Alex Um

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EDUCATION

University of California, Berkeley - College of Engineering **Expected Spring 2026**

B.S. Electrical Engineering and Computer Sciences (EECS) + B.S. Industrial Engineering and Operations Research (IEOR)

- GPA: 3.98
- Coursework: Computer Architecture, Digital Design, Machine Learning, Advanced Algorithms, Data Structures
- Activities: Eta Kappa Nu (EECS Honor Society), Institute of Industrial and Systems Engineers

WORK EXPERIENCE

Siemens **May 2024 - Present**

Advanced Robotics and Machine Learning Intern Berkeley, CA

- Engineered a cloud data management system to optimize ML workflow and end-to-end neural network testing by 25%
- Designed 100+ SKU pick calculation edge cases in the SIMATIC Pick AI algorithm increasing model accuracy by 30%
- Developed a dashboard to allow engineers to track performance of various train test splits and pick algorithms

LOVO AI **May 2023 - Aug 2023**

Data Engineering and Marketing Analytics Intern Berkeley, CA

- Preprocessed 10 million+ JSON documents of user voice data speeding up TTS generations by 25%
- Engineered a data pipeline connecting user voice generation and subscription retention to reduce data process times by 50%
- Automated visualization of user AI voice generation data for a team of 30 members (SQL, Airflow, Astronomer)

TEACHING

UC Berkeley EECS Department **Aug 2023 - Present**

EECS 16A (Intro EE) Student Employee Berkeley, CA

- Debugged circuits, ran office hours, and taught students for introductory 500+ student EE course across 3 semesters
- Created homework and exam review practice for students on signal processing and machine learning

UC Berkeley Private Tutor **Feb 2024 - Present**

EECS Private Tutor Berkeley, CA

- Taught 3 different first-year tutoring sections for first-year students in linear algebra, signal processing, and probability

Computer Science Mentors **Jan 2023 - Present**

EECS Tutor and Content Mentor Berkeley, CA

- Led group tutoring sections for a group of 5 students every week on linear algebra, discrete math, and computer architecture
- Wrote worksheet questions for lower division computer architecture course and formed review slides for 30+ students

PROJECTS AND RESEARCH

16A+B (Jupyter) **Ongoing**

- Created study notes and review material on circuits, linear algebra, and signals for UC Berkeley's lower division EE series

Iris Neural Networks (numpy, PyTorch) **Apr 2024**

- Implemented forward and backward passes in neural networks to classify different colors of irises in the Iris Dataset

Spam Decision Trees (numpy, sklearn) **Apr 2024**

- Implemented Decision Trees and Random Forests from scratch to identify spam emails in the Spam Dataset

RISC-V CPU (Verilog, Logisim) **Oct 2023 - Present**

- Engineered a ASIC CPU to demonstrate the datapath and calculations of assembly language instructions

SKILLS

- **Programming Languages:** Java, Python, C, MATLAB, C++, SQL, LaTeX, Verilog, HTML/CSS, Unix/Linux
- **Tools:** Docker, AWS, Git, Jupyter, Dev Containers, Astronomer, MongoDB, MySQL, Postgres
- **Frameworks:** PyTorch, TensorFlow, Sklearn, Numpy, Mockito, Pandas, Matplotlib, React.js, Pytest, Airflow, Snowflake