

Anya Phillips

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EDUCATION

Harvard University <i>Ph.D., Astronomy and Astrophysics</i>	Expected: 2030
The Ohio State University <i>B.S., Physics and Astronomy; Minor in Mathematics</i>	May 2024 GPA: 3.99
Columbus State Community College <i>Transient Student Program</i>	Fall 2018 - Spring 2020 GPA: 4.0

RESEARCH EXPERIENCE

Department of Astronomy OSU; <i>Undergraduate Researcher</i> Advisor: Christopher Kochanek	Summer 2022 – Summer 2024
<ul style="list-style-type: none">Explored period, luminosity, binarity, rotation speed, and starspot coverage in order to categorize spotted rotational variable stars in the ASAS-SN catalogFound orbital solutions for active red giant rotational variables in binary systems using APOGEE radial velocities and ASAS-SN rotation periods, then statistically determined their binary properties by applying Monte Carlo fitting methods to their binary mass function distributionsDeveloped data analysis code in PythonAssociated first-author publications (see below)	
Center for Astrophysics Harvard & Smithsonian; <i>REU Intern</i> Advisors: Cecilia Garraffo, Joshua Wing, Phillip Cargile	Summer 2023 – Spring 2024
<ul style="list-style-type: none">Implemented transfer learning in a hierarchical Bayesian model of deep neural networks for stellar parameter estimation to improve its performance on observational dataAutomated transfer learning and model evaluation routines in Python to allow future researchers to modify the transfer learning dataset and implement it in their own modelsAltered the model to make parameter estimates directly from photometry rather than from surface temperature and luminosityAssociated GitHub repository: anya-m-phillips/StelNet_Transfer_Learning	

PUBLICATIONS

<i>Statistical Estimates of the Binary Properties of Rotational Variables</i> Phillips, A. and Kochanek, C.S. 2024, submitted to MNRAS. arXiv:2407.20328
<i>Seven Classes of Rotational Variables From a Study of 50,000 Spotted Stars with ASAS-SN, Gaia, and APOGEE</i> Phillips, A. , Kochanek, C.S., Jayasinghe, T., Cao, L., Christy, C.T., Rowan, D.M., Pinsonneault, M.H. Monthly Notices of the Royal Astronomical Society, Volume 527, Issue 3, January 2024, Pages 5588–5602, https://doi.org/10.1093/mnras/stad3564

AWARDS

NSF Graduate Research Fellowship	2024
L. Earl Slusher Scholarship OSU Department of Astronomy	2024
Physics Senior Award OSU Department of Physics	2024
Goldwater Scholarship	2023

TECHNICAL SKILLS

Proficient in: Python (Relevant libraries: Pandas, NumPy, SciPy, Astropy, Matplotlib, PyTorch, Scikit-Learn), L^AT_EX
Experience with: Git/GitHub, TOPCAT, Linux, MATLAB, Mathematica

PRESENTATIONS

Conference for Undergraduate Women in Physcs , West Virginia University “Transfer Learning for Improved Stellar Parameter Estimation” Poster Presentaiton	January 21, 2024
American Astronomical Society , 243 rd meeting, New Orleans, LA “Transfer Learning for Improved Stellar Parameter Estimation” iPoster Presentaiton	January 10, 2024
IAIFI Summer Workshop , Northeastern University “Transfer Learning for Improved Stellar Parameter Estimation” Poster Presentation	August 13, 2023
REU Symposium , Center for Astrophysics Harvard & Smithsonian “Transfer Learning for Improved Stellar Parameter Estimation” Live-streamed Oral Presentation, available here	August 10, 2023
Spring Undergraduate Research Festival , OSU “Understanding the ASAS-SN Rotational Variables” Poster Presentation	April 6, 2023
Conference for Undergraduate Women in Physics , Brown University “Understanding the ASAS-SN Rotational Variables” Poster Presentation	January 21, 2023
Summer Undergraduate Research Symposium , Department of Astronomy, OSU “Categorizing ASAS-SN Rotational Variables” Oral Presentation	July 25, 2022

TEACHING EXPERIENCE

Department of Astronomy OSU; <i>Teaching Assistant</i> Facilitating lab sessions, guiding discussions, preparing class materials, and grading assignments in general education astronomy courses (ASTRON 1101: From Planets to the Cosmos, ASTRON 1141: Life in the Universe, ASTRON 2140: Planets & the Solar System, ASTRON 2292: Stellar, Galactic, and Extragalactic Astrophysics)	Fall, 2021 – Spring, 2024
Math and Statistics Learning Center OSU; <i>Student Tutor</i> Tutored undergraduates in College Algebra, Calculus I, Ordinary and Partial Differential Equations, and Linear Algebra	Fall, 2021 – Spring, 2022

LEADERSHIP

Astronomical Society at OSU <i>Secretary</i> <ul style="list-style-type: none">• Collaborated with other leadership to plan and organize club meetings and activities, including a weekend trip to Green Bank Observatory in March, 2023• Lead the club media committee, which involved compiling, producing articles for, and distributing a monthly club newsletter	Spring, 2022 – Spring, 2023
Polaris Mentoring Program <i>Leadership member, Access Network Fellow</i> <ul style="list-style-type: none">• Gathering undergraduate alumni testimonials to secure continued funding from program stake holders• Collaborating with other leadership to plan weekly mentorship course lessons and activities• Acting as a liason to the broader Access Network as Polaris’ Network Fellow (NF), including collaborating with NFs from other Access sites to develop an inter-site mentorship matching program	Fall, 2023 – Summer, 2024