# JOSEPH D VIVIANO

joseph@viviano.ca
viviano.ca | github.com/josephdviviano
Mila Quebec AI Institute
6666 Rue Saint Urbain St, Montréal, QC

## EXPERIENCE

**Applied Research Scientist** 2020–Now
Mila Technology Transfer, Mila Quebec AI Institute

- Research on medical applications, ethics of language models, and cognitively-inspired AI.
- R&D on deep-learning driven equity momentum trading strategies with CDPQ and robust representation learning for digital forgery detection in a limited data environment with Jumio.

**Fellow** 2021
PhD to VC, Fifty Years

- Experience sourcing strong deep-tech companies ready for seed or pre-seed investment, performed due diligence, & portfolio support.

**Research Intern** 2020
Google, Smart Ad Relevance System Predicted Click Through Rate Team

- Uncertainty estimation research for predicted click through rates.
- Produced research pipeline for future search ad pCTR research.

**Research Intern** 2019
Imagia Cybernetics

- Developed deep learning method for cancer localization without segmentations, and multimodal classification combining images with clinical notes.

**Research Methods Specialist** 2014–17
Kimel TIGRlab, Centre for Addiction and Mental Health

- Developed two published machine learning tools that identify vulnerable schizophrenia and Alzheimer's patients.
- Managed the design & implementation (team of 5) of a data management platform and quality assurance tools used by team of 20.
- Managed a 22-node compute cluster.

**Data Analyst** 2013–14
CANN Lab, York University

- Architect of a platform for MRI pipeline development.
- Developed biomarker of reduced executive function in aging.

## PROJECTS

**PyDDSM** Data extraction tool for a mammography dataset.
**What's In the Box?** Undesirable content identifier for the Common Crawl.
**TorchXRayVision** Library for chest XRay datasets and models.

## RESEARCH

**Publications**: I'm an active researcher with a h-index of 13.
**Precision Medicine**: Biomarker development for patient-tailored treatments.
**Deep Learning**: Representation learning for robust and explainable models, multimodal learning, attention mechanisms.
**Teaching**: Computational methods and machine learning courses taught at CAMH, McGill BrainHack, and MAIN Conference Workshop.
**Reviewing**: Paper reviews for ICLR, Biological Psychiatry, MIDL, & PLOS ONE

## EDUCATION

**MSc. Computer Science, Machine Learning Specialization** 2018–20
Mila, Université de Montréal, Montréal, QC

- Research on whether saliency methods can be relied on to diagnose generalization failures of deep learning models.
- Coursework on Reinforcement Learning, Deep Learning, NLP, & CS Fundamentals.

**MSc. Biology, Neuroscience Specialization, With Distinction** 2011–13
Schneider Lab, York University, Toronto, ON

- Research using Magnetic Resonance Imaging of the human visual input and feedback systems.

**BSc. Psychology, Hons.** 2005–09
Queen's University, Toronto, ON

## TECHNOLOGIES

**Python** Proficient
Pytorch, tensorflow, numpy, scipy, pandas, scikit-learn.

**Unix Administration** Intermediate
Webservers, virtualisation, & containerisation. Linux Foundation certified system administrator.

**MATLAB** Intermediate
**R, C, Java, SQL** Familiar

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