

ZHENBANG YU

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EDUCATION

High School Affiliated to Renmin University Of China <i>International curriculum centre - AP Program</i>	<i>Aug 2018 - June 2021</i> <i>GPA: 4.0</i>
University of California Berkeley <i>Intended Physics & Computer Science</i>	<i>Aug 2021 - May 2025</i> <i>GPA: 3.890</i>

RELATED COURSEWORK

Introduction to Microelectronics (Peking University) <i>Basic concepts of semiconductor; IC (Design); MOSFET; Photolithography</i>	<i>Oct 2020 - May 2021</i>
Physics 5A <i>Introductory Mechanics and Relativity</i>	<i>Aug 2021 - Dec 2021</i> <i>A</i>
Math 53 <i>Multivariable Calculus</i>	<i>Aug 2021 - Dec 2021</i> <i>A+</i>
Compsci 61A <i>The Structure and Interpretation of Computer Programs</i>	<i>Aug 2021 - Dec 2021</i> <i>A-</i>
Compsci 61B <i>Data Structures</i>	<i>Jan 2022 - May 2022</i>
Physics 5B <i>Introductory Electromagnetism, Waves, and Optics</i>	<i>Jan 2022 - May 2022</i>
Physics 89 <i>Introduction to Mathematical Physics</i>	<i>Jan 2022 - May 2022</i>

RESEARCH INTERESTS

I am most interested in electrical engineering. I have basic knowledge in both physics and computer science. My favourite part is electronics and photonics. Machine Learning can be another thing I am enthusiastic with.

TECHNICAL SKILLS

Programming Languages:	Python, Java, CSS, HTML, SQL, Github, Scheme, \LaTeX
Hand-on lab skills:	Soldering, Wire-bonding
Software & Tools:	Software: Photoshop, Final Cut Pro, AutoCAD, Sketchup Packages: Numpy, Matplotlib, Pandas, Scipy, Jupyter notebook Machine Learning: Scikit-learn

RESEARCH EXPERIENCE

Using Machine Learning to analyze pictures of possible interstellar dust <i>Student Assistant</i>	<i>Nov 2021 - Present</i>
<ul style="list-style-type: none">- Working with Professor Zack and Professor Andrew from the Space Sciences Lab of UC Berkeley. The purpose of this research is to utilize machine learning to find possible interstellar origin of dust particles collected by the Stardust spacecraft of NASA.- Throughout the research, we use Scikit-learn and Keras to process the image and eventually find out the decomposition of elements of the photo. We started the research by practicing different images of tracks. We tried different methods including PCA, NMF, and clustering(KMeans and DBSCAN).- Running a Sobel filter on Stardust images (python, scikit-image, streamlit)- Still in progress	

All Digital Microwave Reflectometer

Feb 2022 - Present

Student Researcher

Join Ma-Lab through Undergraduate Research Apprentice Program and work with Professor Eric Y. Ma from the Department of EECS and Physics. Start by learning and understanding the microwave system design, before designing and building a DC-300 kHz ultrasensitive voltage amplifier for the low-frequency end of the instrument. Then learn to assemble modular surface-mount-based microwave IC blocks and test all the digital I/O via a Raspberry Pi + TCP/IP interface to Python running on a PC. After, I will design the power-up/down sequences, automatic offset removal (with traditional methods or machine learning), and other algorithms necessary for the operation of the system, before finally validating the system's performance and, if time permits, benchmarking with a very expensive state-of-art commercial system.

PROJECTS

Simulating Changes in Orbital Paths due to Stellar Evolution

Oct 2021 - Dec 2021

- This project focus on the changes of mass as a function of T, we use our basic knowledge in python, numpy, and matplotlib to make animations of the changing mass.
- Final presentation talk with multiple simulations and animations

Using data analysis to determine Particle parameters

Sept 2021 - Dec 2021

- This project is done by my group. We find data from the CERN's Open Data and then learn how to obtain the data and analyze them. Finally, we use programming languages and packages to make the simulation

WORK EXPERIENCE

Internship in Zhaopin Recruitment

June 2021 - July 2021

Full-Stack Developer

- In one month, I went through everything a full-stack developer will do, from back-end to front-end. I enhanced and acquire knowledge in SQL, HTML, CSS, and JavaScript.
- I worked with a friend. We compared the resume analyzed by the machine using NLP and the original resume; put the errors into categories and then put the data into database. Using data analysis and MySQL to build the database and use JDBC to connect Java code and the database to store the initial data into the database. - We use basic HTML, CSS and JavaScript to build a simple webpage which is designed to store the data user type in, or let the user get specific data from the database. Connect back end and front end using JavaScript and java - The final outcome was in a very good shape

AWARD

- Third Place in 2021 Berkeley Physics Tournament

EXTRACURRICULAR

- Society of Physics Students member
- Playing chess
- Playing guitar and bass