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**.
- Engineered two **low-EMI, 4-layer** avionics **PCBs** for propulsion control and sensing, integrating **power management**, **analog signal conditioning**, **solenoid drivers**, and **STM32/ESP32 interfaces**; developed **embedded C/C++ firmware** and **peripheral drivers** for hardware bring-up and validation.

PROJECTS

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

- Architected and routed a **4-layer ESP32-S3 controller PCB**, integrating **multi-rail power regulation**, **power distribution**, **reverse-polarity protection**, motor driver stages, and load switching.
- Designed peripheral interface circuitry encompassing **parallel DVP camera interfaces**, **I²C sensor networks**, ADC voltage monitoring, GPIO expansion, **decoupling networks**, and **low-EMI PCB layout**.
- Developed **layered C/C++ firmware** and **hardware drivers** for motor control, sensor acquisition, **PID-based locomotion**, **autonomous behaviours**, and **OpenCV-based computer vision** in Python.

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

- Designing a **multi-channel audio interface** with **custom analog front ends** (AFEs), balanced XLR/TS inputs, **Hi-Z switching**, **phantom power**, input protection, and **programmable gain stages**.
- Architecting a **mixed-signal PCB** with multi-channel ADCs, **low-noise power distribution**, **analog/digital ground partitioning**, USB power management, **clock routing**, and **signal integrity**.
- Developing **STM32H7 hardware interfaces** with **SAI audio connectivity**, peripheral expansion, dedicated UI circuitry, and **analog metering outputs**.

SKILLS

Hardware: KiCad, PCB Design, Schematic Capture, Power Management, Mixed-Signal Design, SI/EMI, SPI, I²C, CAN, UART, SAI, Testing Instrumentation, Soldering/Rework,

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