

Haille Marie Lynn Perkins

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Education

PhD in Astronomy

Astronomy Department

GPA: 4.00/4.00

Thesis Advisor(s): Gautham Narayan and Brian Fields

Thesis: Characterizing Explosive Transients: From Neutron Star Mergers to Supernovae via Analysis of Simulated and Observed Emission

Candidacy Exam Passed: September 2024

University of Illinois Urbana-Champaign (UIUC)

August 2022 - Present

Bachelor of Science

Physics and Computer Science Departments

GPA: 3.92/4.00, Summa Cum Laude

Thesis Advisor: Aileen O'Donoghue

Thesis: Observing Galaxies Hosting Supernovae with the Green Bank Telescope

Study Abroad: DIS; Copenhagen, Denmark; August 2021 - December 2021

- *Game Development: Programming & Practice*

St. Lawrence University (SLU)

August 2018 - May 2022

Research Software

TARDIS | Google Summer of Code Contributor

Advisors: Drs. Jack O'Brien, James Gillanders, Andrew Fullard

- Implemented functionality to display spectral line features in TARDIS spectral visualizations

- Further developed the existing formal integral computation and test suite

May 2025 - August 2025

Remote

TARDIS | Google Summer of Code Mentor

Advisees: Shreyans Saraf, Rishmita Rao

- Mentor students in developing visualization tools, test coverage, and documentation that adhere to the projects standards via meetings and code review

- Evaluated applications and code contributions of applicants; interviewed candidates; provided feedback in the curation of the final cohort of contributors

May 2026 - August 2026

Remote

Technical Skills

- Programming languages: Python, Java, C#, C, Shell, LaTeX, HTML/CSS, Javascript
- Libraries: `astropy`, `numpy`, `pandas`, `scipy`, `matplotlib`, `scikit-learn`, `ultranest`, `PyTorch`
- Development Practices: `git`, `GitHub`, `pytest`, `Sphinx`, `GitHub Actions`
- Clusters and HPC: `slurm`, parallel computing

Research Experience

Science Graduate Student Research Program Awardee | Department of Energy

Advisor: Dr. Peter Nugent

February 2026 - Present, Berkeley, California

- Constraining ejecta properties of nearby, highly-extincted SN Ic 2023dbc via analysis with Modular Open Source Fitter for Transients (MOSFiT) and 1-D Monte Carlo radiative transfer code TARDIS.

Center for AstroPhysical Surveys Fellow | National Center for Supercomputing Applications

Advisors: Drs. Gautham Narayan, Brian Fields

August 2023 - March 2026, Urbana, Illinois

- Assessed neutron star merger detection prospects for the Legacy Survey of Space and Time by modeling combined afterglow and kilonova emission, and determined color criteria to distinguish afterglow contributions in multiwavelength observations (Perkins et al. 2026)

- Presented work as an invited talk for the GRANDMA collaboration

Graduate Researcher | UIUC

December 2022 - January 2024

Advisor: Dr. Brian Fields

Urbana, Illinois

- Quantified the threat of nearby neutron star mergers on Earth by synthesizing time-integrated theoretical flux predictions of several high-energy emission mechanisms (Perkins et al. 2024).
- Presented as a poster at the American Astronomical Society's 243rd Meeting

Ronald E. McNair Post-baccalaureate Scholar | SLU

Summers 2019, 2020, 2021

Advisor: Dr. Aileen O'Donoghue

Canton, New York

- Improved technical and user interaction features of the `pyAPPSS` package for a collaboration-wide beta test on latest GBT observations
- Successfully proposed and observed a sample of supernovae hosts with the Green Bank Telescope

Publications

Searching for Neutron Star Mergers in the Absence of Gravitational Waves with Optical Afterglow Emission, Haille M. L. Perkins, Gautham Narayan, Brian D. Fields, Ved Shah, Genevieve Schroeder, 2026, *The Astrophysical Journal*, 1001, 240

Could A Kilonova Kill: A Threat Assessment, Haille M. L. Perkins, John Ellis, Brian D. Fields, Dieter H. Hartmann, Zhenghai Liu, Gail C. McLaughlin, Rebecca Surman, Xilu Wang, 2024, *The Astrophysical Journal*, 961, 170

Select Press Features: [AAS Nova](#), [New York Post](#), [Astrobites](#), [Space.com](#)

Predictions for electromagnetic counterparts to Neutron Star mergers discovered during LIGO-Virgo-KAGRA observing runs 4 and 5, Shah et al. (2023, incl. H. M. L. Perkins)

