

# RICHARD S. ZHU

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## EDUCATION University of California, Berkeley

B.A. Computer Science

Graduation May 2023

GPA 3.90

Coursework: *Data Structures and Algorithms, Structure of Computer Programs, Linear Algebra, Differential Equations*

## EXPERIENCE UC Berkeley Dept. of Anthropology

Berkeley, CA

*Research Software Developer*

Feb. 2020 — Present

- Developed an automated image processing pipeline in Python, used to process 151,173 unique manuscript scans collected from an archaeological site in Queretaro, Mexico
- Employed OpenCV to assess document scan quality and optimize text legibility
- Extracted text data from select documents via OCR, utilizing Google Cloud's Vision API
- Exported processed image data to a custom designed, team-developed database setup

## UC Berkeley Dept. of Electrical Engineering and Computer Science

Berkeley, CA

*Academic Intern*

Jan. 2020 — Present

- Guided lab sections for the Structure and Interpretation of Computer Programs (CS 61A)
- Taught fundamental CS concepts such as recursion, abstraction, and O.O.P. to 30 students
- Assisted students with understanding, writing, and debugging lab programming assignments
- Authored solution guides to difficult homework problems, as part of a course content team

## California PATH (Partners for Advanced Transportation Technology)

Berkeley, CA

*Research Assistant*

Oct. 2019 — Jan. 2020

- Evaluated potential safety impacts of a Caltrans-proposed freeway emergency alert system
- Synced positional, sensor, and behavioral data collected from driving simulation experiments
- Wrote Python scripts to highlight key points from over 40 unique driver trial data sets

## PROJECTS Investment Portfolio Diversity Visualizer (Python)

- **Won the BlackRock API Prize at Cal Hacks 6.0**, the largest collegiate hackathon in the world
- Built a tool that helps users gain insight into the diversity of an investment portfolio in relation to any applicable security data attribute (e.g., sector, asset type, or country)
- Leveraged BlackRock's Aladdin API to compile and categorize security data from stock tickers
- Integrated Matplotlib to visualize calculated diversity data and create a GUI for portfolio input

## Bomberman Remastered (Java)

- Created an improved remake of the game Bomberman that runs on modern operating systems
- Devised a completely original "competitive mode", featuring dynamic multiplayer gameplay
- Utilized the Java Swing toolkit to design menus, handle controls, and execute game events
- Voted as one of the top three projects of the year when presented at a school project fair

## Personal Website (HTML, CSS, JavaScript)

- Designed and built a personal site from scratch, utilizing the Bootstrap front end framework
- Ensured font and layout compatibility for any operating system, display size, or web browser
- Hosted page files remotely on UC Berkeley Open Computing Facility servers, via SSH transfer

## Enigma Machine Simulation (Java)

- Constructed an accurate, configurable, and scalable simulation of the WWII Enigma machine
- Implemented text encryption, supporting an arbitrary level of cipher permutation complexity
- Handled configuration, input, and output files using Java's Scanner and OutputStream classes

## AWARDS

**Winner**, CalHacks 6.0 BlackRock API Prize

Oct. 2019

**Winner**, Intuit George A. Hansen Computer Science Scholarship

Apr. 2019

**Winner**, Intuit Academic Scholarship

Apr. 2019

**Champion**, Southern California Developmental Soccer League Div. 1

Dec. 2018

## SKILLS

Python, Java, SQL, HTML/CSS, JavaScript, Git, Unix, Bootstrap, NumPy, MATLAB