Carolina Navarrete

carolina.navarrete.333@gmail.com | (956)-466-6021 | New York City, NY
github.com/canavarrete01/ | linkedin.com/in/ca-navarrete/ | https://canavarrete01.github.io/

EDUCATION

The University of Texas at Austin *Aug 2020 - May 2024*
Bachelors of Science and Arts in Astronomy, Minor in Computer Science

SKILLS

Languages: Python, JavaScript, SQL, HTML/CSS, Julia
Frameworks & Libraries: React.js, Vue.js, Node.js, Seaborn, Matplotlib, NumPy
Tools & Platforms: Amazon Web Services, Google Cloud Platform, Git & Git Collaboration, Conda, Linux/Unix

EXPERIENCE

American Museum of Natural History **New York, NY**
Data Ingestion Specialist, Astrophysics Department *Aug 2024 - Present*

- Designed and implemented scalable backend ingestion pipelines using Python and SQL to populate SIMPLE, a stellar objects online database with 3000+ entries hosted on Amazon Web Services.
- Contributed to ingestion and validation functions within Astrodb-Utils, the open-source Python package supporting SIMPLE, streamlining database updates and ensuring data integrity.
- Led development and maintenance of a secure, privatized instance of the SIMPLE database hosted at the American Museum of Natural History, enabling internal researchers and select nationwide collaborators to manage, access, and visualize proprietary data.

The University of Texas Austin **Austin, TX**
Undergraduate Research Engineer, Astronomy Department *Jan 2023 – Jul 2024*

- Developed modular Julia modules for METIS, a Bayesian statistical analysis tool, enhancing parameterization, functionality, and user experience.
- Ported core functionality of METIS from legacy Python to modern, modular Julia, improving performance and maintainability.
- Profiled and optimized core functions to improve performance speed across HPC environments, implementing A/B benchmark testing to inform development, cutting down on computing time by ~30%.
- Presented research development at the American Astronomical Society (AAS) meeting in 2024, with an emphasis on open-source scientific software development.

TECHNICAL PROJECTS

Matcha Madness NYC

- Built and deployed a full-stack React web app to help users discover NYC matcha cafés, featuring an interactive Google Maps interface and a custom review system. Deployed and hosted through Google Cloud Platform (GCP).
- Developed a responsive front-end with search filters, café detail pages, and map-based navigation using JavaScript, React, and HTML/CSS.
- Designed and implemented RESTful API endpoints, optimized MongoDB schema for fast and scalable data queries.

Visual Analytics Science and Technology (VAST) Mini Challenge

- Visualized environmental patterns in hydrological data through interactive visualizers and plots to prove a rising trend in water pollution levels in a reserve.
- Applied data reduction, binning, and GUI-based exploration techniques to identify key insights in datasets, using Python-based visualization and analysis tools (Seaborn, Matplotlib, Pandas, and NumPy).

TALKS AND CONFERENCES

Presenter, Computational Astrophysics

- 9th Frank N. Bash Symposium – *Austin, TX (Oct. 2023)*
- 242nd American Astronomical Society Meeting – *New Orleans, LA (Jan. 2024)*
- Theoretical and Computational Astrophysics Networks (TCAN) Hackathon Week – *SETI Institute, Mountain View, CA (Mar. 2025)*