

# GABE DAVID

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## EDUCATION

**BASc, Mechatronics and Robotics Engineering (with Co-Op)**, Queen's University **Sept 2021 – Apr 2026**

- **Extracurricular Activities:** Queen's Aerospace Design Team, Mechatronics Discipline Club, Clark Hall Pub Bartender.
- **Relevant Coursework:** Analog Systems and Signals, Autonomous Robotics, Mechatronics & Robotics Design.
- **Awards:** Queen's Principals Scholarship, Deans Scholar (2023-2024)

## ACHIEVEMENTS

**1st Place**, Ottawa Defence Tech Hackathon **Nov 2025**

- Developed a real-time drone detection ML model to detect and classify adversarial UAVs using their acoustic signature.
- Designed to be run on deployed edge nodes with scalability, low power budget and low RF signature in mind.

## PROFESSIONAL EXPERIENCE

**Rapid Prototyping and R&D Engineer**, DominionX Labs (Dominion Dynamics) **Sept 2025 – Present**

- Selected as part of the inaugural six-member cohort establishing DominionX Labs, an internal initiative focused on rapid prototyping and R&D.
- Collaborate with stakeholders to define technical requirements and prioritize high-impact R&D projects.
- Design and build autonomous systems under environmental, power, and reliability constraints.
- Lead concept-to-demo development cycles, including system architecture definition, rapid prototyping and hardware-software integration.

**Embedded Flight Software & Design Engineer Co-op**, Galaxia Mission Systems **May 2024 – Sept 2025**

- Integrated multispectral imagers, GNSS receivers, Attitude Determination and Control hardware with in-house Onboard Computer (OBC) via SPI, UART, RS422 (C/C++).
- Designed and developed firmware for the Electrical Power System and interface PCBs for power control, and comms.
- Designed and prototyped custom solar panels, assembling and debugging under tight timeline meet mission requirements.
- Conducted RTOS and hardened memory R&D on next-generation OBC to establish redundant system architecture.
- Led Ethernet and SSD subsystem design for the next-generation OBC, defining high-speed interface architecture and integration requirements.
- Contributed across electrical, mechanical, and software systems, assisting with PCB assembly, electrical circuit debugging, mechanical CAD and assembly, and software development (Docker, Python) to support system integration and testing.

## PROJECT EXPERIENCE

**Director of Navigation**, Queen's Aerospace Design Team **May 2023 – Sept 2024**

- Led a 15-member team developing autonomous flight software for a 3m wingspan VTOL UAV using ROS2, PX4, Linux (Ubuntu), Git, and Docker.
- Authored formal test plans and scripts, and analyzed flight logs to diagnose electrical, mechanical and software issues.
- Created custom Gazebo simulations by forking PX4, adding depth sensing capabilities to a custom drone mesh in a custom world to accurately simulate competing environments.
- Competed in AEAC 2024 university design competition and iMAV 2025 (Bristol, UK) placed 6<sup>th</sup> internationally as the only undergraduate team.

## TECHNICAL SKILLS

- **Languages:** C, C++, Python, MATLAB, Assembly, Bash.
- **Embedded:** Bare-metal/RTOS, Bootloaders, Peripheral Drivers, System Integration.
- **Robotics:** ROS 1/2, PX4, Gazebo, OpenCV.
- **Controls:** Controller Design, State Estimation, Simulation/Test Workflows.
- **Interfaces/Networking:** UART, RS-422, I2C, SPI, USB 2.0, Ethernet, PCIe, DDS.
- **Hardware and CAD/ECAD:** Circuit Debugging, Oscilloscope, Prototyping, KiCAD/Eagle, SolidWorks, Onshape.