

Jakob Bindas

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[jakobbindas.github.io](https://github.com/jakobbindas)

EDUCATION

Bachelor of Science in Physics & Astronomy

April 2024

Minor in Computer Science

University of Pittsburgh, Pittsburgh, PA

Cumulative GPA: 3.50/4.00

SKILLS

Coding: Python, R, Java, Rust, Bevy, HTML, CSS, JavaScript, C

Data Science: Data Visualization, Machine Learning, Statistical Modeling, Large Data Processing

EXPERIENCE

Undergraduate Research Assistant

January 2022 – Present

University of Pittsburgh, Pittsburgh, PA

Prof. David Turnshek

- Producing a script to automate observation of objects of interest at the Allegheny Observatory
- Utilizing Python statistical packages to produce a data processing pipeline with data analysis capabilities

Nationwide Eclipse Ballooning Project

July 2023 – April 2024

University of Pittsburgh, Pittsburgh, PA

Prof. Sandhya Rao & Prof. David Turnshek

- Launched weather balloons funded by NASA to collect data about various phenomenon during eclipses
- Collaborated with a team to ensure operations are successfully carried out

Research Experience for Undergraduate Students (REU) Participant

May 2023 – April 2024

University of Hawai'i Institute for Astronomy

Prof. Jennifer van Saders, Dr. Marc Hon

- Developed a tool for astronomers to analyze the characteristic frequency of oscillation in red giant stars
- Presented research poster at the TESS/Kepler Asteroseismic Science Consortium in Manoa, Hawai'i

Undergraduate Research Assistant

September 2021 – April 2024

University of Pittsburgh, Pittsburgh, PA

Prof. Carles Badenes and Dr. Christine Daher

- Investigating possible stellar merger events using APOGEE DR17 data
- Attend weekly group meetings with group consisting of graduate students and advisor

Survey of Transiting Exoplanets at the University of Pittsburgh

September 2021 – April 2024

University of Pittsburgh, Pittsburgh, PA

Prof. Michael Wood-Vasey

- Mentored undergraduate students with best observing practices at Allegheny Observatory
- Led meetings to ensure peers are staying up to date with tasks

Research Experience for Undergraduate Students (REU) Participant

May 2022 – August 2022

University of Florida, Gainesville, FL

Prof. Jamie Tayar, University of Florida

- Analyzed stellar rotation grids to improve skills with Python data frames and curve fitting
- Presented research to University of Florida Astronomy Department in a professional setting

PUBLICATIONS

1. Estimating v_{\max} Using Instantaneous Frequencies

Bindas, J. & Hon, M. (In prep.)

Draft available upon request.

POSTERS AND PRESENTATIONS

- Poster presentation at TASC7/KASC14 meeting in Manoa, Hawai'i July 2023
- Departmental research presentation at end of University of Hawai'i Institute for Astronomy REU July 2023
- Departmental research presentation at end of University of Florida REU July 2022
- Poster presentation at University of Pittsburgh Department of Physics & Astronomy Undergraduate poster session March 2022

RELEVANT PROJECTS

Introduction to Data Science: Pitt Bikes

- Organized data into Pandas DataFrame in external Python script
- Utilized Jupyter Notebook to visualize data for different filtering conditions and clustering results and analysis

Code available upon request.

Introduction to Machine Learning: PPG Paints

- Analyzing PPG Paints data making use of predictive models and model performance metrics
- Regression vs Classification data analysis consisting of creating and analyzing appropriate models

Analysis available upon request; data is confidential.

PROGRAMMING LANGUAGES AND RELEVANT COURSEWORK

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| • Python | • Introduction to Data Analytics |
| • R | • Introduction to Machine Learning |
| • Java | • Statistics and Data Science |
| • C | (Astronomy; Graduate Level Course) |
| • HTML & CSS | • Algorithms and Data Structures |
| • Rust | 1&2 |
| • Bevy | • Interface Design Methodology |
| • LaTeX | • Introduction to Systems Software |

MENTORSHIP

Allegheny Observatory Outreach (Upcoming in July 2024)

- Teaching observational astronomy techniques using the 24" Keeler telescope at Allegheny Observatory to high school students
- Collaborating on completing the data processing pipeline aforementioned with Prof. Turnshek

AWARDS

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| • NASA PASGC Research Scholarship | Spring 2022, Spring 2023, Fall 2023 |
| • Dietrich School of Arts and Sciences Dean's Honor List | Fall 2021, Spring 2022 |

REFERENCES

- Prof. David Turnshek, *University of Pittsburgh Department of Physics and Astronomy*
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- Prof. Sandhya Rao, *University of Pittsburgh Department of Physics and Astronomy*
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- Prof. Carles Badenes, *University of Pittsburgh Department of Physics and Astronomy*
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