

Haoyu Wang

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EDUCATION

The Pennsylvania State University, State College, PA

December 2021

Bachelor of Science in Astronomy & Astrophysics, Computer science Option

GPA: 3.59

Related courses: Numerical Computations, Programming and Computational II: Data Structures, Digital Design: Theory and Practice, Object Oriented Programming with Web Based Applications, Computational Astrophysics, Discrete Mathematics for Computer Science, Statistical Experimental Methods, Introduction to Astrostatistics, Introduction to Probability and Stochastic Processes for Engineering

ACADEMIC PROJECT

Analyzing US population clustering

April 2021 – May 2021

Online independent research

- Applied two-point correlation function model to the randomly selected population data in database, which contains over 30,000 rows of data from US Census Bureau.
- Simulated the population distribution across the country, and visualized data in Python through Matplotlib and SciPy.
- Explained why the population is not evenly distributed across the country, and excluded false clusters by calculating clustering bias.

Research on Jupiter's Moons

November 2020 – December 2020

Davey Laboratory, State College, PA

- Combined our observations with robotic telescope observations (NASA Micro-Observatory) to calculate the periods of Jupiter's four major moons, and analyzed errors.
- Responsibility includes recording data, operating instruments, asking questions, and management of the observation process, for each observation.
- Software involved: MaximDL, STI Planewave, PWI, AstroImageJ, SAOImageDS9 and coding platforms Python, Matlab.

Astro410, Data Interpolation & Integration

February 2021

- Researched online about various topics related to data interpolation and integration.
- Utilized Python to write to the pipeline implementing four commonly used algorithms, including Lagrange Interpolation, Cubic Natural Spline Interpolation, Composite Trapezoidal Rule, and Simpson's Composite Rule.
- Illustrated the results through data visualization tools and compared the efficiency of each model to decide the best based on the given dataset.

Astro415, Linear Regression Model

November 2021

- Applied a linear regression model to the dataset from Winn et al. 2010 and performed various statistical tests.
- The new discovered linear relationship provides reasonable clues for the prediction of the orbit of satellites when only knowing the stellar temperature in future studies.

PROFESSIONAL EXPERIENCE

Beijing Yintong Yihui Technology Co., Ltd., China

May 2021 - August 2021

Intern, Technology Development Department

- Performed routine database management tasks and the corresponding data analysis while providing technical support to update the database.
- Conducted ad hoc data analysis to fulfill the needs of the company's business and solved the problems encountered in using the database.
- Assisted in managing the BasaltMatrix anti-money laundering system database developed by the company.
- Acquired the crucial knowledge of designing database architecture and initialization scripts according to business requirements.
- Monitored and optimized the database's performance and response speed to inquiries, optimized the table structure and storage procedures, and ultimately improved the overall user experience.

SKILLS

Achievement: Microsoft Certified: Data Analyst Associate

https://www.credly.com/badges/917d6a28-ff1c-4546-bad7-2788db3329c9/public_url

Languages: Python, Java, R, MATLAB, HTML, SQL

Software: PyCharm, NetBeans, MS Visual Studio, Microsoft Office, Photoshop, Adobe Premiere, Power BI