ZHENBANG YU

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EDUCATION

University of California, Berkeley *Expected Graduate: Spring 2025*
B.A. Computer Science & Physics *GPA: 3.840*

TECHNICAL SKILLS

Python, Java, C, C#, C++, JavaScript, CSS, SQL, MySQL, Git | Pytorch, Scikit-learn, Keras, Pandas, Numpy, Selenium

EXPERIENCE

NASA Funded Machine Learning Research (Berkeley, remote) *Nov 2021 - May 2022*
Student Researcher, Leader
- Utilize machine learning to find possible interstellar origin of dust particles collected by the Stardust spacecraft of NASA.
- Brainstorm new algorithms for the training sets and communicate with partner to find out the optimal solution.
- Use Scikit-learn and Keras to process the image and find out the decomposition of elements of the photo. We tried different methods including PCA, NMF, and clustering(KMeans and DBSCAN).
- Ran a sobel filter on the image to detect edge effect, using hough transform for circle and line detection.
- Optimize downloading speed using multi-processing(allowing us download 10 million stacks in 3 days instead of 30 days).

All Digital Microwave Reflectometer *Feb 2022 - July 2022*
Student Researcher
- Join Ma-Lab through Undergraduate Research Apprentice Program and work with Professor Eric Y. Ma.
- Learn microwave system design.
- Design and build a low noise amplifier that works in 0-500 kHz.
- Make simulations using scikit-rf and use LT-Spice to make circuit designs.

StoichiometryFitter– Open Source Software (remote) *June 2022 - Sept 2023*
Front End Developer
- Build an open-soure software that is mainly used by PhD and people in Chemistry or Geology.
- Help research scientist Zack Gainsforth finish his StoichiometryFitter software, a software that can take in elements weights and give the users the type of mineral. We utilize Selenium for Webscraping.
- Using Flask and JS to build the front-end and use render to publish the website.

Research in Computational Astronomy *Jan 2024 - present*
Student Researcher
- Simulate Secular Chaos for a N-body planetary system using Python.

WORK EXPERIENCE

Internship in Zhaopin Recruitment (Beijing, in-person) *June 2021 - July 2021*
Full-Stack Developer
- Doing data analysis on given sets from the backend and publish the result on the frontend.
- Work with another intern, compare the resume analyzed by the machine using NLP and the original resume.
- Use MySQL to build the database and use JDBC to store the initial data into the database.
- Use front-end skills like JavaScript to build a simple webpage under the domain of the company and display the outcome.

PROJECTS

Simulating Changes in Orbital Paths due to Stellar Evolution *Oct 2021 - Dec 2021*
- Use python and other packages to make animations of the changing mass of Sun.

Git *March 2022 - May 2022*
- Build a fully working git using Java.

3-Staged Pipelined CPU with Cache Using Verilog *March 2024 - May 2024*
- Design a CPU from scratch, including pipeline, and take care of all kinds of hazard.
- Design a direct map cache and optimization.

RELATED COURSEWORK

Data Structures | Probability and Random Processes | Structure and Interpretation of Computer Programs | Machine Learning |
Computer Graphics | Introduction to Digital Design and Integrated Circuits | All Undergraduate Level Physics