SN 2021foa: The “Flip-Flop” Type II_n / Ibn supernova, Farias et al. (2024, incl. H. M. L. Perkins)

AT 2024ahzi: A Type IIP Supernova Discovered by the LSST Commissioning Camera, de Soto et al. (2026, incl. H. M. L. Perkins), in review

SN 2024iss: A Multi-Wavelength Exposé of a Type II_b Supernova with an Early-Time UV Spectrum, Yete et al. (2026, incl. H. M. L. Perkins), in review

Type II Supernovae From the Young Supernova Experiment Data Release 1: Light Curve, Spectral, and Local Environment Properties, Vazquez et al. (2026, incl. H. M. L. Perkins), in collaboration review

Selected Fellowships and Awards

DOE Science Graduate Student Research Program	DOE, 2026 (\$15,000)
Graduate Research Fellowship Program Honorable Mention	NSF, 2024
Excellence in Research Graduate Student Award	UIUC, 2024 (\$1,000)
CAPS Graduate Student Fellowship	UIUC, 2023 (\$33,000)
First Author Publication Award	UIUC, 2023/2026
CSTEP STEM Field Academic Achievement Award	SLU, 2020
Donald C. Peckham Award for Excellence in Physics	SLU, 2020/2021
Sesquicentennial Merit Scholarship	SLU, 2018-2022

Mentoring and Service Activities

Undergraduate Mentorship

Supporting a student in the development of TARDIS visualization tools and documentation
Mentored three undergraduate students on navigating academia and professional development

Member | Graduate Admissions Committee

Jan 2026 - May 2026

Evaluated applications for the UIUC Astronomy graduate program; interviewed applicants; provided feedback on final admission decisions

Co-chair | Society of Equity in Astronomy*August 2023 - July 2025*

Facilitated discussions on diversity, equity, and inclusion via meetings with the faculty DEI and admissions committees, weekly colloquium speakers, and the broader department
Organized professional development panels for undergraduates
Organized Graduate-to-undergraduate Student mentoring program

Counselor | Astronomy Girl's Summer Camp*Summers 2023-25*

Worked with the Lead Organizer to plan and execute week-long, astronomy-focused summer camp for high school students of underrepresented gender minorities
Facilitated introductory lectures on fields within astronomy, spectroscopy, and Python

Teaching Experience

Teaching Assistant | University of Illinois Urbana Champaign*August 2022 - May 2023*

Facilitated discussion sessions for Astronomy 121 and 122
Provided feedback and guidance to students both in class and on graded assignments

Peer Mentor | St. Lawrence University*August 2019 - May 2022*

Provided drop-in tutoring for Physics, Computer Science, and Mathematics courses
Led review sessions and workshops for introductory physics courses, Microsoft Excel, and L^AT_EX

Teaching Assistant | St. Lawrence University*August 2019 - May 2022*

Facilitated weekly, small group review sessions for introductory physics courses
Served as a grader and provided constructive feedback on weekly homework and laboratory assignments

Presentations

Prospects of Finding Binary Neutron Star Mergers without Gravitational Waves

GRANDMA Collaboration Weekly Telecon, Invited Talk, Apr 2026
Center for AstroPhysical Surveys Seminar, Oral Presentation, Apr 2024
2nd Annual NCSA Student Research Conference, Poster, Apr 2024
Gravitational Wave Physics and Astronomy Workshop, Poster, May 2024
CeNAM Frontiers in Nuclear Astrophysics Meeting, Poster, Jun 2024
Dark Energy Science Collaboration Meeting, Poster, Jul 2024
Transients From Space at Space Telescope Science Institute, Poster, Mar 2025

Can a Kilonova Kill: A Threat Assessment

American Astronomical Society's 243rd Meeting, Poster, January 2024

Observing Galaxies Hosting Supernovae with the Green Bank Telescope

St. Lawrence University Festival of Science, Scholarship, & Creativity, Poster, May 2022

Selecting Galaxies Hosting Supernovae for Observation with the Green Bank Telescope

St. Lawrence University Laurentian Weekend, Prerecorded Talk, Oct 2021
26th Annual University of Buffalo Undergraduate Research Conference, Virtual Talk, Jul 2021
Virtual National McNair Conference at UCLA, Virtual Talk, Jul 2021

Data Reduction for the Arecibo Pisces-Perseus Supercluster Survey

Virtual Baylor University McNair Research Conference, Virtual Talk, Oct 2020
St. Lawrence University Laurentian Weekend, Prerecorded Talk, Oct 2020