Karina Barboza

The Ohio State University

EMAIL: barboza.21@osu.edu

EDUCATION

EXPECTED 2027	Ph.D in ASTRONOMY, **The Ohio State University**
JULY 2024	M.S. in ASTRONOMY, **The Ohio State University**
JUNE 2021	B.S. in ASTROPHYSICS, **University of California**, Los Angeles

FELLOWSHIPS & GRANTS

FEB 2025	IPAC Visiting Graduate Fellowship
JUL 2024	¡Lánzate!/Take Off! Higher Education Travel Grant
MAY 2024	AUI/IAU/Heising-Simons Scholar Travel Grant
APR 2024	NSF Graduate Student Research Fellowship
AUG 2022	Heising-Simons Foundation Bridge Fellowship
OCT 2018	UCLA Hermanas Unidas Poder de la Mujer Scholarship

RESEARCH EXPERIENCE

The Ohio State University

Advisors: Laura Lopez, Adam Leroy, Smita Mathur   **2024-Present**

- Investigating JWST-identified bubbles in NGC 628 with archival Chandra data to determine the role and conditions of stellar feedback in shaping galaxies.

Advisor: Christopher Kochanek   **2022-2024**

- Searched for unbound triple systems created in galactic supernova explosions to constrain the role of higher order systems in massive stellar evolution and compact object formation.

La Serena School of Data Science   **2024**

Advisor: Humberto Farias Aroca

- Developed an intelligent chatbot, CARINA, that processes natural language queries to search astronomical data in IVOA virtual observatories. Using language models and Retrieval-Augmented Generation, CARINA converts user inquiries into ADQL queries and retrieves data, simplifying access to astronomical repositories.

California Institute of Technology   **2022**

Advisor: David Cook

- Increased the efficiency of finding electromagnetic counterparts of gravitational waves by improving the completeness of known galaxies.

University of Hawaii at Manoa   **2020 - 2021**

Advisor: Andreea Petric

- Analyzed the morphology and kinematics of a triple AGN merger using SITELLE data, focusing on features, gas expulsion velocity, and impacts on the interstellar medium.

University of California, Los Angeles   **2019 - 2020**

Advisors: Brad Hansen, Jon Zink

- Helped develop open-source pipeline ExoMult to identify binary systems. Using the Shane Telescope, binary targets were identified and gathered data has been implemented in furthering the software's development.

Technical Skills

Languages: Fluent in English, Spanish
Coding Languages: C++, Python, SQL, ADQL, LaTeX
Machine Learning: Natural Language Processing, Retrieval-Augmented Generation (RAG)
OS: Linux Ubuntu, MacOS, Windows 10
Astronomy Software: DS9, AstroPy

Work Experience

Nov 2021 - Aug 2022	Infrared Processing and Analysis Center, **Caltech** *Data Pipeline Operator for NEOWISE mission where I helped discover, track, and characterize near-Earth asteroids and comets, particularly those posing a threat to Earth.*
Dec 2020 - Jun 2021	Computing and Lab Revision Subcommittee, **UCLA** *Revised the computing and laboratory instruction for the undergraduate physics curriculum.*

Publications

Karina Barboza and Christopher Kochanek, 2024, arXiv:2404.06540, "Searching for Triple Systems Unbound by Supernovae"

Conferences/Talks/Posters

NSBP-NSHP Joint Conference, POSTER
    Houston, Texas, November 2024

XXXII IAU General Assembly, POSTER
    Cape Town, South Africa, August 2024

PHANGS Team Meeting, TALK
    Munich, Germany, February 2024

The 243rd Meeting of the American Astronomical Society, POSTER
    New Orleans, Louisiana, January 2024

National Society of Black Physicists, CONFERENCE
    Knoxville, Tennessee, November 2023

The 20th Divisional Meeting of the High Energy Astrophysics Division, POSTER
    Hilton Waikoloa Village, Hawai'i, March 2023

SACNAS National Diversity in STEM, CONFERENCE
    San Juan, Puerto Rico, October 2022

Stanford Physics, Identity, and Equity Program, CONFERENCE
    Stanford University, October 2021

The 237th Meeting of the American Astronomical Society, TALK
    Virtual, January 2021

AstroBash, TALK
   University of California Los Angeles, November 2020

FUTURE of Physics 2020, CONFERENCE
   Caltech, September 2020

Morphology and Kinematics of a Triple AGN Merger, TALK, POSTER
   University of Hawaii at Manoa, July 2020

WORKSHOPS & SCHOOLS

La Serena School for Data Science: Applied Tools for Data Driven Science, Winter School
   Chile, August 2024

High Resolution X-Ray Spectroscopy Workshop, Workshop
   MIT, August 2023

OUTREACH

JAN 2024	Graduate Program Recruitment at the 243rd AAS, VOLUNTEER
AUG 2023 - PRESENT	Scientific Thinkers, VOLUNTEER
JUN 2023 - AUG 2023	UCLA Planetarium Show Presenter, VOLUNTEER
JUL 2023 - AUG 2023	RISE Tutor, VOLUNTEER
JUN 2023 - AUG 2023	Caltech Astronomy Stargazing Lecture Series VOLUNTEER
APR 2023 - PRESENT	Spanish Planetarium Show Presenter, VOLUNTEER
JAN 2023 - PRESENT	AstroLatinX, MEMBER
AUG 2020 - JUN 2021	Letters to a Pre-Scientist, VOLUNTEER
OCT 2019 - NOV 2020	Exploring Your Universe, VOLUNTEER

MEMBERSHIP

American Astronomical Society (AAS)
American Association for the Advancement of Science (AAAS)
American Physical Society (APS)
League of Underrepresented Minoritized Astronomers (LUMA)
National Society of Black Physicists (NSBP)
Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)