## Publications list

19. **A. Adam**, C. Stone, C. Bottrel, R. Legin, Y. Hezaveh, L. Perreault-Levasseur.
*Echoes in the Noise: Posterior Samples of Faint Galaxy Surface Brightness Profiles with Score-Based Likelihoods and Priors.*
NeurIPS Workshop on Machine Learning and the Physical Sciences, (2023)
The Astrophysical Journal, vol. 169 (5), pp. 254 (2025).
arXiv:2311.18002

18. N. Dia, M. J. Yantovski-Barth, **A. Adam**, M. Bowles, P. Lemos, A. M. M. Scaife, Y. Hezaveh, L. Perreault-Levasseur.
*IRIS: A Bayesian Approach for Image Reconstruction in Radio Interferometry with expressive Score-Based priors.*
Submitted to The Astrophysical Journal (2025)
arXiv:2501.02473

17. L. Leuzzi, M. Meneghetti, **A. Adam**, L. Moscardini, C. Giocoli.
*Observation-driven simulations of strong lensing galaxy clusters.*
Submitted to Astronomy and Astrophysics (2025).

16. E. Angeloudi, M. Huertas-Company, J. Falcón-Barroso, L. Perreault-Levasseur, **A. Adam**, A. Boecker.
*The spatially-resolved effect of mergers on the stellar mass assembly of MaNGA galaxies.*
Accepted for publication in Astronomy & Astrophysics (2025)
arXiv:2509.25340

15. C. Stone, **A. Adam**, A. Coogan, L. Perreault-Levasseur, Y. Hezaveh.
*`caskade`: building Pythonic scientific simulators.*
Journal of Open Source Software, vol. 10 (113), pp. 8786 (2025).
joss.08786

14. C. L. Rhea, J. Hlavacek-Larrondo, **A. Adam**, R. Kraft, Á. Bogdán, L. Perreault-Levasseur, M. Prunier.
*Deconvolving X-Ray Galaxy Cluster Spectra Using a Recurrent Inference Machine.*
The Astronomical Journal, vol. 169 (5), pp. 268 (2025).
arXiv:2409.10711

13. S. Salhi, **A. Adam**, L. Albert, R. Doyon, L. Perreault-Levasseur
*Score-based models for 1/f correlated noise correction in James Webb Space Telescope spectral data.*
NeurIPS workshop on Machine Leanring and the Physical Sciences (2024).
ML4PS2024:258

12. A. Bourdin, R. Legin, M. Ho, **A. Adam**, Y. Hezaveh, L. Perreault-Levasseur. *Inpainting Galaxy Counts onto N-Body Simulations over Multiple Cosmologies and Astrophysics.*
ICML workshop on AI for Science (2024).
arXiv:2408.00839

11. G. M. Barco, **A. Adam**, C. Stone, Y. Hezaveh, L. Perreault-Levasseur.
*Tackling the Problem of Distributional Shifts: Correcting Misspecified, High-Dimensional Data-Driven Priors for Inverse Problems.*
The Astrophysical Journal, vol. 980 (1), pp. 108 (2024).
arXiv:2407.17668

10. C. Stone, **A. Adam**, A. Coogan, M. J. Yantovski-Barth, A. Filipp, L. Setiawan, C. Core, R. Legin, C. Wilson, G. M. Barco, Y. Hezaveh, L. Perreault-Levasseur.
*Caustics: A Python Package for Accelerated Strong Gravitational Lensing Simulations.*
Journal of Open Source Software, vol. 9 (103), pp. 7081 (2024).
arXiv:2406.15542

9. S. Venkatraman, M. Jain, L. Scimeca, M. Kim, M. Sendera, M. Hasan, L. Rowe, S. Mittal, P. Lemos, E. Bengio, **A. Adam**, J. Rector-Brooks, Y. Bengio, G. Berseth, N. Malkin.
*Amortizing intractable inference in diffusion models for vision, language, and control.*
Proceedings of the Conference on Neural Information Processing Systems, vol. 37, pp. 76080–76114 (2024).
arXiv:2501.20971
8. M. Sendera, M. Kim, S. Mittal, P. Lemos, L. Scimeca, J. Rector-Brooks, **A. Adam**, Y. Bengio, N. Malkin.
*Improved off-policy training of diffusion samplers.*
Proceedings of the Conference on Neural Information Processing Systems, vol. 37, pp. 81016–81045 (2024).
arXiv:2501.05098
7. R. Legin$^\star$, **A. Adam**$^\star$, Y. Hezaveh, L. Perreault-Levasseur. ($^\star$: Equal contribution)
*Beyond Gaussian Noise: A Generalized Approach to Likelihood Analysis with non-Gaussian Noise.*
The Astrophysical Journal Letters, vol. 949 (2), L41 (2023).
arXiv:2302.03046
6. **A. Adam**, Y. Hezaveh, L. Perreault-Levasseur, M. Welling.
*Pixelated Reconstruction of Foreground Density and Background Surface Brightness in Gravitational Lensing Systems using Recurrent Inference Machines.*
The Astrophysical Journal, vol. 951 (1), pp. 6 (2023).
arXiv:2301.04168
5. N. Dia, M. J. Yantovski-Barth, **A. Adam**, M. Bowles, P. Lemos, A. M. M. Scaife, Y. Hezaveh, L. Perreault-Levasseur.
*Bayesian Imaging for Radio Interferometry with Score-Based Priors.*
NeurIPS Workshop on Machine Learning and the Physical Sciences (2023).
arXiv:2311.18012
4. C. L. Rhea, J. Hlavacek-Larrondo, , R. Kraft, Á. Bogdán, **A. Adam**, L. Perreault-Levasseur..
*Unraveling the mysteries of galaxy clusters: recurrent inference deconvolution of X-ray spectra*
NeurIPS workshop on Machine Learning and the Physical Sciences (2023).
arXiv:2311.18014
3. M. Pasquato, S. Haddad, P. Di Cintio, **A. Adam**, P. Lemos, N. Dia, M. Petrache, U. Niccolò Di Carlo, A. Alberto Trani, L. Perreault-Levasseur, Y. Hezaveh.
*The search for the lost attractor.*
NeurIPS Workshop on Machine Learning and the Physical Sciences (2023).
arXiv:2311.16306
2. **A. Adam**, A. Coogan, N. Malkin, R. Legin, L. Perreault-Levasseur, Y. Hezaveh, Y. Bengio.
*Posterior samples of source galaxies in strong gravitational lenses with score-based priors.*
NeurIPS Workshop on Machine Learning and the Physical Sciences (2022).
arXiv:2211.03812
1. **A. Adam**, L. Perreault-Levasseur, Y. Hezaveh.
*Pixelated Reconstruction of Gravitational Lenses using Recurrent Inference Machines.*
ICML Workshop on Machine Learning for Astrophysics (2022).
arXiv:2207.01073