Kavan Mehrizi

(510) 875-5091 • kavanmehrizi@berkeley.edu • kavanmehrizi.com • in/kavanmehrizi

EDUCATION

University of California, Berkeley, Berkeley, California   Expected December 2024
Bachelor of Science, Electrical Engineering and Computer Sciences   Cumulative GPA: 3.3
CS GPA: 3.5

Relevant Coursework: Structure and Interpretation of Computer Programs, Designing Information Devices and Systems I & II, Foundations of Data Science. Data Structures, Ethics, Engineering, and Society, Introduction to Technology Entrepreneurship & Innovation, *In Progress/Planned*: Discrete Mathematics & Probability Theory, Principles & Techniques of Data Science, Introduction to Artificial Intelligence, Introduction to Computer Graphics, Introduction to Database Systems, User Interface Design and Development, Software Engineering.

Diablo Valley College, Pleasant Hill, California   January 2020 – May 2022
Associate of Science, Computer Science   Cumulative GPA: 3.9
Associate of Science for Transfer, Mathematics   Major GPA: 4.0
Associate of Science for Transfer, Physics

Relevant Coursework: Program Design and Data Structures, Object-Oriented Programming, Advanced C & C++ Programming, Python Programming, Programming with Java, Assembly Language & Computer Organization, Discrete Mathematics, Linear Algebra

HONORS AND GRANTS

Graduated with Honors (2022)
Milagros Ojermark Academic Transfer Scholarship (2022)
Academic Honors (2020-2022)
AGS Member of the Month (2021)
Hopper-Dean Foundation Funding Recipient (2021)
Google Top Photographer (2019)

RESEARCH EXPERIENCE

Amazon Science, University of California, Los Angeles
SURE AI/ML Researcher, June 2023 – August 2023
Advisor: Abeer Alwan
Accent and dialect bias with Automatic Speech Recognition (ASR) systems, specifically on OpenAI Whisper and African American Vernacular English (AAVE). Focused on question-answering (QA) extraction using Hugging Face DeBERTa & Meta LLaMA-2 with Python and PyTorch while fine-tuning Whisper with the Corpus of Regional African American Language (CORAAL) dataset. By utilizing Meta's LLaMA-2, preliminary results show improved QA performance compared to conventional question answering models and 4% improvement in word error rates (WER) by fine-tuning Whisper.

Carnegie Mellon University, Software and Societal Systems Department
Undergraduate Software Engineering Researcher, May 2022 – August 2022
Advisors: Christian Kästner and Bogdan Vasilescu
Developed Python NumPy/Pandas data-mining scripts to determine maintainers of the top 30,000 most popular GHTorrent GitHub repositories. Deduplicated ~5.6 million rows of contributor commit data by merging commit author aliases together and aggregated maintainers based on the definition of contributors responsible for top 80% of total project commits in a year. Identified ~584,000 distinct contributors, and ~110,000 maintainers to be interviewed to understand the motivations behind open-source software maintainers.

University of California, Berkeley, Department of Mechanical Engineering
Undergraduate Robotics Development Researcher, June 2021 – August 2021
Advisor: Koushil Sreenath
Independently developed a speech interface for a robotic guide dog to facilitate direct, vocal human-robot interaction utilizing Python with AWS Amazon Polly and Google Cloud Speech-to-Text APIs. Allowed for understanding vocal commands and a customizable wake word to activate the guide dog. Navigated based on user's request by publishing predetermined coordinates to guide dog's navigation target node. Allowed for independence of guide dog by eliminating the need for a computer to manually send commands to the guide dog by integrating a speech interface into the existing infrastructure utilizing C++ and ROS. Presented research at multiple symposiums to a total of 300+ attendees and wrote student paper that was cited by Google Research/DeepMind.

PAPERS & PRESENTATIONS

Mehrizi, K et al., "Spontaneous Speech Question Answering Extraction with Under-Represented Dialects and Speaking Styles," [Unpublished Work], August 2023. (student paper).

Institute for Software Research Poster Symposium, Carnegie Mellon University, Pittsburgh, PA, August 2022. Mehrizi, K. "No Need to Fear, a New Maintainer is Here!: Understanding Motivations Behind Open Source Maintenance Work" (poster).

