Jakob Bindas

bindasjakob@gmail.com (724) 961-2570
jakobbindas.github.io

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

Programming Languages: Python, Java, Rust, Bevy, R, HTML, CSS, JavaScript, C
Data Science: Data Visualization, Machine Learning, Statistical Modeling, Large Data Processing
Physics: Numerical Solvers (ODE/PDE), Python Scripting, Time Series Data, Signal Processing, Researching

RESEARCH EXPERIENCE

Undergraduate Research Assistant January 2022 – Present
University of Pittsburgh, Pittsburgh, PA
Prof. David Turnshek

- Producing a Python 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
- Creating data analysis pipeline to output plots of interest including astrometry and photometry results
- Mentoring a peer overseeing software development for astronomical purposes

Research Experience for Undergraduate Students (REU) Participant May 2023 – Present
University of Hawai'i Institute for Astronomy
Prof. Jennifer van Saders, Dr. Marc Hon

- Leveraging Python's Empirical Mode Decomposition package for a tool for asteroseismic researchers
- Analyzing large data sets of time series data from asteroseismic surveys such as KEPSEISMIC
- Assessing pipeline performance by making use of statistical techniques used in data science
- Presented poster at the 2023 Tess/Kepler Asteroseismic Science Consortium meeting in Manoa, Hawai'i

RELEVANT PROJECTS

Introduction to Data Science: Pitt Bikes Fall 2023

- Cleaned and organized large data set in external Python script into Pandas DataFrame objects
- Utilized Jupyter Notebook visualizing data for different filtering conditions and clustering results
- Leveraged SQL within Python utilizing sqlite3 to create and execute inline queries
- Clustered data to group similar stations together using a variety of clustering functions
- Visualized results making use of Python packages such as Matplotlib

Introduction to Machine Learning: PPG Paints Spring 2024

- Analyzing PPG Paints data making use of predictive models and model performance metrics
- Explored data sets to reveal the most important features impacting the data and models
- Trained predictive models using large data set while making use of a holdout set for testing
- Performed Regression vs Binary Classification data analysis including model performance metrics
- Created models using linear modeling techniques in R

PRESENTATIONS

- Departmental research presentation at end of University of Florida REU July 2022
- 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
- Poster presentation at University of Pittsburgh Department of Physics & Astronomy Undergraduate poster session March 2023