



education

bsc | h. stats and cs

mcgill university | 2018-present

- interests: reinforcement learning, abstract function machine theory, optimal transport, neuroevolutionary algorithms
- expected year of graduation: 2021

courses

cs

h. algorithms and data structures
theory of computation
functional programming

math

h. probability
h. statistics
h. linear algebra
h. vector calculus
h. differential equations
discrete

graduate courses

advanced real analysis 2
applied machine learning
topics (cs): maths of machine learning
topics (math): concentration phenomena

skills

langs

experienced
python • java • C • bash
proficient
UNIX • R • OCaml • MATLAB

ml/ai

frameworks
pytorch • tensorflow • scikit-learn
keras • opencv • pandas • numpy
platforms
gcp • aws • watson • dialogflow

general

comm
english • french • vietnamese
os
linux • mac



research

mcgill - prof. doina precup | research

summer 2020 - present

- Researched with prof. Precup on deep exploration in reinforcement learning, in particular, a keen assessment on posterior sampling methods, its effectiveness and shortcomings
- A particular focus is placed on Thompson sampling and stochastic gradient Langevin dynamics, and developing a framework of analysis of these algorithms in the general Markov decision process setting

mcgill - prof. abbas khalili | research project

winter 2020

- researched with prof. Khalili on the behavior of neural networks under gradient descent from the perspective of flow in the space of measures w/ the Wasserstein metric, in particular landscape geometry of the optimization objective
- employed various concentration inequalities, functional analysis, and propagation of chaos to prove convergence of stochastic gradient descent to a PDE

inrs - prof. long le - necphylab | ml research assistant

summer-fall 2019

- researched with prof. Le in his CSI project, built, reproduced, and improved frontier models in domain-independent joint activity/localization using channel-state information from WIFI Tx/Rx
- **proposed** and explored deep regressive models to build a novel continuous controlled localization
- applied various image processing algorithms, including CMU's Openpose, to produce labeled data for localization regression
- applied signal processing, time series analysis for data understanding, feature engineering, feature selection, and dimensionality reduction

projects, experiences

mcgill - prof. prakash panangaden | term paper, presentation

fall 2019

- researched continuous neural networks: formulation and equivalence to regular neural networks
- studied convergence to Gaussian processes in the infinite width limit, gradient flow in function space w.r.t. the Neural Tangent Kernel (NTK), and universal approximation of operators and functionals by function machines
- proved universal approximation of functional continuous neural networks
- **delivered presentation at the Seminary on Undergraduate Mathematics in Montreal (SUMM)**

self-driving wheelchair | neurotechx 2019 - mcgill | ml team

winter 2019

- researched state-of-the-art models and feature construction pipelines in classification of motor imagery signals
- used numpy, scipy, matplotlib, seaborn for the analysis and interpretation of EEG time series signals and spectrograms of frequency distributions over time
- re-implemented milestone works from the literature in PyTorch, ran benchmarks on different EEG datasets, both simulated and real
- **placed First in the NeurotechX Competition, 2019**