

Juan David Guerra

📍 Montreal, Canada

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🌐 <https://juandguerra20.github.io>

🌐 <https://github.com/JuanDGuerra20>

EDUCATION

- **Mila & Polytechnique Montréal - Cumulative GPA: 4.0/4.0** Montreal, QC
M.A.Sc Software Engineering *Sep 2024 - May 2026*
 - **Supervisors:** Marco Bonizzato & Guillaume Lajoie
 - **Thesis title:** Amortized Bayesian Optimization Techniques for Neurostimulation
- **McGill University - Cumulative GPA: 3.73 / 4.0** Montreal, QC
B.Sc. First-Class Honours Computer Science & Minor in Neuroscience *Sep 2020 - May 2024*

SELECTED PUBLICATIONS

1. S. Mohammadzadeh*, **J. D. Guerra***, M. Bonizzato, R. Rabbany, and G. Farnadi. 2025. Hallucination Detox: Sensitivity Dropout (SenD) for Large Language Model Training. In Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers), pages 5538–5554, Vienna, Austria. Association for Computational Linguistics.
2. **J. D. Guerra**, T. Garbay, G. Lajoie, and M. Bonizzato, ‘Bidirectional Information Flow (BIF) - A Sample Efficient Hierarchical Gaussian Process for Bayesian Optimization’, May 16, 2025, arXiv: arXiv:2505.11294. doi: 10.48550/arXiv.2505.11294.
3. K. A. Williams, O. Numssen, **J. D. Guerra**, J. Kopal, D. Bzdok, and G. Hartwigsen, ‘Inhibition of the inferior parietal lobe triggers state-dependent network adaptations’, *Heliyon*, vol. 10, no. 21, Nov. 2024, doi: 10.1016/j.heliyon.2024.e39735.

RESEARCH EXPERIENCE

- **Department of Computer Science** Montreal, QC
McGill University, Mila - Quebec AI Institute *June 2024 - August 2025*
 - Research collaborator at Professor Golnoosh Farnadi’s EQUAL Lab
 - Conducted an empirical, in-depth analysis of Large Language Models (LLMs) and their training dynamics
 - Developed a scalable pipeline for training LLMs while reducing the onset of hallucinations
 - Paper published at the 63rd Annual Meeting of the Association for Computational Linguistics
- **Department of Biomedical Engineering** Montreal, QC
McGill University, Mila - Quebec AI Institute *February 2023 - December 2024*
 - Undergraduate researcher under the supervision of Professor Danilo Bzdok.
 - Using machine learning models to take brain activation (fMRI) to predict and understand the task the subject was performing in an international collaboration with Prof. Gesa Hartwigsen at the University of Leipzig
 - Libraries used: NIflearn; Numpy; Pandas; Matplotlib; Scikit learn.
- **Department of Physiology** Montreal, QC
McGill University *June 2022 - February 2023*
 - Worked as a summer researcher and continued as a research assistant under the supervision of Professor Erik Cook
 - Investigated correlations between visual stimuli and activation in mouse brains using statistical techniques and data processing
 - Z-plane motion correction for two-photon imaging of neural activity in awake behaving mice

PRIZES AND AWARDS

- **Natural Sciences and Engineering Research Council** Canada
Canada Graduate Scholarships - Master's Level 2025
- **Fonds de Recherche du Québec** QC, Canada
Nature et Technologies Sector Master's Research Scholarship 2025
- **UNIQUE Scientific Retreat** Montreal, QC
The UNIQUE Neuro-AI best poster award - Master's level 2025
- **Gouvernement du Québec - Le Ministre d'Enseignement Supérieur** QC, Canada
Quebec Excellence Bursary for Computer Science 2021

PRESENTATIONS & WORKSHOPS

- **Presenter - Neuroprosthetics Symposium** Montreal, QC
Université de Montréal June 2025
- **Selected Oral Presentation** Montreal, QC
CIRCA Scientific Retreat April 2025
- **Selected Oral Presentation** Montreal, QC
PolyCongré - Student Engineering Research Conference at Polytechnique Montréal March 2025
- **Speaker - SNC Neurodiscussions** Montreal, QC
Université de Montréal Signalisation Neurale et la Circuiterie (SNC) Research Group March 2025
- **Workshop Leader - Deep Dive on DeepLabCut** Montreal, QC
Université de Montréal, CIRCAteliers February 2025
- **Poster Presentation** Vancouver, Canada
Safe Generative AI Workshop @ NeurIPS 2024 December 2024

RELEVANT EXPERIENCE

- **Committee Member - CIRCAtelier** Montreal, QC
CIRCA - Centre Interdisciplinaire de Recherche sur le Cerveau et l'Apprentissage January 2025 - Ongoing
 - Organize regular workshops informing the CIRCA community of useful topics to disseminate knowledge
 - Help find new topics and researchers to bring in new skills to the community
- **Mental Health Director** Montreal, QC
McGill Science Undergraduate Society May 2021 - May 2024
 - Researching mental health issues, policies, and activities among North American Universities
 - Organizing projects (e.g., mentorship programs) to improve students' mental health at McGill University
- **Technical Skills**
Python; Java; Matlab; C; Bash; Git; UNIX; OOP; Sci-Kit Learn; PyTorch; Pandas; MIPS
- **Concentrations**
Gaussian Processes; Large Language Models; Foundation Models; Machine Learning; Applications of ML; Neuroprosthetics