Akshat S. Chaturvedi

akshat.chaturvedi2002@gmail.com • (814) 280-7713 • https://akshat-chaturvedi.github.io

Summary

Dedicated data analyst with a robust understanding of data visualization, manipulation and presentation. Leveraging extensive experience in non-traditional data analysis within the dynamic field of cutting-edge astrophysics research, I bring a unique perspective to the forefront of data-driven decision-making.

Work Experience

Research Assistant Fall 2023-Present
Working with Dr Robin Ciardullo and Dr Howard Bond to analyze the emission spectra of a knot in the planetary nebula Abell 57 using computational techniques

Residential Assistant Fall 2023-Present
Working with Penn State Residence Life, to foster a sense of community and belonging among residents of my residence hall, ensure their safety and enforcing housing policy. Overseeing a floor of 40 residents with a combined responsibility of two residence halls

Research Assistant Fall 2022-Present
Working with Dr Robin Ciardullo, Dr Howard Bond and Dr Gautam Nagaraj to create a census of blue, post-horizontal branch stars in 108 Galactic globular clusters using clustering algorithms and ADQL querying

Learning Assistant for Astronomy 291/292 Fall 2022-Spring 2023
Strived to help students better understand the concepts of gravitation, celestial mechanics, electromagnetic radiation, astronomical instrumentation, planetary motion, and other astrophysical concepts in a sophomore level sequence

Research Assistant Summer 2022
Worked with Dr Kevin Luhman to determine the age of the Scorpius-Centaurus star association and to identify members of the star association 32 Ori using clustering algorithms and other statistical tecnhiques

Learning Assistant for Physics 211M/212M(for majors) Fall 2021-Spring 2022
Worked as a learning assistant to help students better understand the concepts of Newtonian Mechanics in 2 and 3 dimensions as well as electromagnetism and Maxwell's Equations in a freshman level sequence

Education

The Pennsylvania State University 2020 - Present
Bachelor of Science in Astronomy and Astrophysics, and Physics, w/ Math minor. CGPA: 3.71/4.00

Fravashi International Academy, Nashik 2016-2020
High School. Percentage: 87.5

Technical Skills

- Intermediate knowledge of Python, R, and Julia especially in data analysis in an astrophysical context
- Advanced knowledge of LaTeX
- Intermediate knowledge of Astronomical Data Query Language (ADQL), an SQL based querying language
- Operating Systems: LINUX, MacOS, Windows

Projects

- Creating a census of blue ($B-V < -0.05$) post-horizontal branch stars in 108 Galactic globular clusters containing hundreds of thousands of stars using photometric and astrometric data, clustering algorithms and Gaia Data Release 3.
- Analyzing the emission spectra of the planetary nebula Abell 57 and studying its compact emission knot using computational techniques with CLOUDY
- Determining the age, using traceback and expansion methods, of the Sco-Cen star association
- Determining membership of stars in the 32 Ori star association using clustering algorithms (DBSCAN, HDBSCAN)

Relevant Courses & Organizations

- Member of ΣΠΣ, the national physics and astronomy honors society
- Member of ΦBK, the national liberal arts and sciences honors society
- Vice President of Society of Physics Students
- Member of Pulsar Search Collaboratory
- Question Persuade Refer Training Certified
- AICE Diploma (with Distinction) in Global Perspectives and Research

Achievements

- Second author of paper titled *Spectroscopic Survey of the Planetary Nebula Abell 57*, in prep, expected submission March 2024
- First author of paper titled *A Census of Blue Post-Horizontal Branch Stars in Galactic Globular Clusters*, in prep, expected submission Summer 2024
- Third author of paper titled *A uBVI Photometry Survey of Post-Main Sequence Stars in Milky Way Globular Clusters*, in prep, expected submission summer 2024
- Presented research poster at Mid-Atlantic Session of American Physics Society, December 2022
- Awarded the George E., Jr. and Elizabeth S. Sperling Tutorial Endowment in Physics for the 2021-22 academic year
- Eberly College of Science Dean's List for Spring 2021, Fall 2021, Spring 2022, Fall 2022, Fall 2023

Languages Known & Other Interests

- Hindi, Marathi, English, French (DELF-A2 Level)
- Cinema, Racquet Sports, Football