Gabriel Nguyen

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Education

San Jose State University Aug. 2022 – May 2026

*B.S. in Electrical Engineering (**GPA**: 3.5/4.0)*

- **Relevant Coursework**: Circuit Analysis, Engineering Reports, Ordinary Differential Equations, Electricity and Magnetism, Introduction to Programming Micro-Controllers, General Chemistry
- **Organizations**: Institute of Electrical and Electronics Engineers, Software and Computer Engineering Society

Experience

Movano Health May 2024 – Present

Electrical Engineering Intern *Pleasanton, CA*

- Led research on the impact of Evie Ring capacitance during prolonged charging, creating current gauging software
- Debugged current consumption issues in medical devices, developing hardware defect identification Python scripts
- Built current discharge scripts to deduce optimal resin material compatibility, achieving below 25% battery error
- Dissected over 100+ products to perform root cause analysis on capacitance issues by isolating PCB components

Software and Computer Engineering Society Jan. 2024 – Present

Hardware Team Officer *San Jose, CA*

- Directed a team of engineering students to build a Jetson Nano autonomous drone for aerial data collection
- Designed 4-6 layered STM MCU-powered flight controllers with pressure and motion detection capabilities
- Configured 5+ multi-layered breakout boards for micro-controller components such as the IMU and barometer

SJSU NVIDIA Student Program Mar. 2024 – May 2024

Participant *San Jose, CA*

- Partook in NVIDIA's Jetson Nano AI program, learning about its image classification and regression capabilities
- Constructed a model in Python to recognize hand signals (thumbs-up or thumbs-down) using a camera
- Completed an Image Regression project to locate facial features by predicting X and Y values on a person's face

Projects

Air Quality Monitoring Station | *Altium, C++, Python*

- Led a team of EE students to develop an air quality station detecting VOC, CO2, and NO2 within a 1-meter range
- Designed the station to optimize power consumption, running at 150mA in active mode and 10mA in sleep mode
- Developed firmware in C++ for the ESP32-C3 MCU to interface multiple sensors and handle data transmission
- Implemented software using Python to visualize real-time air quality statistics with graphs and updates

Jetson Nano Autonomous Drone | *Altium*

- Developed an autonomous drone with NVIDIA's Jetson Nano for environmental data collection in Altium
- Designed flight control systems with ArduPilot, integrating GPS, IMU, barometer, and sonar capabilities into PCB
- Integrated a reliable two-way telemetry system for continuous data exchange from drone to control station

Battery Management System (BMS) | *Flux.ai, C++*

- Designed a BMS with an ESP32 and BQ76940 to monitor battery metrics for Flux.ai's Hardware Design Challenge
- Achieved with 95% accuracy in SoC, voltage, current, and capacity values, aligning with multimeter readings
- Developed C++ firmware to monitor and display battery statistics using the BQ76940 IC with I2C communication

FPGA MNIST Handwritten Digit Classifier | *Python*

- Developed a Python script training model using TensorFlow and Keras libraries to identify handwritten numbers
- Incorporated the MNIST dataset into the script, producing 3 convolutional layers with 99.7 percent accuracy
- Implemented TensorFlow Lite inference onto a PYNQ-Z2 using tflite and numpy to execute and retrieve outputs

Technical Skills

Languages: Python, C, C++, Verilog
Developer Tools: VSCode, Vivado, Vitis, Github, Altium, PSOC Creator, Pycharm, LTSpice