

Dhruv Varshney

+1(510) 953-8846 | Fremont, CA | dhruv.varshney@outlook.com

<https://www.linkedin.com/in/dhruv-varshney10/> | <https://dhruvvarshney10.github.io/Portfolio/>

EDUCATION

B.S Computer Engineering, San Jose State University ([President's Scholar 22-23](#))

Expected May 2025

Relevant Coursework: Electronics for Embedded Systems, Digital Design, Microprocessor Design, Computer Networks, Data Structures & Algorithms, Advanced Algorithm Design, Software Engineering 1, Computer Architecture, Operating System Design, Circuit Theory & Analysis.

Programming Languages: Embedded C, C++, Python, Linux, Shell, Assembly Language

Hardware Design: Verilog, Circuit Design, PCB Design, SoC Design, Analog Design, Low Power Design, RTOS, Debugging

Embedded Systems & Communication Protocols: TCP/IP, CAN, LIN, SPI/ UART, I2C, Ethernet, IPC, PWM, Bluetooth LE

Tools: Git, JIRA, JTAG, Jenkins(CI/CD), OrCAD, Altium Designer, Oscilloscope, MATLAB, Simulink, LTSpice, EDA

PROJECTS & RESEARCH

SCOOTSENSE Research Project

- Conducting research with a professor on the application of **Embedded Systems & Machine Learning** to advance road safety for electric scooters in downtown and urban areas.
- Integrated **Raspberry Pi 4B** with BeiTian-180 **GPS**, **Pi Camera** module, and GY-521 **gyroscope/accelerometer** sensors into electric scooters to create a data acquisition framework.
- Developing **deep learning** models, utilizing **CNNs** for image-based hazard detection and **RNNs** for motion pattern analysis, using **TensorFlow** and **PyTorch**, to enhance urban road safety.
- Designing a user-friendly **real-time** dashboard for rider alerts and driving adjustments.

TI-RSLK Self-Driving Maze Edition Robot

- Built an autonomous-driving robot capable of navigating mazes using **IR & bumper sensors** to detect turns and walls.
- Designed a **PWM & SysTick ISR** using **ARM TI-MSP432 Microcontroller** and utilized H-Bridge **Motor Drivers** to adjust power delivered to DC motors.
- Designed a **Free Real-Time Operating System(RTOS)**, that detects collisions & mitigates them using ISR.
- Interfaced Nokia 5110 LCD using **SPI communication** protocol.

IBM Software Good Tech Scholar Program ([Visit Ease](#))

- Developed a website to identify & address the issue of rising poverty by locally connecting donors to the people in need.
- Deployed **ReactJS & AngularJS** web app on **Kubernetes** & IBM cloud that streamlines the process of donation by connecting low-income users with local donors and food banks.
- Designed a personalized UI using HTML, CSS, **JavaScript** with user authentication and recommendation system feature using **MySQL** and **AWS** database.

EXPERIENCES

Institute of Electrical and Electronics Engineers(IEEE)

June 2022 - Present

Vice President

- Led a board of 15 officers as Vice President of IEEE, overseeing project/events, membership, and marketing committees. Successfully implemented strategic initiatives that revitalized in-person attendance, increasing active membership to over 100 members.

Associated Students

Chief Financial Officer/Controller

June 2023 - June 2024

- Developed comprehensive investment policies and strategies to manage **\$6 million** reserve fund, ensuring financial stability, and maximizing returns.
- Directed the creation and management of a **\$9 million** annual budget, funded by student fees, ensuring optimal allocation of resources, and transparency in financial planning.

Director of Sustainability Affairs

June 2022 - June 2023

- Advocated to the California State Senator, CSU Chancellors & City Council to provide **9,000** commuter students free public transport across all 24 Bay-Area transit agencies. ([Read article here](#))

CERTIFICATIONS & LEADERSHIP

• [IBM Introduction to Cloud](#)

• [IBM Enterprise Design Thinking Practitioner](#)

• Mastering Data Structures & Algorithm using C & C++

• **Tau Beta Pi** – Public Relations Officer

• **Surface Mount Technology Association** - Secretary