Scientific/Educational Workshop

Workshop title
Computer vision for monitoring mobility and falls risk in older adults

Workshop organizer
Andrea Iaboni (Toronto Rehab)

Speakers
Babak Taati,
Shehroz Khan,
Andrea Laboni

Workshop goals

1)   To discuss applications for computer vision in monitoring falls risk, motor symptoms of Parkinson's disease, and falls detection;
2)   To explore the barriers to the use of this technology in clinical environments, the limitations of the technology, and possible solutions;
3)   To consider the ethical implications of computer vision technology in healthcare, in particular for mobility monitoring in older adults in the home environment.

Abstract
Computer vision is a term which describes the artificial intelligence-based technologies that allow computers to understand and learn information from images. In healthcare, computer vision technologies have important applications in helping to accurately classify conditions or illnesses, using various sources of data, including photographs and video. In this workshop, we will be exploring potential applications of computer vision to monitoring and supporting mobility in people with neurological conditions and in older adults. We will have three short presentations about the development and evaluation of mobility monitoring technologies based on computer vision, followed by a moderated discussion about the potential implications of these technologies, from the perspective of, for example, impact on clinical practice, patient-centred care, and privacy. Dr. Andrea Iaboni will present on the AMBIENT technology, an environmental vision-based sensor used to track changes in gait in older adults with dementia, and will discuss how this can be used identify changes in gait patterns which are predictive of falls. Dr. Shehroz Khan will present on the development of vision-based falls detection algorithms and their possible application in the home. Dr. Babak Taati will discuss the vision-based assessment of parkinsonism and medication-related dyskinesias in Parkinson's disease. Finally, Dr. Andria Bianchi will provide a brief introduction to ethical implications of computer vision healthcare technologies, and will help to moderate a discussion on the place for these interventions in clinical rehabilitative care.