# JOSEPH D VIVIANO

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## EXPERIENCE

**I love user-focused technology**. I've worked with psychiatrists to develop biomarkers for treatment response, radiologists to detect cancer, Google to price ads, and a hedge fund to trade equities. I've consistently and rapidly adapted to new domains and delivered results.

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

- Object-detection in edge devices and for document forgery detection.
- R&D on momentum trading strategies for equities with the CDPQ.
- Use of attention mechanisms for composable representation learning.

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

- Uncertainty estimation for predicted click through rates (pCTR).

**Research Intern** 2019–2020
Mila Quebec AI Institute

- Research on explainable AI: whether saliency can be relied on to diagnose generalization failures.
- Contributed to the open-source torchxrayvision project.

**Research Intern** 2019
Imagia Cybernetics

- 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.
- Contributed to 2 successfully funded grants & 13 published papers.

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

- Biomarker of reduced executive function in aging.

**Graduate Student** 2011–13
Schneider Lab, York University

- MRI of the human visual input and feedback systems.

## RESEARCH

**Publications**: I'm an active researcher with an h-index of 11 and 22 publications.
**Precision Medicine**: Biomarker development for patient-tailored treatments.
**Deep Learning**: Representation learning for robust and explainable models, multimodal learning, attention mechanisms.

## EDUCATION

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

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

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

## TECHNOLOGIES

**Python** Proficient
Numpy, scipy, pandas, scikit-learn, pytorch, tensorflow.
**MATLAB** Intermediate
**R** Intermediate
**Unix Administration** Intermediate
Webservers, virtualisation, & containerisation.
**C** Familiar
**Java** Familiar
**SQL** Familiar

## TEACHING

**Introduction to Deep Learning** 2019
McGill BrainHack Summer School & MAIN Conference Workshop

**Python for Neuroimaging** 2015
Centre for Addiction and Mental Health

## EXTRACURRICULAR

**Deep Learning Specialization** 2018
deeplearning.ai, Coursera

**Certified System Administrator** 2016
Linux Foundation

**High Performance Computing** 2014–16
SciNet, University of Toronto

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