

JOSEPH D VIVIANO

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EDUCATION

2018–2020 **MSc., Computer Science**

Université de Montréal, QC/CA.

- Internship Supervised by [Dr. Yoshua Bengio](#) [↗](#)
'Methods for controlling and utilizing saliency maps in medical imaging'.

2011–2013 **MSc. with Distinction, Biology**

York University, ON/CA.

- Thesis Supervised by [Dr. Keith Schneider](#) [↗](#)
'Tremotopic mapping of the human thalamic reticular nucleus'.

2005–2009 **BSc. Hons., Psychology.**

Queen's University, ON/CA.

- Coursework in Biology, Psychology, Statistics, and Philosophy.

PROFESSIONAL EXPERIENCE

2023–Now **ML Scientist**

Mila Québec AI Institute, QC/CA.

- Lead developer of [torchgfn](#) [↗](#) GFlowNet library (290 stars, 49 forks, 15 contributors).
- GFlowNet application collaborations: Antibody design ([Amgen](#) [↗](#)), distributed search scaling ([Intel](#) [↗](#)).
- Lab engineering support for ML for Science projects.
- Grant writing: Mila's compute infrastructure, AI for Metabolic Engineering with [Joint BioEnergy Institute](#) [↗](#).

2021–2022 **ML Research Scientist**

Deep Genomics [↗](#), QC/CA.

- Self-supervised learning for biological sequence representations.
- Methods for cell-type generalization.
- Drug screening anomaly detection pipeline.

2020–2021 **Applied Research Scientist**

Mila Québec AI Institute, QC/CA.

- Consult on, propose, and implement deep learning solutions for Mila's partners: Optimal portfolio allocation (finance) & digital forgery-detection (fraud).

2020 **Research Intern**

Google, PA/US.

- Uncertainty (epistemic) estimation methods for the [search ads predicted click through rate team](#) [↗](#).

2019 **Research Intern**

Imagia, QC/CA.

- Developed methods for combining clinical notes with medical images to improve classification performance and for localizing disease without explicit labels of where the disease is located in an image.

2014–2017 **Research Methods Specialist**

Centre for Addiction and Mental Health, ON/CA.

- Biomarkers for vulnerable [schizophrenia](#) [↗](#) and [Alzheimer's](#) [↗](#) patients.
- Designed, built, and managed compute infrastructure and data management platform.

COMMUNITY SERVICE

2023-2025 **Area Chair**

Meta Reviewing

Paper Adjudication for [NeurIPS Datasets and Benchmarks Track](#) [↗](#)

2023 **Grant Reviewing**

Health Data Nexus Dataset Grants

Reviewed 5 Proposals on the Collection of Healthcare-focused ML-ready datasets.

2014-2023 **Reviewing**

Paper reviews for conferences and journals. .

Reviews for [ICLR](#) [↗](#), [NeurIPS Pre-registration in ML Workshop](#) [↗](#), [Biological Psychiatry](#) [↗](#), [MIDL](#) [↗](#), [PNAS](#) [↗](#), & [PLOS ONE](#) [↗](#)

SELECTED PUBLICATIONS

[Viviano JD](#)*, [Younis OG](#)*, [Choi S](#)*, [Schmidt V](#), [Bengio Y](#), [Lahlou S](#). torchgfn: A PyTorch GFlowNet library. arXiv, 2025.

[Bertin P](#), [Viviano JD](#), [Tejada-Lapuerta A](#), [Wang W](#), [Bauer S](#), [Theis FJ](#), [Bengio Y](#). A scalable gene network model of regulatory dynamics in single cells. arXiv, 2025.

[Delaunay P](#), [Bouthillier X](#), [Breuleux O](#), [Ortiz-Gagné S](#), [Bilaniuk O](#), [Normandin F](#), [Bergeron A](#), [Carrez B](#), [Alain G](#), [Blanc S](#), [Viviano JD](#), et al. Introducing Milabench: Benchmarking Accelerators for AI. arXiv, 2024.

[Cohen JP](#), [Viviano JD](#), [Bertin P](#), [Morrison P](#), [Torabian P](#), [Guarrera M](#), [Lungren MP](#), [Chaudhari A](#), [Brooks R](#), [Hashir M](#), [Bertrand H](#). TorchXRayVision: A library of chest X-ray datasets and models. Medical Imaging with Deep Learning (MIDL), 2022.

[Cohen JP](#), [Cao T](#), [Viviano JD](#), [Huang CW](#), [Fralick M](#), [Ghassemi M](#), [Mamdani M](#), [Greiner R](#), [Bengio Y](#). Problems in the deployment of machine-learned models in health care. Canadian Medical Association Journal, 193(35), E1391-E1394.

[Luccioni A](#), [Viviano JD](#). What's in the Box? A Preliminary Analysis of Undesirable Content in the Common Crawl Corpus. The Joint Conference of the Association for Computational Linguistics and the International Joint Conference on Natural Language Processing (ACL-IJCNLP), 2021.

[Viviano JD](#), [Simpson B](#), [Dutil F](#), [Bengio Y](#), [Cohen JP](#). Saliency is a Possible Red Herring When Diagnosing Poor Generalization. International Conference on Learning Representations (ICLR), 2021.

[Viviano JD](#), [Buchanan RW](#), [Calarco N](#), [Gold J](#), [Foussias G](#), [Bhagwat N](#), [Stefanik L](#), [Hawco C](#), [Malhotra AL](#), [Voineskos AN](#), for the SPINS group. 2018. Resting-state connectivity biomarkers of cognitive performance and social function in schizophrenia spectrum disorders and healthy controls. Biological Psychiatry. 84(9), 665-674.

[Viviano JD](#), [Schneider KA](#). 2015. Interhemispheric interactions of the human thalamic reticular nucleus. Journal of Neuroscience, 35(5):2026-32.

INVITED TALKS

2024 **Keynote Speaker**

FACSS SciX

Could an AI Understand a Scientist?

2023

Joint Genome Institute Annual User Meeting

[Viviano JD](#). Considerations for Machine Learning-Aided Lab in the Loop Scientific Discovery.