

Gabriel Sasseville

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Education

- M.Sc. in Astrophysics - University of Montreal and McGill University - GPA : 4.10/4.30** Sep 2023 - Aug 2025
Project : *Machine Learning 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)
- Tools** : PyTorch, TensorFlow, Git, Linux

Publications

- Paper** : Sasseville, G., Hlavacek-Larrondo, J., Haggard, D. Transformers for asynchronous time series interpolation of Sagittarius A* multi-wavelength data. In prep. 2024
- Paper** : Sasseville, G., Hlavacek-Larrondo, J., Berek, S. C., Eadie, G. M., Lee Rhea, C., Springford, A., Mezcuca, M., Haggard, D.. Modeling the $M_{\bullet} - \sigma$ relation with a Bayesian hurdle model. Under review. 2024
- 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 Video link 2024
- Conference** : AI for understanding the supermassive black hole at the center of the Milky Way. IVADO Video link 2024
- Conference** : Applying a New Bayesian Statistical Model to Better Understand Supermassive Black Holes. Video link ACFAS 2023

Honors and Awards

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| Graduate Studies Excellence Scholarship - J.A. DeSève | \$ 5000 | 2024 |
| Excellence Scholarship for applied AI research in Science - Hydro-Quebec | \$10,000 | 2024 |
| Excellence Scholarship - Department of Computer Science, University of Montreal | \$1,000 | 2023 |
| Master's Research Scholarship - Fonds de Recherche Du Québec | \$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