

# Corin Marasco

cmarasco@ufl.edu || (770) 871-5406 || [in linkedin.com/in/corin-marasco](https://www.linkedin.com/in/corin-marasco) || [github.com/cmarasco](https://github.com/cmarasco)

## Research Interests

---

**I am passionate about conducting observational astrophysics research. My research interests and experience include stellar astronomy and high-energy astrophysics.**

## Education

---

### University of Florida

- PhD in Astronomy

August 2022 – present

Current GPA: 3.91

### Georgia Institute of Technology

- B.S. in Physics with Astrophysics Concentration
- Graduated Summa Cum Laude

August 2018 – May 2022

Overall GPA: 3.82

### Georgia State University, Perimeter College

- High School Dual Enrollment Student

August 2017 – May 2018

Overall GPA: 4.00

## Research Experience

---

### University of Florida, Department of Astronomy

August 2022 – present

*Research Assistant – Asteroseismology of Low-Metallicity Red Giants Observed by TESS; Jamie Tayar, PhD*

- Using recently-received light curves from TESS to determine asteroseismic parameters for low-metallicity red giants.
- Using those parameters to calculate the masses and ages of the stars and verifying their validity.
- Writing a scientific paper about this research that will soon be submitted for review.

### NASA Marshall Space Flight Center, Science Research and Projects Division

June 2022 – August 2022

*Intern – Probabilistic Background Subtraction for Chandra Data; Steven Ehlert, PhD*

- Tested a new probabilistic background subtraction method on diffuse, high-energy sources observed by the Chandra telescope.
- Used Python and CIAO to generate surface brightness profiles of galaxy clusters and images of sources with diffuse emission before and after different background subtraction methods had been applied.
- Successfully provided evidence that probabilistic background subtraction was more effective than other common background subtraction methods.

### NASA Goddard Space Flight Center, Astrophysics Science Division

June 2021 – August 2021

*Intern – Cross-Calibration of X-ray Satellites; Kristin Madsen, PhD*

- Cross-calibrated the X-ray satellites NuSTAR, XMM-Newton, Swift, and Chandra using yearly observations of the quasar 3C 273 from 2015-2021.
- Determined good time intervals for each of the observations.
- Extracted light curves and X-ray spectral data for the NuSTAR, Swift, and Chandra observations.
- Used NASA's XSPEC software to fit a model to the spectral data, then used Python to visualize and analyze the fit data and calculate cross-normalization constants for each observatory pair.

**Georgia Institute of Technology, School of Physics**

January 2020 – May 2022

*Research Assistant – Yellow Supergiants in the Michigan Spectral Catalogue; James Sowell, PhD*

- Sourced various catalogs, surveys, and other literature to compile the most accurate characteristics data on yellow supergiants included in the Michigan Spectral Catalogue.
- Visualized the supergiant data through plots created with Python and identified trends and outliers in the set of stars.
- Writing a scientific paper about this research.

**Georgia State University, Physics and Astronomy**

March 2018 – October 2018

*Research Volunteer – Ultra-Fast Outflow Signatures in Active Galactic Nuclei; Jay Dunn, PhD*

- Surveyed active galactic nuclei for ultra-fast outflows.
- Plotted and analyzed ultraviolet spectral data from the FUSE telescope using IDL.
- Searched for absorption in the spectral data indicating ultra-fast outflow signatures.

**Abstracts**

---

**Marasco, C., & Sowell, J.** 2021, in American Astronomical Society Meeting Abstracts, Vol. 53, American Astronomical Society Meeting Abstracts, 548.09

**Presentations**

---

**Traveling Back in Time – Asteroseismology of Low-Metallicity Red Giants Observed by TESS***UF Astronomy Graduate Symposium*

September 2023

**Probabilistic Background Subtraction for Chandra X-ray Data***NASA MSFC Virtual Intern Symposium*

August 2022

**Cross-Calibrations of X-ray Satellites with the Quasar 3C 273***NASA GSFC Virtual Intern Symposium*

August 2021

**Posters**

---

**Characteristics of Yellow Supergiants in the Michigan Spectral Catalogue***237th Meeting of the American Astronomical Society*

January 2021

**A Survey of Ultraviolet Spectra for UFO Signatures***Georgia Regional Astronomy Meeting*

October 2018

**Teaching**

---

**TA Lecturer for Astronomy Lab (AST 1022L) – University of Florida**

August 2022 – December 2022

- Taught and graded two sections of an introductory astronomy lab for undergraduates.
- Presented lectures and guided students through both classroom labs and observational night labs.
- Helped students outside of class through office hours.

**TA for Optics I (PHYS 3232) – Georgia Institute of Technology**

August 2021 – December 2021

- Tutored and mentored students through office hours and graded assignments.

## Projects

---

### Educational Astrophysics Website

April 2020 – August 2020

- Created an interactive simulation of planetary orbits for a computational physics class using JavaScript.
- Constructed calculators for the characteristics of stars, planets, and black holes using JavaScript.
- Used HTML and CSS to design a website presenting these features as tools for learning about astrophysics and published it as a public website.

## Leadership

---

### Founder/President – Georgia Tech Book Jackets

July 2020 – May 2022

- Organized a group of 200 students who enjoy reading recreationally and registered the club with the Georgia Tech Center for Student Engagement.
- Established and managed the process of choosing books to read and arranged meetings and discussions between a diverse group of students about the books.
- Responsible for recruitment, outreach, and funding.

## Skills

---

**Computer** – Python (Matplotlib, NumPy, AstroPy, Pandas, and Jupyter Notebook), Machine Learning, Java (JavaFX), IDL, LaTeX, C, Website Design (JavaScript, HTML, CSS), GitHub, Emacs, Windows, Mac OS, Linux, Terminal, Microsoft Excel

**Research** – Asteroseismology, Time-Series Photometry, Observational Techniques, X-ray Observation, Spectroscopy, Data Analysis, Data Visualization, Scientific Writing, Data Retrieval

**High-Level Physics** – Astrophysics, Stellar Astronomy, Galactic Astronomy, High-Energy Astrophysics, Radiative Processes, Computational Physics, Cosmology, Relativity, Astrobiology, Interstellar Matter, Quantum Mechanics, Optics, Classical Mechanics, Electrodynamics, Thermodynamics

**Mathematics** – Differential, Integral, and Multivariable Calculus, Linear Algebra, Differential Equations