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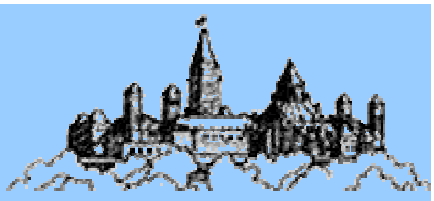

Rehabilitation Intelligent Mobility Systems (RIMS)

Dr. Edward Lemaire

Clinical Researcher, Institute for Rehabilitation Research and Development (The Ottawa Hospital Rehabilitation Centre); Associate Professor, University of Ottawa Faculty of Medicine

This seminar presentation will describe our research and development activities in the Rehabilitation Intelligent Mobility Systems (RIMS) initiative. RIMS focuses on developing, evaluating, and implementing intelligent assistive device and related technologies to improve the lives of people with disabilities. Recent advances in microprocessors, software, materials, and mechanical devices provide essential building blocks to add a level of intelligent decision-making and powered locomotion to mobility and therapeutic devices. The ability to sense our surroundings and adapt our behaviour to the state of the environment is essential for safe and effective mobility. By incorporating decision-making capability into rehabilitation devices, an improved and safer level of interaction with the environment can be achieved.

Intelligent mobility systems can have a global impact on people's lives. Approximately 90 million people in North America and Europe have a mobility disability (8% of the North American population). This number will rise with the increasing elderly population. The percentage of elderly Canadians with mobility disabilities is over 23% (percentage climbs to 42.9% for people over 75 years of age). Based on population estimates of 6.7 million seniors by 2021, 1.7 million Canadian seniors will have mobility-related disabilities. Since mobility is directly associated with quality of life, RIMS will help the elderly cope with the aging process. For people with disabilities, enhanced mobility can lead to increase independence, improved psycho-social status, and the ability to overcome some environmental barriers. RIMS could also help reduce hospital length of stay and improve in-facility outcomes by enhancing how patient's progress through their treatment program.

Edward Lemaire, PhD hold a number of appointments, including Clinical Researcher at the Institute for Rehabilitation Research and Development (The Ottawa Hospital Rehabilitation Centre), Associate Professor at the University of Ottawa Faculty of Medicine, Adjunct Professor with the University of Ottawa Schools of Human Kinetics and Mechanical Engineering, Adjunct Professor with the University of Waterloo Department of Systems Design Engineering, and President of the International Society of Prosthetics and Orthotics (Canada). Dr. Lemaire has been extensively involved with the evolution of assistive technologies that improve mobility for people with disabilities and telehealth for clinical service and continuing education.

In the area of assistive devices, Dr. Lemaire has lead initiatives in the use of computer aided design (CAD/CAM) for producing artificial limbs, braces, and custom wheelchair seats. Extensive work has also been completed on the biomechanical analysis of motion for people using new prosthetic and orthotic devices. Dr Lemaire is a coinventor on two patents related to stance control orthotics. Current activities include developing new intelligent orthotic devices, uncovering the biomechanical basis for dynamic stability during daily activities, biomechanical evaluation of assistive devices, BlackBerry-based technology for wearable mobility assessment (i.e., wearable telerehabilitation), and communication technology for enhancing international prosthetic and orthotic expertise. As a leader for The Ottawa Hospital Rehab Centre's new Rehabilitation Virtual Reality Lab, Edward Lemaire brings together past experience with Multimedia Internet-based video and data conferencing for physical rehabilitation, remote assistive device control / monitoring over Internet-based networks, and virtual reality technology for living space assessment.

Oct 13, 2011

admission is free

18:00 – 19:30 pm

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