Carolina Navarrete

ca.navarrete01@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 *May 2024*

Bachelor of Science and Arts in Astronomy

- Certificate: Elements of Computing (Department of Computer Science)
- Minor: Mexican-American Studies (Department of Latino Studies)

SKILLS

Programming Languages: Python, SQL, SQLite, JavaScript, HTML, Julia and Java.
Data Science Packages: NumPy, Pandas, Spyder, Matplotlib, and related tools.
Other: Git Version Control, Conda Environments, Python package development, and High-Performance Computing, and Linux/Unix control

EXPERIENCE

American Museum of Natural History **New York, NY**

Data Ingestion Specialist, ***BDNYC*** *Aug. 2024 - Present*

- Analyzed **James Webb Space Telescope substellar data** using **MCMC inverse methods** on **high-performance computing (HPC) clusters**, managing several astrophysical experiments by implementing cluster optimization.
- Ingested **JWST data** into **SIMPLE**, an online database of hundreds of stellar objects hosted by **BDNYC**, using **Python, SQL, and AWS**.
- Enhanced **SIMPLE's schema infrastructure** to allow for more complex data storage
- Developed **Python template scripts** to streamline future data ingestion workflows.
- Enhanced functions within **Astrodb-Utils**, a Python package designed for data ingestion and **schema management** in the SIMPLE database.
- **Skills:** HPC cluster optimization, data analysis, database management, data ingestion, Python packaging, GitHub collaboration, science communication.
- **Languages:** Python, SQL (SQLite)

The University of Texas Austin **Austin, TX**

Research Engineer, **Dr. C. Morley's Exoplanet Atmosphere Research Group** *Jan. 2023 – Jul. 2024*

- Developed Julia modules for **METIS**, a Bayesian statistical analysis code (Dr. B. Lacy), enhancing parameterization, functionality, and user experience.
- Visualized exoplanet atmospheric models to compare **Bayesian inference methods** (MCMC vs. HMC) across 1D and 2D planetary models.
- **Skills:** Python software development, object-oriented programming, and statistical analysis.
- **Languages:** Julia, Python

Peer Mentor & Teaching Assistant, **White Dwarfs Freshman Research Initiative** *Jan. 2023 – May 2024*

- Mentored students in **laboratory astrophysics**, guiding statistical analysis and computational modeling of astrophysical data.
- Led **Python boot camps**, teaching data science essentials including Matplotlib, NumPy, and Conda environments.

TECHNICAL PROJECTS

Hungry Austin (HTML, JavaScript, Google Web Services, PostgreSQL, SQL, APIs):

- Developed a Yelp-like web app that categorized Austin restaurants by cuisine, price, and location using food-based APIs.
- Led front-end development, designing an intuitive UX/UI.
- Optimized SQL queries and database schema, improving data retrieval speed and efficiency.
- Implemented web scraping to enhance data accuracy and reduce API call latency.

Visual Analytics Science and Technology (VAST) Mini Challenge (Python, DataFrames.Py, Seaborn.Py):

- Developed interactive visualizations to analyze water pollution trends from hydrology datasets.
- Applied data reduction, binning, and GUI-based exploration techniques to identify key insights.

Game Development & Graphics Project (Java, Processing, Unity):
- Designed and built an endless runner arcade game inspired by *Jetpack Joyride*.
- Implemented motion mechanics, user interactions, and dynamic graphics.
- Utilized object-oriented programming to manage game logic and UI elements.

TALKS AND CONFERENCES

Presenter, Computational Astrophysics
- *9th Frank N. Bash Symposium (Bashfest)* – Austin, TX *(Oct. 2023)*
- *242nd American Astronomical Society (AAS) Meeting* – New Orleans, LA *(Jan. 2024)*

Attendee
- *PyData 2024* – New York, NY *(Oct. 2024)*