

# Karina Barboza

The Ohio State University  
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## EDUCATION

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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

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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  
OCT 2018 UCLA Hermanas Unidas Poder de la Mujer Scholarship

## RESEARCH EXPERIENCE

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### **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 SITELE 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 the gathered data was implemented to further the software's development.

## PUBLICATIONS

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**Karina Barboza** and Christopher Kochanek, 2024, [arXiv:2404.06540](https://arxiv.org/abs/2404.06540), "Searching for Triple Systems Unbound by Supernovae"

## TECHNICAL SKILLS

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**Languages:** Fluent in English, Spanish

**Coding Languages:** C++, Python, SQL, ADQL, L<sup>A</sup>T<sub>E</sub>X

**Machine Learning:** Natural Language Processing, Retrieval-Augmented Generation (RAG)

**OS:** Linux Ubuntu, MacOS, Windows 10

**Astronomy Software:** DS9, AstroPy

## WORK EXPERIENCE

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Nov 2021 - AUG 2022	Infrared Processing and Analysis Center, <b>Caltech</b> <i>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.</i>
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DEC 2020 - JUN 2021	Computing and Lab Revision Subcommittee, <b>UCLA</b> <i>Revised the computing and laboratory instruction for the undergraduate physics curriculum.</i>
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## CONFERENCES/TALKS/POSTERS

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*NSBP-NSHP Joint Conference*, TALK  
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

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*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

## CERTIFICATES

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*Adult Mental Health First Aid*, National Council for Mental Wellbeing  
December 2024

*Certificate of Attendance*, La Serena School for Data Science  
August 2024

## OUTREACH

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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

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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)