Ana Sofía M. Uzsoy

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Education

Harvard University *Cambridge, MA, USA*
PhD, Astronomy & Astrophysics (in progress) *September 2022 - present*
- Advisor: Doug Finkbeiner
- Thesis Committee: Daniel Eisenstein, Ashley Villar, Aneta Siemiginowska

University of Cambridge *Cambridge, UK*
M.Phil, Machine Learning and Machine Intelligence *September 2021 - August 2022*
- Advisor: Kaisey Mandel
- Thesis: *Scalable Bayesian Inference for Probabilistic Spectrotemporal Models of Type Ia Supernovae*

North Carolina State University (NCSU) *Raleigh, NC, USA*
B.S. Computer Science, B.S. Physics *August 2017 - May 2021*
- *Summa cum laude*, Dean's List (All Semesters)
- Minors: Mathematics, Oboe Performance

Work Experience

Google *Santa Barbara, CA, USA (remote)*
Software Engineering Intern, Quantum AI team *June 2021 – August 2021*
- Wrote new methods to improve quantum computing simulators in Cirq (Google's quantum computing library) by modeling noise from quantum hardware.
- Wrote internal software design documents and public documentation for Cirq.

Google *Mountain View, CA, USA (remote)*
Software Engineering Intern, Tensorflow/Keras/Kaggle teams *May 2020 – July 2020*
- Created natural language processing (NLP) machine learning code examples using TensorFlow 2 for Kaggle, Google's online machine learning and data science competition platform.
- Designed and led launch of new NLP-focused Kaggle competition that remains active.
- Wrote text generation code featured in Google's Data Analyst Professional Certificate Course.

NASA Langley Research Center *Hampton, VA, USA*
Intern *June 2019 – August 2019*
- Worked on team for SAGE III ISS (Stratospheric Aerosol & Gas Experiment III on the International Space Station), an atmospheric science experimental apparatus aboard the ISS.
- Wrote data analysis pipeline to identify cloud interference in spectroscopic atmosphere measurements using machine learning.

Achievements

2026	**Astrostatistics Student Paper Competition Finalist**, American Statistical Association
2021	**National Science Foundation Graduate Research Fellowship**, awarded to outstanding graduate students in STEM disciplines at US institutions
2021	**Churchill Scholarship**, national scholarship providing funding for American students in STEM disciplines to complete an MPhil at the University of Cambridge
2021	**Rodney I. McCormick Award**, awarded by NCSU Physics Department to a graduating senior for excellence in undergraduate research
2020	**Phi Beta Kappa**, inducted into national honor society for high-achieving undergraduates
2020	**First place poster prize**, McCormick Symposium, the NCSU Physics Department Annual Undergraduate Research Symposium
2020	**NCSU Computer Science Department Faculty Senior Scholar**, awarded to a rising senior based on academic excellence, intellectual breadth, and depth of character
2019	**Barry M. Goldwater Scholarship**, a national scholarship awarded to promising undergraduates who plan to pursue a STEM research career
2017	**Park Scholarship**, a full-ride merit scholarship to NCSU awarded on the basis of outstanding accomplishments and potential in scholarship, leadership, character, and service

Publications

Journal Articles

Uzsoy, **A. S. M.**, Dey, A., Raichoor, A., Finkbeiner, D. P., Ramakrishnan, V., et al. (2025). Effect of local environment on Lyα line profile in DESI/ODIN LAEs. https://arxiv.org/abs/2511.17498 (submitted to ApJ)

Uzsoy, **A. S. M.**, Saydjari, A. K., Dey, A., Raichoor, A., Finkbeiner, D. P., et al. (2025). Bayesian Component Separation for DESI LAE Automated Spectroscopic Redshifts and Photometric Targeting. https://arxiv.org/abs/2504.06870 (submitted to ApJ)

Grayling, M., Thorp, S., Mandel, K. S., Dhawan, S., **Uzsoy**, **A. S. M.**, et al. (2024). Scalable hierarchical BayeSN inference: investigating dependence of SN Ia host galaxy dust properties on stellar mass and redshift. *Monthly Notices of the Royal Astronomical Society*, *531*(1), 953–976.

Uzsoy, **A. S. M.**, Thorp, S., Grayling, M., & Mandel, K. S. (2024). Variational inference for acceleration of SN Ia photometric distance estimation with BayeSN. *Monthly Notices of the Royal Astronomical Society*, *535*(3), 2306–2321.

Saydjari, A. K., **Uzsoy**, **A. S. M.**, Zucker, C., Peek, J. E. G., & Finkbeiner, D. P. (2023). Measuring the 8621 Å Diffuse Interstellar Band in Gaia DR3 RVS Spectra: Obtaining a Clean Catalog by Marginalizing over Stellar Types. *The Astrophysical Journal*, *954*(2), 141.

Uzsoy, **A. S. M.**, Zareiesfandabadi, P., Jennings, J., Kemper, A. F., & Elting, M. W. (2021). Automated tracking of *S. pombe* spindle elongation dynamics. *Journal of Microscopy*, *284*(1), 83–94.

Uzsoy, **A. S. M.**, Rogers, L. A., & Price, E. M. (2021). Radius and Mass Distribution of Ultra-short-period Planets. *The Astrophysical Journal*, *919*(1), 26.

