Chase M. Enlowsmith

Contact Information

Phone: 415 - 304 - 4967
Email: cenlowsmith@gmail.com
LinkedIn: linkedin.com/in/chase-enlowsmith/

Education

The University of Texas at Austin, Austin, Texas — Dec 2025

Bachelor of Science in Physics & Astronomy

- GPA 3.91
- Relevant Coursework: Quantum Mechanics, Electrodynamics, Thermodynamics, Relativity, Astrophysics, Cosmology

Honors and Awards

Phi Beta Kappa, Alpha of Texas chapter — Feb 2025 – Present

University Honors, University of Texas at Austin — May 2023 – Present

Lightning Talk Competition - 2nd Place, Applied Research Labs — Jul 2025

2025 Honors Scholar Lightning Talk:
"Machine Learning on Sound Speed Profiles to Characterize Ocean Variability"

Professional Research Experience

Applied Research Lab, Austin, Texas — Jun 2025 – Present

Honors Scholar Intern

- Engineered a machine learning pipeline to geographically cluster underwater acoustic data across basin scales.
- Characterized ocean variability on decadal timescales, providing valuable insight into long-term ocean patterns.
- Created a bespoke data-reduction methodology to optimize pipeline accuracy and efficiency beyond industry standards.
- Innovating new machine learning approaches to predict acoustic features for tactical oceanography applications.
- Authoring a manuscript to be published in peer-reviewed journals.

Center for Gravitational Physics, Austin, Texas — Oct 2024 – Aug 2025

Undergraduate Researcher

- Designed and developed a data analysis pipeline to calculate galaxy redshifts from the Hobby-Eberly Telescope (HET) VIRUS-P Parallel Survey (VIPS) utilizing the Redrock API.
- Provided the extracted redshifts from HET spectra for current comparative studies with gravitational wave-derived distance measurements to further investigate the Hubble tension.
- Investigated how cosmological assumptions, the number of lines of sight, galaxy catalogue sparseness, and EM-signal availability all affect the Hubble constant posterior.

Research Projects

Gravitational Lens Detection, Austin, Texas — Sep 2025 – Present

- Developing a machine learning pipeline to accurately identify gravitationally-lensed galaxies within a sample of luminous red galaxies in the Kilo Degree Sky Survey data release 5.
- Constructing a robust data analysis tool that first maps galaxy images into a statistical latent space via a variational autoencoder, and secondly applies a t-distributed stochastic neighbor embedding to capture new galaxy-lens candidates.

GW Data Sonification, Austin, Texas Oct 2025 – Dec 2025

- Constructed a command-line tool to download, visualize, and sonify gravitational wave events from GWOSC (Gravitational Wave Open Science Center)
- Developed an open-source pipeline to extract black hole merger parameter distributions from LIGO, construct waveforms, and map into an audio format.
- Constructed a Jupyter Notebook version for step-by-step execution to increase learnability.
- Formed a detailed guide explaining pipeline usage and the theoretical physics of gravitational waves and their observation.

CMBverse, Austin, Texas Jun 2024 – Jul 2025

- Simulated Cosmic Microwave Background (CMB) power spectra utilizing the Cosmic Linear Anisotropy Solving System (CLASS) and graphically analyzed the impact of Lambda Cold Dark Matter (LCDM) model parameters.
- Designed and published a website to display interactive graphs, improving accessibility for academic audiences within the Physics and Astronomy departments at the University of Texas at Austin and beyond.

Leadership and Community Involvement

Theta Chi Fraternity, Austin, Texas

Scholarship Chair Dec 2023 – Dec 2024

- Connected 40+ members with applicable scholarship opportunities, career events, and academic opportunities.
- Oversaw academic performance and provided one-on-one career and academic assistance.

Recruitment Captain Dec 2023 – Dec 2024

- Coordinated recruitment events and outreach to potential new members.

UT MicroFarm, Austin, Texas Apr 2023 – May 2024

Volunteer

- Worked with a team of volunteers to grow plants, manage the upkeep of community garden plots, and compost.
- Contributed to producing dozens of pounds of fresh produce donated to the student food bank.

Technical Skills

Python, Matlab, Unix, LaTeX, Microsoft Office Suite, Google Suite, Data Analysis, Machine Learning

Languages

English (Native), Spanish (Basic)