

Dominic Boutet

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OBJECTIVES	Investigating the neurophysiological mechanisms of brain activity in health and diseases through computational modelling and AI/ML approaches.	
EDUCATION	<i>Bachelor of Science</i> , Interdisciplinary Science McGill University, Qc, CA, expected May 2023 Concentration: Neuroscience (Major) & Computer Science (Minor) Current cGPA: 3.97	
RESEARCH EXPERIENCE	<i>Research internship</i> The Neuro at NeuroSPEED-BailletLab, Qc, CA Summer research project (2021): <ul style="list-style-type: none">• Literature review of multi-scale modelling approaches with a focus on The Virtual Brain (TVB), and of model calibration approaches for dynamical models.• Implementation of a simulation workflow and testing of the different calibration approaches for a TVB model with magnetoencephalography (MEG) data. NSERC USRA summer project (2022): <ul style="list-style-type: none">• Design and implementation of a novel parameter space reduction algorithm that guides search-based optimization algorithms in high-dimensional space.• Writing the API for neural networks and other components of the algorithm.• Implementation of accelerated simulator neurons and neural mass models.• Implementation of various search algorithms for performance testing.• Writing of a manuscript reporting the algorithm and its performance.	May 2021-Now
VOLUNTEER EXPERIENCE	<i>Undergraduate Research Lead</i> Youreka Canada, CA Youreka project: <ul style="list-style-type: none">• Acting as PI for a research project with a team of 3 high school students.• We established a proof of concept for COVID-19 case forecasting using time series linear regression on vaccination data from daily US updates.• We wrote a manuscript reporting our results, prepared a poster and performed a presentation at the Regionals. We won and also presented at the Nationals.	January 2022-July 2022
RELEVANT SKILLS	Computer skills: <ul style="list-style-type: none">• Extensive experience with relevant libraries such as numpy, pytorch, etc.• Significant experience interacting with open source projects.• Significant knowledge of AI/ML models and optimization algorithms. General skills: <ul style="list-style-type: none">• Great creative problem solving capacities and autonomy.• Great communication and teaching abilities in official and non-official settings.• Good leadership abilities in a research or problem solving setting.	