COURTNEY CARREIRA

(she/her)
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EDUCATION

Graduate Student Beginning September 2023
Department of Astronomy & Astrophysics, The University of California, Santa Cruz *Santa Cruz, CA*

B.S. Physics Graduated with General Honors, May 2023
Department of Physics and Astronomy, Johns Hopkins University *Baltimore, MD*
Minor in Applied Mathematics and Statistics
Relevant Coursework: Astrophysical Plasmas, Radiative Astrophysics, Introduction to Stellar Physics

RESEARCH EXPERIENCE

NSF REU Intern and NRAO SOS Researcher June 2022 - Present
Smithsonian Astrophysical Observatory *Cambridge, MA*

- Using observations of atomic and molecular gas emissions in M33 to analyze the effect of proximity from the southeastern spiral arm in the formation of molecular clouds; advised by Dr. Eric Koch and Dr. Sarah Jeffreson, within Professor Alyssa Goodman's research group.
- Ongoing work resulted in a successful NRAO Student Observing Support award to obtain observations that resolve the filamentary morphology of molecular clouds across M33. Co-PI: Eric Koch, Title: *Linking the Resolved Filamentary Molecular ISM to Massive Star Formation across M33.*

Undergraduate Researcher May 2021 - May 2022
Department of Physics and Astronomy, Johns Hopkins University *Baltimore, MD*

- Collected photometric and spectroscopic data for a large set of low-metallicity stellar objects, believed to host transiting exoplanets; advised by Professor Kevin Schlaufman.
- Utilized Python coding and packages to numerically analyze the stellar objects of interest.

Research Intern April 2020 - January 2022
The Johns Hopkins University Applied Physics Laboratory *Laurel, MD*

- Performed correlation analysis of simulated gamma-ray and UVOIR emissions from Type Ia supernovae, and assisted with scientific validation for mission proposal; advised by Dr. Richard S. Miller.
- Analyzed Monte Carlo simulations of volatile transport across the lunar surface, specifically looking at water and carbon dioxide; advised by Dr. Parvathy Prem.

PUBLICATIONS AND PRESENTATIONS

4. Courtney Carreira, Eric Koch, Sarah Jeffreson. The Effect of Spiral Arms on Molecular Cloud Formation in M33. Poster presented at: 241st Meeting of the American Astronomical Society; January 8-12, 2023; Seattle, WA.

3. K.A.C. Carr, O.A. Azubuike, A.T. Tran, C.C. Carreira, C.A. Alfaro, G.B. Greenhagen, G.W.P. Patterson, A.M.S. Stickle, P.P. Prem, J.T.S.C. Cahill, C.J.T.U. Tai Udovicic. Lunar Crater Maturity Analysis in Python: Developing a Toolkit for Ejecta Analysis. Poster presented at: 5th Planetary Data Workshop & Planetary Science Informatics & Analytics; June 28-July 2, 2021; virtual.

2. K.A.C. Carr, O.A. Azubuike, A.T. Tran, C.C. Carreira, C.A. Alfaro, G.B. Greenhagen, G.W.P. Patterson, A.M.S. Stickle, P.P. Prem, J.T.S.C. Cahill, C.J.T.U. Tai Udovicic. Lunar Crater Maturity Analysis in Python: Developing a Toolkit for Ejecta Analysis. Poster presented at: 52nd Lunar and Planetary Science Conference; March 15-19, 2021; virtual.

1. C. Alfaro, A. Tran, K. A. Carr, O. Azubuike, C. Carreira, P. Prem, G. Dominguez, B. T. Greenhagen, D. M. Hurley, A. M. Stickle, G. W. Patterson, J. T. S. Cahill. The Effect of Isotopic Composition and Surface Residence Times on Lunar Volatile Transport. Poster presented at: 52nd Lunar and Planetary Science Conference; March 15-19, 2021; virtual.

TEACHING

Teaching Assistant August 2022 - December 2022
Department of Physics and Astronomy, Johns Hopkins University *Baltimore, MD*

- During Active Learning sections of General Physics I, worked closely with students as they completed a series of problems and hands-on demonstrations during their lectures.
- Hosted office hours on a weekly basis.

SKILLS

Programming	Python (advanced, including machine learning), MATLAB, Unix, SQL/ADQL
Software	glueviz, ds9, ENVI, JMARS

MEMBERSHIPS

American Astronomical Society
American Physical Society

Updated as of October 30, 2023.