



MAIN 2017  
Montreal Artificial Intelligence & Neuroscience  
Program at a glance

	<b>DAY 1</b> <b>Sat Nov. 18</b> ML & Neuroscience	<b>DAY2</b> <b>Sun Nov. 19</b> DL & Neuroscience	<b>DAY3</b> <b>Mon 20th</b> Hands-on Day1	<b>DAY4</b> <b>Tues 21st</b> Hands-on Day2
8:00-8:30	<i>Breakfast</i>			
8:30 – 9:30 Morning Educational Courses	<b>ML &amp; Cognitive Neuroimaging 101</b> <b>Gaël Varoquaux</b> NeuroSpin, Paris	<b>Deep Learning 101</b> <b>Pascal Vincent</b> MILA, University of Montreal	<b>Group 1</b> Room 6254, Pav. Aisenstadt ML hands-on with NiLearn & Scikit <b>(G Varoquaux, Neurospin, Paris)</b>	<b>Group 1</b> Room 6254, Pav. Aisenstadt Using TensorFlow for Deep Learning in Neuroimaging <b>(R Brown, McGill)</b>
9:30-10:15	Opening speech by <b>Dr M-J Hébert</b> (Univ Montreal) & A word from our sponsors	<b>Doina Precup</b> MILA, McGill University		
break				
10:45-11:30	<b>Jean-Rémi King</b> Psychology Dept, NYU	<b>Marcel Van Gerven</b> Radboud Univ, NL	<b>Group 2</b> Room 1120, Pav. P-G Desmarais Using TensorFlow for Deep Learning in Neuroimaging <b>(R Brown, McGill)</b>	<b>Group 2</b> Room 1120, Pav. P-G Desmarais ML hands-on with NiLearn & Scikit <b>(G Varoquaux, Neurospin, Paris)</b>
11:30-12:30 <b>Keynote Lectures</b>	<b>Tal Arbel</b> Centre for Intelligent Machines, McGill University	<b>Sergey Plis</b> Machine Learning in Neuroscience Lab, Univ of New Mexico		
<i>Lunch</i>				
13:30-14:15	<b>Jonas Richiardi</b> Lausanne University Hospital & Siemens Healthineers	<b>Joelle Pineau</b> Computer Science Department, McGill University	<b>Group 1</b> Room 6254, Pav. Aisenstadt ML hands-on with NiLearn & Scikit <b>(G Varoquaux, Neurospin, Paris)</b>	<b>Group 1</b> Room 6250, Pav. Aisenstadt Using TensorFlow for Deep Learning in Neuroimaging <b>(R Brown, McGill)</b>
14:15-15:00	<b>Biyu He</b> Neuroscience Institute, NYU	<b>Paul Cisek</b> Dept Neuroscience, University of Montreal		
break				
15:15 – 16:00	<b>Alain Dagher</b> MNI, McGill University	<b>Adam Marblestone</b> MIT Media Lab, Harvard University	<b>Group 2</b> Room 1120, Pav. P-G Desmarais Using TensorFlow for Deep Learning in Neuroimaging <b>(R Brown, McGill)</b>	<b>Group 2</b> Room 1120, Pav. P-G Desmarais ML hands-on with NiLearn & Scikit <b>(G Varoquaux, Neurospin, Paris)</b>
16:00-17:00 <b>Keynote Lectures</b>	<b>M.J. Frank</b> Computation in Brain and Mind, Brown University	<b>Y. Bengio</b> Montreal Institute for Learning Algorithms, University of Montreal		
17:00 – 18:00	Poster Session & Neurotech MTL	Round Table Discussion + Prizes		
18: end	<b>Cocktail Night</b> IVADO/HBHL <b>Agora</b> Pav Jean-Coutu, University of Montreal	<b>MAIN 2017 Party Night</b> IVADO/HBHL <b>BAR FURCO</b> 19h-24h [425 Mayor St]	<b>GNU</b> (Geek's Night Unlimited) <b>McHall</b> [3715 Avenue Lacombe]	



## List of lectures

**Saturday, November 18<sup>th</sup>**

(Amphitheater S1-151 – Pav Jean Coutu)

*Machine Learning & Cognitive Neuroimaging 101*

Gaël Varoquaux, Neurospin, Paris

*Using normative, shallow and deep neural networks to identifying the neural architecture of human perceptual decision making*

