

ROGER YU

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EDUCATION

High School Affiliated to Renmin University Of China

International curriculum centre - AP Program

Aug 2018 - June 2021

GPA: 4.0

University of California, Berkeley

B.A. Physics & Computer Science

Expected Graduate: Spring 2024

GPA: 3.890

TECHNICAL SKILLS

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

EXPERIENCE

NASA Funded Machine Learning Research

Nov 2021 - Present

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).
- Help the 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.

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.

The Lanzara Group

Feb 2022 - Present

Student Researcher

- Join Lanzara Group of Lawrence Berkeley Lab
- Build an autocorrelator that can be used to measure the time width of an ultrashort pulse.

WORK EXPERIENCE

Internship in Zhaopin Recruitment

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

- We start doing this project by deriving equations and understand the physics behind it.
- Use python and other packages to make animations of the changing mass of Sun.
- Make a final project talk on the effect of various element in the orbital paths.

Using data analysis to determine Particle parameters

Sept 2021 - Dec 2021

- Use data from the CERN's Open Data.
- Use python to make simulation on the sample set and forms the data analysis of the sample set.

RELATED COURSEWORK

Data Structures | Probability and Random Processes | Structure and Interpretation of Computer Programs |
Efficient Algorithms and Intractable Problems | Introduction to Machine Learning | Linear Algebra