# 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 it's 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

**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

**Schmitt Trigger-Based Stochastic Resonator** | *PSOC Creator, Python*

- Developed a schmitt stochastic resonator for signal detection in noisy environments with a CY8CKIT-042
- Designed and tested schmitt Trigger circuit to detect 20Hz-20kHz and to determine feedback loop optimization
- Performed frequency response analysis to determine the resonator's optimal operating range and signal-noise ratio

**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 at 99.7 percent accuracy
- Implemented TensorFlow Lite inference onto a PYNQ-Z2 using tflite and numpy to execute and retrieve outputs

**FPGA Digital Clock** | *Verilog*

- Developed a digital clock on a Basys 3 Artix-7 FPGA with real-time updates and user interaction for time setting
- Implemented digital systems using Verilog using BCD converters, 7-segment display drivers, and clock modules
- Integrated debouncing circuits for reliable button press detection and minimized erroneous inputs in the FPGA

## Technical Skills

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