Arya Bastani

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EDUCATION

University of California, Berkeley – College of Letters and Science **GPA: 3.6, Graduation May 2023**

B.A. Computer Science

Coursework: Structure and Interpretation of Computer Programs, Data Structures and Algorithms, Machine Structures, Discrete Math, Information Devices and Systems, Intro to Mechanics and Relativity, Computer Security, Probability and Random Processes, Intro to Thermodynamics and E&M, Machine Learning, Intro to Quantum Mechanics, Entrepreneurship in Web3, Deep Neural Networks, Computational Models of Cognition, Signal Processing, Financial Accounting

Skills: Python, Java, C, C++, RISC-V, SQL, Swift, IOS development, PySpark, embedded system design, PCB design and fabrication, machine learning models

Tools: Git, AWS, MySQL, Swift, STM32 Cube IDE, Xcode, Ubuntu, Solidworks, Altium, Mill & Lathe Operation

Frameworks/Libraries: NumPy, pandas, PyTorch, TensorFlow, JAX, CDK, React, Hugging Face

ACADEMIC EXPERIENCE

Ear EEG Classification - ML Research May 2022 – present

- Building supervised and unsupervised classification models in Professor Rikky Muller's lab to determine a person's drowsiness state in real time based on raw data acquired through an in-ear EEG system
- Building supervised models using LSTMs, transformers, decision trees, and high dimensional classification models
- Creating unsupervised model by doing principal component dimensional reduction and averaging clusters into vector

EEG Data Generation and Anonymization - ML Research January 2023 – present

- Building an EEG generation and anonymization model working with Professors Rikky Muller and Anant Sahai
- Fine-tuning stable diffusion model in order to be able to generate unique EEG spectrograms that retains pertinent information while removing features that can be used in order to determine gender and age
- Use ear EEG classification transformer model as an adversarial network to determine if generated data is convincing

CS61A: Structure and Interpretation of Computer Programs **Berkeley, CA**

Academic Intern Jan 2021 – Aug 2021

- Lead two discussion sections of 10 students every week teaching the basic principles of computer science

PROFESSIONAL EXPERIENCE

Amazon Web Services **Arlington, VA**

Software Development Engineering Intern May 2022 – September 2023

- Worked on the Amazon Web Services Resource Access Management (RAM) team building consumer facing software
- Completely redesigned and implemented a canary system in python that periodically checks compatibility between Resource Owning Services's and RAM's systems and notifies teams if there is a problem to be fixed before customers are affected
- Reduced canary development time and cost, from requiring 6 month with multiple engineers to 1 month for a single engineer
- Worked with AWS Lambda Functions, EC2, S3 Buckets, and IAM Roles to complete the project

Formula Electric at Berkeley (Electric Formula Race Car Team) **Berkeley, CA**

Chief EECS Engineer Jan 2020 – present

- Oversee/manage the design, implementation, and manufacturing of electric and software systems of a Formula SAE race car
- Manage a team of 35 designing more than 20 custom PCBs and custom firmware to create an electric race car with an 80kW powertrain, active telemetry system, and pit interface capable of going 80 mph while carrying a human safely
- Optimize performance of system to inverter efficiently supply maximum amount of power without overheating battery of car
- Project lead of low voltage power distribution board and ground station software/interface in previous years
- Designed all hardware and firmware from scratch for a PCB switching between two power inputs supplying power to low voltage systems, tracks power draw data of systems, and communicates through CAN using a STM32F446 microcontroller

Amped Emotos **Berkeley, CA**

Founding Member & Head of Software and Electrical Engineering May 2021 – May2022

- Lead Electrical Engineering and Computer Science Team in the development of high voltage and low voltage electrical systems, software, mobile and desktop application of an IoT enable class 2 electric emoto bike capable of going up to 65mPh
- Built fully functional initial prototype using a decentralized system using STM32 dev boards communicating through CAN
- Designed systems for a remote unlock of bike with smart phone and connectivity to the cloud in order to track various metrics through use of Raspberry Pi with Comodule board and API's

FIRST Robotics Competition (FRC) Team 3476: Code Orange **Irvine, CA**

Co-President May 2018 – May 2019

- Led team of 32 students to design and build a reliable 150lb robot that would compete on a high level, that featured a turreted elevator lift system, box collection system, prismatic arm, dual floor intakes, and four bar climb mechanism
- Team ranked in the top 1% of 5,000 teams globally, and has won 4 World Championship divisional competitions
- Used Solidworks to design major mechanical components, fabricated using CNC routers & Mills, and waterjet machines
- Interviewed at the world championships spotlighting our robot: https://bit.ly/2OOFpji

EXTRACURRICULARS

Iranian Student Cultural Organization **Berkeley, CA**

President May 2021 – present

- Lead one of UC Berkeley's largest and most active cultural organizations, centered around Cal's Iranian-American community
- Manage a budget of over $30,000 to operate our annual calendar of cultural, social, and professional development events
- Act as the chief representative of ISCO to the university, city, as well as any other external organizations we work closely with