Aria Koul

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EDUCATION

University of California, Santa Cruz | Class of 2024
B.S. in Physics (Astrophysics), Minor in Statistics
GPA: 3.72

Selected Coursework: Introduction to Scientific Computing, Physics and Machine Learning, Beginning Programming in Python, Mathematical Methods in Physics, Astrophysics Advanced Laboratory, Modern Physics, Scientific Communication and Writing

Foothill High School, Class of 2020

WORK EXPERIENCE

UC Santa Cruz | Undergraduate Research Assistant | July 2023 - June 2024

- Implemented a program to model cosmic rays' trajectories in the magnetosphere.
- Translated physics algorithms into Python to increase processing speed by 50%.
- Used pandas, numpy, matplotlib, and scipy to analyze datasets with over 100,000 entries.

PROJECTS

Stock Market Analysis | https://github.com/AriaKoul/stock-market-analysis

- Implemented a stock performance evaluation tool leveraging overnight and day gains of any stock over any time period, resulting in optimized investment strategies.
- Created a suite of unit tests to ensure reliability.
- Used pytest, pandas, numpy, matplotlib, and yfinance to analyze thousands of rows of data.

Classifying Cosmic Rays | https://github.com/AriaKoul/cosmic-rays

- Developed a machine learning algorithm using neural networks to predict the type of particle in a primary cosmic ray, achieving a 90% accuracy rate and boosting research on cosmic rays.
- Optimized hyperparameters to reduce training time by 50%.
- Used pytorch, numpy, scikit-learn, matplotlib, and seaborn to analyze datasets with over 40,000 entries.

Using the Gaia Catalogs | https://github.com/AriaKoul/astr_112

- Used SQL to examine data from over 20,000 stars, and plotted color magnitude diagrams.
- Used matplotlib and pandas to edit and analyze data frames with over 5,000 entries.

DISTINCTIONS

A Counter Space Club, Treasurer
Phi Beta Kappa Academic Honor Society, Member

SKILLS

Python, Java, JavaScript, SQL, MATLAB, LaTeX