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**Category:** Assistive Technology

**Workshop Title:** Enhancing Mobility Skills Through Simulators: Innovations in Driving and Wheelchair Rehabilitation

**Organizer(s):** Naomi Gefen

**Speaker(s):** Weiss, Patrice, Haifa University and ALYN Hospital  
Archambault, Philippe, McGill University  
Chenier, Felix, University of Quebec Montreal  
Gelinass, Isabelle, McGill University

**Workshop Time:** 10:30 - 12:00

**Attendee Engagement:** The workshop has many opportunities for an interactive experience. There will be demos set up to try simulators, round table discussions and brainstorming.

**Abstract:** Simulators (SIMs) are increasingly important to rehabilitation programs, offering a safe and controlled environment for people with disabilities to practice and improve core mobility skills. They are designed to mimic real world conditions, providing users with an opportunity to develop their abilities in various scenarios without associated risks. One key application is in driving and wheelchair rehabilitation, where simulators enable individuals recovering from injury, stroke, or other conditions to relearn and practice appropriate skills. Driving SIMs recreate realistic driving experiences, such as navigating through traffic and, managing road signs, handling weather variations. Additionally, they can incorporate adaptive equipment training, ensuring a seamless transition to real-world driving. In wheelchair rehabilitation, both manual and powered wheelchair or scooter SIMS allow users to practice maneuvering through different terrains, navigate around obstacles and develop spatial awareness. A manual wheelchair SIM can also be used to improve physical capacity, or to measure and improve propulsion biomechanics using biofeedback to adopt a safer propulsion technique. The ability to rehearse wheelchair handling in complex environments, such as crowded public spaces in tight indoor settings, enhances independence and mobility. It is important to use a variety of teaching methods (e.g., direct instructions, learning by doing, discovery learning) that suit varied learning styles. The workshop will begin by exploring the evolution of simulation technologies, tracing their development from basic tools to advanced systems that enhance functional activities for individuals with motor and cognitive impairments. Attendees will learn how these innovations have opened new avenues for improving the rehabilitation of essential skills like wheelchair handling and vehicle driving. Demo stations and round table methods will be used in the workshop.