

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.

PROFESSIONAL EXPERIENCE

2021–2022 **ML Research Scientist** Deep Genomics [↗](#), QC/CA.

- Self-supervised learning (auto-regressive 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.

2021–Now **Scientific Mentor** Creative Destruction Lab Montréal [↗](#), QC/CA.

- Performed technical assessments of startups and provided feedback for a business and investor focused audience.
- Technical direction for startups in the NLP, CV, and ML for Bio spaces.

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 **PhD to VC Fellow** Fifty Years, CA/US.

- [Course](#) [↗](#) where I sourced, diligenced, and deep-tech pre-seed/seed stage companies, performed due diligence on them, & helped source technical talent.

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 ENGAGEMENT

Reviewing	Paper reviews for ICLR , NeurIPS Pre-registration in ML Workshop , Biological Psychiatry , MIDL , & PLOS ONE .
Instruction	Technical training on entry-level deep learning at MAIN 2019 and Brainhack 2019 .

SELECTED PUBLICATIONS

* = equal contributions. For a complete list of my work, [please see my Google Scholar](#).

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.

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.

Bhagwat N, [Viviano JD](#), Voineskos AN, Chakravarty MM. 2018. Modeling and prediction of clinical symptom trajectories in Alzheimer's disease using longitudinal data. 2018. *PLoS Computational Biology*. 14(9), e1006376.

DeSimone K, [Viviano JD](#), Schneider KA. 2015. Population receptive field estimation reveals new retinotopic maps in human subcortex. *Journal of Neuroscience*, 35(27):9836-47.

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