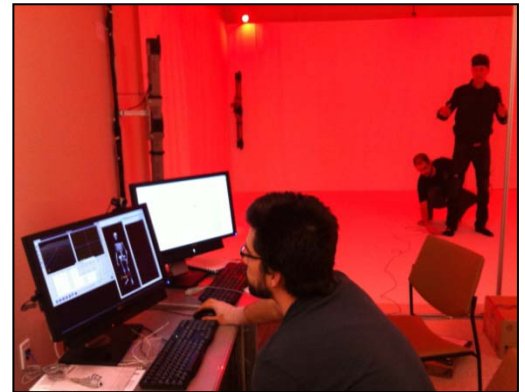
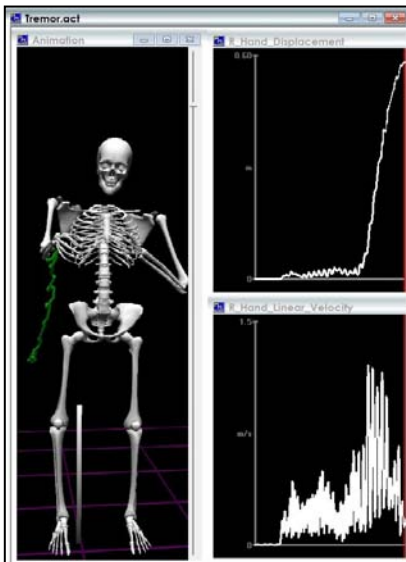


Université de Québec à Montréal

Functional mobility has long been a topic of interest for researchers. If you consider the number of veterans that are returning with amputations, the availability of new treatments to help patients diagnosed with degenerative disorders for managing their symptoms and the fact that the global life expectancy is continuing to lengthen, it should also come as no surprise that research pertaining to mobility has not waned. This is evident by fact that the Canadian Institutes of Health Research (CIHR) has helped fund a Research Team in Mobility and Aging. The goals for this project include the identification of factors that could impede mobility and to understand factors linked to reduced mobility in elders.



Dr. Christian Duval, from the Université de Québec à Montréal, is the team leader of this research group, which includes researchers from throughout Canada. Dr. Duval's personal research has focused on characterizing involuntary movements in elderly and Neurodegenerative populations, such as Dyskinesia and Parkinson's patients. He's been utilizing The MotionMonitor for over 10 years to help characterize voluntary and involuntary kinematics in these populations. Dr Duval started using The MotionMonitor with an electromagnetic tracking system from Ascension Technologies. Dr Duval said, "The electromagnetic system was perfect for our applications at the time because there are no line of sight issues and it was quick to setup. We selected to use The MotionMonitor because it provided us with a good way to manipulate the data where we could easily setup a subject, collect and process our data."



In the image above, the trajectory of a patient's right hand is traced in The MotionMonitor Animation window (left). The displacement and velocity of the right hand are also graphed (right).

With the advancements in technology and new research findings since 2003, it's only logical that the applications for Dr Duval's research would evolve. Currently, Dr Duval is looking to move out of a controlled laboratory setting and into the field where participants can be more comfortable and are more familiar with their surroundings. His lab has also been working on validating new technologies, which, if effective, could greatly reduce time requirements associated with laboratory experiments. This would be a major breakthrough, as it would increase the throughput for his lab, and as equally or even more important, reduce the stresses placed on participants that have volunteered for his studies. "We're currently trying to validate kinematic data collected using a markerless tracking system (Stage, Organic Motion) with an active optical camera system (VisualEyez, Phoenix Technologies Inc.)", said Dr. Duval. "The MotionMonitor was ideal for us in this application because it provided a common software platform to synchronously collect the kinematic data from each of these hardware systems. Since The MotionMonitor is used to collect, synchronize and analyze the data from each hardware system, we've been able to reduce our efforts and costs involved in getting things operational. Additionally, new users don't have to be trained and become proficient in multiple software applications, which helps save time and reduce costs".