Mehrizi, K, "Quadrupedal Robotic Guide Dog with Vocal Human-Robot Interaction," ArXiv, abs/2111.03718 [cs.HC], November 2021. (student paper)

College of Engineering Undergraduate Research Poster Symposium, Berkeley, CA, October 2021. Mehrizi, K. "Quadrupedal Robotic Guide Dog with Vocal Human-Robot Interaction" (poster).

Transfer-to-Excellence Summer Research Symposium, University of California, Berkeley, CA, August 2021. Mehrizi, K. "Quadrupedal Robotic Guide Dog with Vocal Human-Robot Interaction" (lecture).

LEADERSHIP EXPERIENCE

EECS Transfers at Berkeley Student Organization
Vice President, Co-Founder, October 2022 – Present
Created the first <u>student organization</u> at Berkeley specifically aimed to build a community and provide resources to ensure academic and career success for transfer students interested in the fields of EE/CS. Plan and host exam preparation workshops and events for 30+ members.

Alpha Gamma Sigma Honor Society
Newsletter Editor, Webmaster, Permanent Member, August 2021 – May 2022
Produced and distributed weekly newsletters and managed chapter's website for our 90+ prospective and current members. Collaborated with executive board and planned 30+ weekly activities and events for the honor society.

MEMBERSHIP

Society of Hispanic Professional Engineers (2023-Present)
Society for Advancement of Chicanos/Hispanics & Native Americans in Science (2023-Present)
EECS Transfers at Berkeley (2022-Present)
Puente at Berkeley (2022-Present)
Financial Education Association of Berkeley (2022-Present)
UC Berkeley IEEE Branch (2022-Present)
IEEE (2021-Present)
IEEE Computer Society (2021-Present)
IEEE Digital Reality (2021-Present)
Technical Community on Software Engineering (2021-Present)
DVC Physics Club (2022)
IEEE Robotics and Automation Society (2021-2022)
Transfer Alliance Project (2021-2022)
Google Student Developer Club (2021-2022)
DVC Math Club (2021-2022)
DVHackers (2020-2022)

PROJECTS

NGordnet
Java, Data Structures, Data Analysis/Visualization, Datasets
Developed backend for a browser-based tool for analyzing history of word usage in Google's Ngram dataset using a modified TreeMap class. Implemented ability to find hyponyms using the WordNet dataset by merging and comparing synonym sets.

World Generator

Java, Data Structures, A*, Binary Space Partition

Created a 2D tile-based world exploration game in Java that supported a random world generator. By entering a random seed number, the program would proceed to create a map layout featuring an arbitrary number of rooms, hallways, and placements for the items in the game, unique from any other number. 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.

Ants Vs. SomeBees

Python, Data Structures, Object-Oriented Programming

Created a Plants vs. Zombies replica which involves placing different types of ants in a colony to protect their queen from the invading bees. The ants have various abilities and costs, such as harvesting food, throwing leaves, reflecting damage, slowing or scaring bees, and doubling the damage of other ants. Implemented several classes and methods to represent the game logic, data structures, and graphical interface. Also utilized inheritance, polymorphism, abstraction, and recursion. I learned how to design and test a large program using object-oriented programming paradigm and Python libraries.

Boxing Bag Sensor

Arduino, C++, Circuits

Created a punch counter utilizing a piezo sensor, LEDs, and display that gained values from sensor to determine if disturbance was a punch based on a predetermined threshold.

TECHNICAL SKILLS & HOBBIES

Computational: Python, Java, C++, SQL, HTML/CSS, NumPy, Pandas, Arduino, Git, PyTorch, C, R

Laboratory: UC Fundamentals of Laboratory Safety Training (EHS 101), Workplace Safety Program (EHS 502), Laboratory Safety Awareness Training for Support Personnel (EHS 104)

Extracurriculars: Avid skier, devoted film & digital photographer, soccer (goalkeeper), 3D printing, automation tinkering – microcontrollers, open-source software, IoT

LANGUAGES

English (fluent)
Farsi (fluent)
Spanish (knowledgeable)