

Alexandre Adam

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Github  • ORCID  • Google Scholar 

Education

Ph.D., Physics , Université de Montréal	<i>2022–Present</i>
<ul style="list-style-type: none">• Advisor: Laurence Perreault-Levasseur• Research focus: High-dimensional Bayesian Inference in Astronomy	
M.Sc., Physics , Université de Montréal	<i>2020–2022</i>
<ul style="list-style-type: none">• Advisor: Laurence Perreault-Levasseur• Research focus: Recurrent Inference Machines and Gravitational Lensing• GPA: 4.3/4.3	
B.Sc., Physics , Université de Montréal	<i>2017–2020</i>
<ul style="list-style-type: none">• Overall GPA: 4.0/4.3	

Teaching and Mentoring

Teaching Assistant

PHY1234 · Introduction to Numerical Physics	<i>2021</i>
<i>Grading homeworks, assistance in lab work</i>	University of Montréal
PHY3711 · Cosmology and Extragalactic Physics	<i>2024–2025</i>
<i>Grading homeworks</i>	Unviersity of Montréal

Research Mentoring

Noé Dia — Undergraduate intern	<i>2022–2024</i>
<i>Guided summer research leading to 2 publications</i>	
Antoine Bourdin — Undergraduate intern	<i>2023–2024</i>
<i>Guided summer research leading to 1 publication</i>	
Salma Sahli — M.Sc. Student	<i>2024–2025</i>
<i>Primary mentor and technical support leading to 1 publication</i>	
Gabriel Missael Barco — M.Sc. Student	<i>2024</i>
<i>Primary mentor and technical support leading to 1 publication</i>	

Summer School Courses

Introduction to Recurrent Neural Networks	<i>2022</i>
<i>Instructor for the Astromatic hackaton</i>	
Introduction to Diffusion Models and Bayesian Inference	<i>2023</i>
<i>Instructor for the Astromatic hackaton</i>	

Awards and Fellowships

NSERC graduate research doctoral program · 115 000\$	<i>2023</i>
Hydro-Québec scholarship (Declined) · 20 000\$	<i>2023</i>
IVADO MSc excellence scholarship · 40 000\$	<i>2020</i>
Dean's list	<i>Fall 2017-2019; Winter 2018-2020</i>

Service and Outreach

Reviewer for Astronomy and Astrophysics	<i>2025</i>
Reviewer for Monthly Notices of the Royal Astronomical Society	<i>2023</i>
Reviewer for Machine Learning and the Physical Sciences at NeurIPS	<i>2023-2024</i>
Reviewer for Machine Learning for Astrophysics at ICML	<i>2023-2024</i>
Organizer for the Astromatic hackaton and summer school	<i>2022-2023</i>
Wrote a blog for the Ciela Institute website	<i>2024</i>

Conference Contributions

IAIFI Summer Workshop, Cambridge, MA, USA <i>High-dimensional Bayesian Inference with Diffusion Models and Generative Flow Networks</i>	August 12, 2025 INVITED TALK
International BASP Frontiers Conference, Villars-sur-Ollon, Switzerland <i>Echoes in the Noise: Posterior Samples of Faint Galaxy Surface Brightness Profiles with Score-Based Likelihoods and Priors</i>	January 29, 2025 POSTER
Physics in the AI Era, Pisa, Italy <i>Solving inverse problems with diffusion models</i>	September 25, 2024 INVITED TALK
Annual CRAQ Meeting, Saint-Alexis-des-Monts, Qc, Canada <i>Echoes in the Noise: Posterior Samples of Faint Galaxy Surface Brightness Profiles with Score-Based Likelihoods and Priors</i>	May 8, 2024 CONTRIBUTED TALK
CD3×Simons Foundation Workshop, Kashiwa, Japan <i>Echoes in the Noise: Posterior Samples of Faint Galaxy Surface Brightness Profiles with Score-Based Likelihoods and Priors</i>	January 25, 2024 CONTRIBUTED TALK
243rd American Astronomical Society Meeting, New Orleans, LA, USA <i>Echoes in the Noise: Posterior Samples of Faint Galaxy Surface Brightness Profiles with Score-Based Likelihoods and Priors</i>	January 9, 2024 POSTER
ML4PS at NeurIPS, New Orleans, LA, USA <i>Echoes in the Noise: Posterior Samples of Faint Galaxy Surface Brightness Profiles with Score-Based Likelihoods and Priors</i>	December 15, 2023 POSTER
Cosmic Connections: A ML×Astrophysics Symposium, New York, NY, USA <i>Posterior Samples of Source Galaxies in Strong Gravitational Lenses with Score-Based Priors</i>	May 24, 2023 CONTRIBUTED TALK
Annual CRAQ Meeting, Saint-Alexis-des-Monts, Qc, Can <i>Posterior Samples of Source Galaxies in Strong Gravitational Lenses with Score-Based Priors</i>	May 9, 2023 CONTRIBUTED TALK
ML4PS at NeurIPS, New Orleans, LA, USA <i>Posterior Samples of Source Galaxies in Strong Gravitational Lenses with Score-Based Priors</i>	December 15, 2022 Spotlight Talk (4/188 ACCEPTED)
Boom! A Workshop on Explosive Transients with LSST (Virtual) <i>Pixelated Reconstruction of Gravitational Lenses using Recurrent Inference Machine</i>	July 29, 2022 CONTRIBUTED TALK
ML4Astro at ICML, Baltimore, MD, USA <i>Pixelated Reconstruction of Gravitational Lenses using Recurrent Inference Machines</i>	July 22, 2022 POSTER
Annual CRAQ Meeting, Magog, Qc, Canada <i>Free-Form Reconstruction of Gravitational Lenses using Recurrent Inference Machine</i>	May 9, 2022 CONTRIBUTED TALK
Likelihood-free in Paris, France <i>Free-Form Strong Gravitational Lensing Reconstruction using Recurrent Inference Machine</i>	April 21, 2022 CONTRIBUTED TALK
IVADO Digital October (Virtual)	October 21, 2022

<i>Posterior Samples of Source Galaxies in Strong Gravitational Lenses with Score-Based Priors</i>	POSTER
IAIFI Summer Workshop, Cambridge, MA, USA	August 8, 2022
<i>Pixelated Reconstruction of Gravitational Lenses using Recurrent Inference Machines</i>	POSTER
Annual CASCA Meeting (Virtual)	May 18, 2022
<i>Free-Form Reconstruction of Gravitational Lenses using Recurrent Inference Machine</i>	POSTER
IVADO Digital October (Virtual)	October 29, 2021
<i>Automatic Reconstruction of Gravitational Lenses</i>	CONTRIBUTED TALK
Centenaire du département de physique, Montréal, Canada	October 20, 2021
<i>Apprentissage automatique de la reconstruction de lentilles gravitationnelles</i>	POSTER