Jean-Rémi King, Psychology Department, NYU

*Probabilistic Machine Learning for Lesion and Tumour Detection, Segmentation and Disease Prediction in Patient Brain Images [Keynote lecture]*

Tal Arbel, Centre for Intelligent Machines, McGill University

*What we can learn and predict when we model the brain as a graph?*

Jonas Richiardi, Dept Radiology, Lausanne University Hospital & Advanced Clinical Imaging Technology, Siemens Healthineers, Switzerland

*Initial-state-dependent, robust, transient neural dynamics encode conscious visual perception*

Biyu He, Neuroscience Institute, NYU

*Multivariate Methods in Analysis of Big Data on Neurodegenerative Diseases*

Alain Dagher, MNI, McGill University

*Computational Psychiatry [Keynote lecture]*

Michael J. Frank, Computation in Brain and Mind, Brown University

**Sunday, November 19<sup>th</sup>**

(Amphitheater S1-151 – Pav Jean Coutu)

*Deep Learning 101*

Pascal Vincent, MILA, Université de Montréal

*Machine learning models for temporal prediction and decision making in the brain*

Doina Precup, MILA, McGill University

*Neural Coding with deep learning*

Marcel van Gerven, Radboud University

*Mapping the brain, its function and populations: a deep learning approach [Keynote lecture]*

Sergey Plis, Machine Learning in Neuroscience Lab, University of New Mexico

*Adaptive treatment of epilepsy via reinforcement learning*

Joelle Pineau, Computer Science Department, McGill University

*The bumpy road to strong AI*

Paul Cisek, Neuroscience, Université de Montréal

*Towards an integration of deep learning and neuroscience*

Adam Marblestone, MIT Media Lab., Harvard University

*Bridging the gap between brains, cognition and deep learning [Keynote lecture]*

Yoshua Bengio, MILA, Université de Montréal

**Monday, November 20<sup>th</sup> and Tuesday, November 21<sup>st</sup>** (Full-day Hands-on / Two parallel sessions)

*Machine Learning hands-on with NiLearn and Scikit Learn / by Gaël Varoquaux, Neurospin, Paris*

*Using TensorFlow for Deep Learning in Neuroimaging Analysis / by Robert Brown, McGill University*



*List of poster presentations (17h-18h / Sat. Nov 18<sup>th</sup>, 2017)*

<b>Name</b>	<b>Poster Title</b>
Alamian Golnoush	Can machine-learning foster a new path for finding biomarkers in schizophrenia?
Choukair Ola	Temporal correlations in resting-state oscillatory brain activity as a function of gender and age
Combrisson Etienne	Neural feature extraction, classification and visualization : A coherent suite of open-source software
Dehgan Arthur	Decoding the brain activity of dreamers and non-dreamers : Classification of sleep EEG in Riemannian space
Ding Yang	Detecting 2D MRI Artefacts in Neonatal Data Sets with Machine Learning
Donhauser Peter	Predictive coding during natural speech listening studied using MEG and recurrent neural networks
Funck Thomas	Brain tissue segmentation from multiple PET radiotracers
Ghosh Arna	Deep Semantic Architecture for analysis of motor task EEG data
Hao Yongfu	DeepIED: An epileptic discharge detector for EEG-fMRI based on deep learning
Harel Yann	Classifying sub-clinical social anxiety levels using EEG oscillations induced by face perception
Huang Qianyu	Visual cortex receptive fields: Convolutional models reveal a "main sequence" of filter shapes
Kumar Juldeep	Multi-modal brain fingerprinting: a bag of features and manifold approximation based twin analysis
Lajnef Tarek	Thalamo-cortical coupling during N2 sleep spindles: Combining MEG and machine learning
Mekki-Berrada Loubna	Application of machine-learning methods for identification of cognitive markers of Dementia in RBD
Podvalny Ella	Spontaneous neural patterns bias conscious object recognition
Quentin Romain	Tracking working memory processing: The content and the rule
Saive Anne-Lise	Decoding the neural dynamics of future episodic memory success during encoding: an intracranial EEG
Thiery Thomas	Decoding the neural dynamics of free choice : An intracranial EEG data-driven approach
Thompson Jessica	How transferable are intermediate acoustic representations of speech across languages in human and monkey
Tranchant Pauline	Decoding the neural correlates of rhythm perception: Insights from support vector machine classification



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Thank you! / Merci!