Kavan Mehrizi

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EDUCATION

University of California, Berkeley *– Berkeley, CA*

Bachelor of Science, Electrical Engineering and Computer Sciences, CS GPA: 3.5 *December 2024 (Expected)*

- *Selected Coursework*: Structure & Interpretation of Computer Programs, Circuits & Linear Algebra I & II, Foundations of Data Science, Data Structures & Algorithms. *In Progress/Planned*: Discrete Mathematics & Probability Theory, Principles & Techniques of Data Science, Artificial Intelligence, Computer Graphics, Human–Computer Interaction, Database Systems, Software Engineering.
- *Activities and Memberships*: Vice President & Co-Founder of EECS Transfers @ Berkeley Club, Member of Berkeley IEEE Branch, Member of Hispanic Engineers and Scientists Society, Member of Puente at Berkeley, Student Member of IEEE Computer Society, Student Member of SHPE, Student Member of SACNAS.

SKILLS

- *Programming/Scripting Languages:* Python, Java, C++, SQL, HTML/CSS, C, R
- *Frameworks and Libraries:* NumPy, Pandas, Matplotlib, PyTorch, Git, MySQL, Arduino, ROS
- *Hobbies*: Avid skier (10 years), film & digital photographer (won award from Google), goalkeeper, 3D printing, automation tinkering, open-source software, IoT, founded Berkeley's only EECS/CS transfer-focused student organization

EXPERIENCE

SURE AI/ML Researcher

Amazon Science - UCLA – Los Angeles, CA *June – August 2023*

- Dialect and accent bias with **Automatic Speech Recognition (ASR) systems,** specifically on **OpenAI Whisper**.
- Performed **question-answering extraction** using Hugging Face **DeBERTa** & Meta **LLaMA-2** with **NumPy** and **PyTorch** while **fine-tuning** Whisper with the Corpus of Regional African American Language (CORAAL) interview dataset.
- **Improved** QA performance by **integrating** LLaMA-2 compared to conventional QA models and saw **4% improvement** with fine-tuning in word error rates (WER) and **greater** F1 score on African American Vernacular English (AAVE).

Undergraduate Software Engineering Researcher

Carnegie Mellon University – Pittsburgh, PA *May – August 2022*

- Developed **data mining** scripts using **Pandas** and **SQL** to determine maintainers of over **30k** GitHub most popular repositories utilizing over **5.5 million commits** in multiple **MySQL databases**.
- Redeveloped script to **identify** and **merge** different aliases for contributors used by the same person on GitHub.
- Identified **584k** distinct contributors and **110k** distinct maintainers to be interviewed to understand motivations behind maintaining open-source projects.

Undergraduate Robotics Development Researcher

University of California, Berkeley – Berkeley, CA *June – August 2021*

- Developed Python **speech interface** using **Amazon Polly** and **Google Cloud** Speech-to-Text APIs for a robotic guide dog to facilitate direct, vocal **human-robot interaction** allowing for **independence** of guide dog by eliminating the need for a computer to manually send commands.
- Collaborated with navigation team and integrated interface into guide dog's existing **ROS** and **C++** infrastructure.
- Authored student paper, **cited by Google DeepMind**, and presented research to **300+** total attendees at multiple symposiums across UC Berkeley.

PROJECTS

Word Usage History & Hyponyms Explorer

Java, Data Structures, Data Analysis/Visualization, Datasets

- Implemented backend for a browser-based tool for analyzing history of word usage and frequency in Google's NGram dataset. Built ability to find hyponyms using the WordNet dataset with merging/comparing synonym graphs and graph traversals.

World Generator

Java, Data Structures, A, Binary Space Partition*

- Developed a 2D tile-based world exploration game in Java that supported a random world generator. By entering a random seed number, the program would create a map layout featuring a unique, arbitrary number of rooms, hallways, and items, using A* and BSP. Utilized various data structures such as arrays, lists, maps, sets, and stacks to store and manipulate the tiles, rooms, hallways, entities, and paths in the world.

Shortest Path Navigation

C++, Data Structures, Graphs, Priority Queues

- Built a navigator to find the minimum path between two points via Dijkstra's using graphs and priority queues.