

Dhruv Varshney

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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, Compiler 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, IPC, GPIO, PWM, Bluetooth LE

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

PROJECTS

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.

Facial Door Locking System

- Developed facial recognition software utilizing a 360-degree camera and linked it to a system for locking doors.
- Established a connection between a **Raspberry Pi** and an **AWS S3** database for storing and retrieving facial data.
- Implemented drivers for **PWM**, **Wi-Fi**, and **Bluetooth** to facilitate the training of **deep learning** models through TensorFlow.
- Incorporated a user authentication front-end using **React Native**.

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 for effectively managing a **\$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 promoting 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