

JOSEPH D VIVIANO

joseph@viviano.ca | viviano.ca [↗](#)
[GScholar](#) [↗](#)
twitter.com/josephdiviviano [↗](#)
github.com/josephdiviviano [↗](#)

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.

- Development of open-source GFlowNet tools such as [torchgfn](#) [↗](#).
- ML for Science research with a focus on Biology.
- Ongoing project with [Amgen](#) [↗](#) on antibody design.

2021–2022 **ML Research Scientist**

Deep Genomics [↗](#), QC/CA.

- Self-supervised learning (autoregressive and masked-language modelling) for biological sequence representations.
- Multi-modal methods facilitating biological sequence-to-sequence models to generalize to novel cell types.
- Anomaly detection pipeline for our drug screening platform.

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).
- Collaboration with Mila researchers on medical applications research and cognitively-inspired AI.

2020 **Research Intern**

Google, PA/US.

- Built a research pipeline to test ideas on an internal click through rate dataset.
- 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.
- Developed methods 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 (team of 5) a [data management platform](#) 22-node compute cluster, and [QA tools](#) used by team of 20.
- Contributions to 2 successfully funded grants & 15 published papers.

COMMUNITY SERVICE

2023 **Area Chair** Meta Reviewing

Paper Adjudication for [NeurIPS Datasets and Benchmarks Workshop 2023](#)

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

Lahlau S, [Viviano JD](#), Schmidt V. torchgfn: A PyTorch GFlowNet library. arXiv, 2023.

Cohen JP, [Viviano JD](#), Bertin P, Morrison P, Torabian P, Guarrera M, Lungren MP, Chaudhari A, Brooks R, Hashir M, Bertrand H. TorchXRyVision: 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

2023 Joint Genome Institute Annual User Meeting

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