EMMA BACARRA

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Education

University of Washington,
Seattle, WA
B.S. Physics, B.S. Astronomy
Data Science Minor
Dean's List (2022, 2023-2024)

Relevant Coursework

Data Science Foundations
Neural Networks Methods
Statistics & Machine Learning
Introductory Quantum Mechanics
Electromagnetism Series
Astro Observation & Data Analysis
Mathematical Methods of Physics

Skills

Languages: Python, R
Packages: PyTorch, NumPy,
SymPy, Astropy, MatPlotLib,
IPyWidgets, Pandas, QTable,
Astroplan
Databases: Simbad, WMAP,
Planck
R Studio (dplyr, ggplot2, Plotly,
Tidyverse, shiny, etc)
Other: Google Suite & Microsoft
Office, Jupyter, VS Code,
Anaconda, Google Apps Script
(JavaScript), LaTeX & Markdown,
Git/GitHub, GitBASH,
Mathematica, Ubuntu

Awards

National Honors Society
2024 Baer Prize Scholarship

Relevant Experience

Student Researcher | Raw Data Speaks Initiative
UW Department of Astronomy (2024 - Present)
- Develop neural network models with auto encoder architectures
- Investigate and analyze spectral data of the Cosmic Microwave Background (CMB)
- Discuss the efficiency and products of a trained model for further improvement

Outreach Coordinator
UW Department of Astronomy (2023 - Present)
- Organize and maintain department events and community involvement
- Provide resources for student engagement, well-being, professional development, and academic support
- Administrative work, managing student files, committee responsibilities

Planetarium Volunteer
UW Department of Astronomy (2022 - 2023)
- Discuss customized topics in space for youth and adapt to diverse age groups
- Operate equipment while presenting engaging visuals and concepts
- Assist with determining events for the mobile planetarium outreach projects

Researcher | The Search For Black Holes
UW Department of Astronomy (2022 - Present)
- Extrapolate NASA's TESS data to analyze star fluxes of binary systems
- Utilize Python in Jupyter to explore potential new black hole candidates

Author | Project Vax
UW Information School (2021)
- Describe the impact of vaccinations on public health and collaborate on quantitatively exploring its correlations with mortality rates.
- Interactive visualization and widgets to explore various statistics in R Studio