Gabriel Sasseville

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Research and Education

PhD in Computer Science - Mila and University of Montreal Sep 2025 - Present

Project : *Symbolic Regression by Reinforcement Learning with Human Feedback*

Relevant courses : *Reinforcement Learning and Optimal Control, Autonomous Vehicles*

Artificial Intelligence Research Scientist - Environment and Climate Change Canada Jan 2025 - Aug 2025

Project : *LSTM for Streamflow Forecasting in the Great Lakes Region*

M.Sc. in Astrophysics - University of Montreal and McGill University - GPA : 4.10/4.30 Sep 2023 - Aug 2025

Project : *Continuous Stochastic Process Diffusion for Asynchronous Time Series Interpolation of Black Hole Data*

Relevant courses : *Machine Learning, Modern Data Analysis, Advanced Statistical Mechanics, Data Structures, Advanced Object-Oriented Programming*

B.Sc. in Computer Science and Physics - University of Montreal - GPA : 4.14/4.30 Sep 2020 - May 2023

Technical Skills

Programming Languages : Python, Java Bash, R, Stan, C

Artificial Intelligence : Time Series Analysis (Transformers, Latent SDEs, Mamba), Generative (Diffusion Models), Computer Vision (CNNs, Vision Transformers), Reinforcement Learning

Tools : PyTorch, TensorFlow, Git, Linux

Publications

Paper : *Sasseville, G.*, Hlavacek-Larrondo, J., Haggard, D., Adam, D., Paugnat, H., Witzel, G. Probabilistic Interpolation of Sagittarius A*'s Multi-Wavelength Light Curves Using Diffusion Models. Submitted. 2025

Paper : *Sasseville, G.*, Hlavacek-Larrondo, J., Berek, S. C., Eadie, G. M., Lee Rhea, C., Springford, A., Mezcua, M., Haggard, D.. A novel approach to understanding the link between supermassive black holes and host galaxies. The Astrophysical Journal, 978, 48. DOI:10.3847/1538-4357/ad93d4 2025

Paper : Haddad, M., Gaudreault, R., *Sasseville, G.*, Nguyen, P. T., Wiebe, H., Van De Ven, T., Ramassamy, C. Molecular Interactions of Tannic Acid with Proteins Associated with SARS-CoV-2 Infectivity. International Journal of Molecular Sciences, 23(5), 2643. DOI:10.3390/ijms23052643 2022

Conference : Machine Learning for Asynchronous Time Series Interpolation of Sagittarius A* Data. Harvard 2024
Video link

Conference : AI for understanding the supermassive black hole at the center of the Milky Way. IVADO 2024
Video link

Conference : Applying a New Bayesian Statistical Model to Better Understand Supermassive Black Holes. Video link ACFAS 2023

Honors and Awards

Richard J. Schmeelk Canada Fellowship - Schmeelk Canada Foundation	$ 10,000	2025
Doctoral Research Scholarship - NSERC	$ 120,000	2025-2028
Doctoral Research Scholarship - FRQNT - Declined	$ 100,000	2025-2029
Graduate Studies Excellence Scholarship - J.A. DeSève	$ 5000	2024
Excellence Scholarship for applied AI research in Science - Hydro-Québec	$10,000	2024
Excellence Scholarship - Department of Computer Science, University of Montreal	$1,000	2023
Master's Research Scholarship - FRQNT	$40,000	2023-2025
Canada Graduate Scholarships for Master's - NSERC	$17,500	2023-2024
Excellence Scholarship - Department of Computer Science, University of Montreal	$1,000	2022
Excellence Scholarship - Department of Computer Science, University of Montreal	$2,000	2022
Undergraduate Student Research Awards - NSERC	$6,000	2022
Laureate of the Undergraduate Introduction to Research Scholarship - IVADO	$6,500	2022

Additional Trainings and Summer Schools

Machine Learning in Astrophysics Summer School - CRAQ	June 2024
AI in Astrophysics Workshop - Harvard	June 2024
Generative Flow Networks Workshop - Mila by Yoshua Bengio	November 2023
Summer School on Advanced Research Computing - SHARCNET	June 2021
Summer School on Data Science and Parallel Computing - Compute Canada	May 2021