Refereed Machine Learning Workshop Papers

Uzsoy, **A. S. M.**, Lamman, C., & Weber, M. (2025). Manifold Learning for Cosmic Structures. *Machine Learning and the Physical Sciences Workshop @ NeurIPS 2025*. [pdf].

de Soto, K., **Uzsoy**, **A. S.**, & Villar, V. A. (2024). Sharing Space: A Survey-agnostic Variational Autoencoder for Supernova Science. *Machine Learning and the Physical Sciences Workshop @ NeurIPS 2024*. [pdf].

Presentations

Talks

- DESI Collaboration Meeting, 2025 December 11, Tucson, AZ
- AstroAI Seminar, Center for Astrophysics | Harvard & Smithsonian, 2025 November 3, Cambridge, MA
- University of Toronto/CITA Cosmology Lunch, 2025 October 10, Toronto, Canada
- UT Austin Galaxies & Cosmology Seminar, 2025 October 6, Austin, TX
- Open SkAI Workshop, 2025 September 5, Chicago, IL
- University of Cambridge Astro Data Science Seminar, 2025 July 21, Cambridge, England
- AstroAI Seminar, Center for Astrophysics | Harvard & Smithsonian, 2025 May 19, Cambridge, MA
- Universidad de La Serena; 2025 April 24; La Serena, Chile
- Escape of Lyman Radiation from Galactic Labyrinths; 2025 April 11; Crete, Greece
- Princeton Astro Machine Learning Journal Club; 2025 February 6; Princeton, NJ
- Transient Tea, Center for Astrophysics | Harvard & Smithsonian; 2025 January 24; Cambridge, MA
- DESI Lunch, Lawrence Berkeley National Lab; 2024 October 9; Berkeley, CA
- Stanford KIPAC Visitor Tea; 2024 October 8; Palo Alto, CA
- Astromerique Seminar, U. of Montreal Ciela Institute; 2024 October 1; Montreal, Canada (virtual)
- NSF IAIFI Summer Workshop, MIT; 2024 August 13; Cambridge, MA
- DESI Collaboration Meeting; 2024 July 12; Marseille, France
- NSF's NOIRLab; 2024 May 24, Tucson, AZ
- Harvard CHASC Astrostatistics Seminar; 2024 February 7; Cambridge, MA
- NCSU Physics Department McCormick Symposium; 2021 May 5; Raleigh, NC (virtual)
- University of Chicago STEM Research Symposium; 2018 August 1; Chicago, IL

- Leadership Alliance National Symposium; 2018 July 27-29; Hartford, CT

POSTERS

- NeurIPS Machine Learning and the Physical Sciences Workshop; 2025 December 6; San Diego, CA
- DESI Collaboration Meeting; 2025 July 7-11; Berkeley, CA
- Rare Gems in Big Data; 2024 May 20-24; Tucson, AZ
- 243rd American Astronomical Society Meeting; 2024 January 7-12; New Orleans, LA
- NCSU Physics Department McCormick Symposium; 2020 May 6; Raleigh, NC (virtual)
- 235th American Astronomical Society Meeting; 2020 January 4-8; Honolulu, HI
- 2019 American Society for Cell Biology Meeting; 2019 December 7-11; Washington, DC
- Triangle Cytoskeleton Meeting; 2019 September 30; Saxapahaw, NC
- NCSU Spring Undergraduate Research Symposium; 2019 April 24; Raleigh, NC
- NCSU Physics Department McCormick Symposium; 2019 April 22; Raleigh, NC
- Triangle Cytoskeleton Meeting; 2018 September 24; Saxapahaw, NC
- Intel International Science & Engineering Fair, 2017 May 14-19; Los Angeles, CA

Teaching & Service

Leadership Team, AstroAI   *February 2025 - present*
- Serve on committees and help organize talks and workshops for AstroAI, a center dedicated to interdisciplinary research at the intersection of artificial intelligence and astrophysics at the Center for Astrophysics | Harvard & Smithsonian.

Teaching Fellow, Machine Learning for Astrophysics   *Spring 2024, 2025*
- Guest lectured, held office hours, graded assignments, provided feedback, and supported students in Astro 205, a graduate course on machine learning techniques for astrophysics at Harvard.

Scientific/Local Organizing Committee, AstroAI Workshop   *February 2024 - June 2024*
- Helped arrange speakers, coordinated volunteers, reviewed abstracts, and chaired sessions for the 2024 AstroAI Workshop at the Center for Astrophysics | Harvard & Smithsonian.

President, NCSU Women in Physics   *August 2020-May 2021*
- Organized a peer-mentoring program, speaker series and social events to promote a community of women and gender minorities in the NCSU physics department.

NCSU College of Sciences Student Ambassador   *August 2018-May 2021*
- Represented the NCSU College of Sciences and physics department at university events for current and prospective students.

Skills

Programming	Python, Julia (advanced)
	C, R, Java, MATLAB (intermediate)
	C++, HTML/CSS, Assembly (familiar)
Technology	LaTeX, Git/GitHub, UNIX, Bash, Mathematica
Miscellaneous	Spanish (fluent), Soldering, Circuit wiring, Bacterial culture