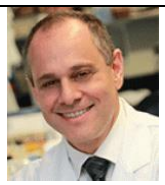
Workshop: Computational Methods for Modelling & Precision Medicine in Neurodegeneration

Monday, 4 Nov. 2019 from 8:30-17:30
Jeanne Timmins Amphitheatre @ The Neuro, 3801 University St, Mtl, H3A 2B4
FREE - Registration via Eventbrite. Updated Program.

Open to university faculty, students and staff and business professionals working in related area.

8:30-9:00		**Registration & Coffee**
9:00-9:10		**Edward Fon, MD,** Professor in the Department of Neurology and Neurosurgery, Scientific Director of the Montreal Neurological Institute (MNI) **Welcome Remarks**
9:10-9:55		Erica EM Moodie, PhD. William Dawson Scholar & Associate Professor, Epidemiology, Biostatistics, & Occupational Health; Biostatistics Graduate Program Director; and Director, McGill Health Statistics Training Network @ McGill University. Talk: **Sequential decision-making with observational data: challenges and opportunities** A biostatistician, Dr Moodie's methodological work aims to develop reliable, reproducible, and robust tools to improve health research, with a focus on adaptive treatment strategies for precision medicine.
9:55-10:40		Sébastien Giguère, PhD. Co-Founder at InVivo AI, Montreal, Quebec Talk: **Low data models and active learning for faster convergence to drug-like compounds** Founded in January 2018, InVivo AI is developing novel algorithms for low data drug discovery, providing us the unique ability to work with the small and noisy datasets characteristic of early-stage drug discovery. Through close collaboration with strategic partners, we combine proprietary disease models with our computational discovery engine to design and optimize novel drug candidates, with an initial focus on complex targets in oncology and CNS.
10:40-10:55		**Coffee Break**
10:55-11:40		Yasser Iturria-Medina, PhD. Assistant Professor, Neurology and Neurosurgery; Principle Investigator, Ludmer Centre for Neuroinformatics & Mental Health @ McGill Talk: **Multifactorial Brain Models for Understanding Neurodegenerative Progression and Individual Therapeutic Needs** Dr Iturria-Medina's lab aims to define and implement multiscale and multifactorial brain models for understanding neurological disorders and identifying effective personalized interventions.
11:40-12:25		Rhalena A Thomas, PhD. Post Doctoral Researcher, the Montreal Neurological Institute @ McGill University Talk: **Can we better understand the relationship between stem cells and neurons using computational models?** Dr Thomas is developing analysis tools for human induced pluripotent stem cells differentiated into neurons and 3D tissue models ("mini-brains"). She is working toward integrating transcriptional sequencing data and cell imaging data to understand the pathological processes of Parkinson's disease.

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Computational Methods for Modelling & Precision Medicine in Neurodegeneration

12:25-13:00		**Lunch in Foyer**
13:00-13:45		Chris Gaiteri, PhD. Assistant Professor, Neurological Sciences, Rush University, Rush Medical College, Chicago, USA Talk: **Multiple omics and molecular systems are synchronized to brain microstructure in healthy and disease states.** Dr Gaiteri, whose research resides between computation and biology, uses several types of omics data to identify networks of molecules that are closely related to brain pathology. His research includes Alzheimer's, depression and schizophrenia.
13:45-14:30		Alexandra L. Young, PhD. Post-Doc, Computer Science, Centre for Medical Image Computing, University College London, UK Talk: **Data-driven models of neurodegenerative disease progression and heterogeneity** Dr Young uses advanced computational techniques (e.g. event-based models) and multi-modal data (MRI, CSF, clinical evaluations) for identifying individual disease states and variants in heterogeneous neurodegenerative disorders.
14:30-14:45		**Coffee Break**
14:45-15:30		Roberto Carlos Sotero-Diaz, PhD. Associate Professor, Hotchkiss Brain Institute and Department of Radiology, University of Calgary, Canada Talk: **Design of patient-specific electrical stimulation signals for controlling brain function in neurodegenerative diseases** Dr Sotero-Diaz's research focuses on the development and identification of computational models of brain activity (electrical, metabolic, hemodynamic) to clarify how neuroimaging (fMRI, PET, DWMRI) and Electrophysiology (EEG) signals are generated.
15:30-16:15		Etienne De Villers-Sidani, MD. Department of Neurology & Neurosurgery, Centre for Research on Brain, Language & Music, Montreal Neurological institute, McGill U. Talk: **Functional biomarkers of plastic processes in the human and rodent sensory systems** A cognitive neurologist Dr de Villers-Sidani's research aims to deepen understanding of brain plasticity: 1) the cerebral mechanisms regulating experience-dependent plasticity, 2) the effects of aging on cortical circuits and plasticity and 3) using the principles of cerebral plasticity for the remediation of functional impairments.
16:15-16:30		**MITACS Presentation**
16:30-16:45		**Closing remarks**
16:30-17:30		**Reception in foyer**

Organised by Dr Yasser Iturria-Medina and the Ludmer Centre

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