Jeevan Sanchez

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EDUCATION

Queen's University **Exp. May 2029**
Bachelor of Applied Science in Computer Engineering Kingston, ON
Relevant Coursework: Digital Systems with Verilog, Electric Circuits

EXPERIENCE

Queen's Rocket Engineering Team **September 2025 - Present**
Avionics Hardware Lead (since September 2026) Kingston, ON
Propulsion Integration Engineer

- **Architecting flight recovery and digital imaging hardware**, integrating **embedded processing**, **inertial and barometric sensing**, **GPS**, **pyrotechnic firing circuits**, and **digital video transmission**.
- **Leading a ~20-person engineering team**, overseeing **PCB design reviews**, **technical workshops**, **hardware validation**, and **cross-subteam electrical integration**.
- **Developed embedded C/C++ firmware** and **peripheral drivers** for **propulsion control** and **sensing**, interfacing with **ADCs**, Hall-effect sensors, and solenoid drivers over **SPI**, **I²C**, and **CAN**; engineered two low-EMI, 4-layer avionics PCBs.

PROJECTS

Penguin **May 2026 - Oct 2026**
Intelligent Robotics | C++, Python, PlatformIO, OpenCV, ESP32-S3, KiCad) Toronto, ON

- Developed **layered C/C++ firmware** with **hardware abstraction**, **peripheral drivers**, **deterministic state machines**, and **PID-based motor control**.
- Implemented an **OpenCV-based computer vision pipeline** in **Python** for **onboard object detection** and **perception**, integrating **autonomous behaviours** and real-time **WebSocket telemetry**.
- Engineered a **4-layer ESP32-S3 controller PCB**, integrating multi-rail power regulation, motor drivers, parallel DVP camera interfaces, I²C sensor networks, and low-EMI layout.

Vireo **Sep 2026 - Present**
Analog Audio Hardware | STM32H7, KiCad, SAI, AFEs. ADCs, Mixed-Signal Design Kingston, ON

- Developing an **STM32H7-based audio acquisition architecture**, implementing **SAI-based multi-channel audio interfacing** and **DMA-driven data transfer**.
- Architecting embedded interfaces for **multi-channel ADC acquisition**, **audio metering**, peripheral control, and **modular user-interface connectivity**.
- Designing a **mixed-signal audio PCB** integrating analog front ends, programmable gain, phantom power, low-noise power distribution, ADC interfaces, and SAI audio bus routing.

SKILLS

Software & Firmware: C/C++, Python, STM32Cube, PlatformIO, ESP-IDF, FreeRTOS, HAL, OpenCV, Git

Hardware: KiCad, PCB Design, Schematic Capture, Power Management, Mixed-Signal Design, SI/EMI, Instrumentation, Soldering/Rework