

Luna Kronzer

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Education

The University of Alabama

Master of Science in Aerospace Engineering (*ongoing*)

Graduation May 2025

Bachelor of Science in Aerospace Engineering and Physics, *summa cum laude*

Graduated May 2024

GPA: 4.00/4.00

Research Experience

Student Researcher, Multiple On-Campus Laboratories

August 2023 – Present

The University of Alabama, Tuscaloosa, Alabama

(<http://lager.ua.edu/>, <https://pntflab.ua.edu/>)

- Working in collaboration between the Laboratory for Autonomy, GNC, and Estimation Research (LAGER) and the Precision Navigation, Timing, and Frequency Lab (PNTF)
- Studying integration of a chip-scale atomic clock onboard a quadcopter UAV, in order to provide more precise position estimates for autonomous navigation
- Researching application of time & frequency metrology to deep-space satellite navigation using onboard atomic clocks

Student Researcher, Astrodynamics and Space Research Laboratory (ASRL)

August 2022 – August 2023

The University of Alabama, Tuscaloosa, Alabama

(<https://asrl.ua.edu/>)

- Developed software at ASRL for numerical integration and trajectory simulation within the circular restricted three-body problem (CR3BP) using Python
- Studied and derived periodic orbits under three-body dynamics (Lyapunov orbits, axial orbits, halo orbits, etc.)
- Wrote suite of plotting utilities for 3D and 2D visualization of orbits and trajectories

Summer Intern Programmer, Oak Ridge National Laboratory (ORNL)

Summer 2019, Summer 2021

Oak Ridge, Tennessee

- Worked under a team of astrophysicists developing supernova simulation software (“Chimera”) that ran on Summit supercomputer
- Developed software tools using Python to plot and interpret data from Chimera simulations
- Collaborated with a group of interns (ranged from high school students to Ph.D. students) to compile simulation data and to interpret results and trends
- Delivered results to senior astrophysicists in order to further refine Chimera simulations

Publications

- Mezzcappa, Anthony, et al. “Core Collapse Supernova Gravitational Wave Emission for Progenitors of 9.6, 15, and 25 Solar Masses.” *Physical Review D*, vol. 107, no. 4, 9 Feb. 2023, <https://doi.org/10.1103/PhysRevD.107.043008>. (credited as “Luke L. Kronzer”)

Scholarships and Awards

- President’s List and Dean’s List: 8 semesters, Fall 2020 – Spring 2024
- Accepted to the Accelerated Master’s Program (AMP)
- National Merit Scholar

Skills and Qualifications

- Fluent in a variety of programming languages: Python, MATLAB, C++, C, C#, Rust, Java, and JavaScript
- Experienced with SOLIDWORKS, LaTeX, ANSYS; deeply familiar with both Windows and Unix systems
- Proficient in written and spoken German (DSD I certified)

Memberships and Service

- Member of Society of Physics Students August 2021 – Present
- Member of Tuska UAV Design Team August 2021 – Present
- Member of American Institute for Aeronautics and Astronautics (AIAA) September 2020 – Present
- University of Alabama Honors Action Community Service-Learning Program August 2020