

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 I-IV.
- **Awards:** Queen's Principals Scholarship, Deans Scholar (2023-2024)

PROFESSIONAL EXPERIENCE

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.

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 leadership and Canadian Armed Forces to define and prioritize high-impact R&D projects.
- Design and build novel Arctic-hardened systems under aggressive timelines, balancing innovation and practicality.
- Lead concept-to-demo development cycles, including feasibility studies, prototyping and system integration.
- Present findings and technical recommendations to inform product strategy and future development directions.
- Drive fast-paced prototyping efforts emphasizing creativity, practical engineering and mission aligned innovation.

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 schematics 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.

PRACTICAL 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 6th internationally as the only undergraduate team.

TECHNICAL SKILLS

- **Programming:** C, C++, Python, MatLab, Assembly, Bash.
- **Frameworks:** ROS1 & ROS2, PX4 Autopilot, Git, Docker, OpenCV, Gazebo, avrgcc, avrg++.
- **Protocols:** Ethernet, PCIe, USB 2.0, UART, RS422, I2C, SPI, DDS.
- **Platforms:** Linux (Ubuntu), WSL, NVIDIA Jetson, ARM, AVR, MicroChip Studio, JetPack, Arduino, Raspberry Pi, Windows, MacOS, VSCode.
- **Hardware:** Soldering, Prototyping, Circuit Building, Oscilloscopes, 3D Printing.
- **CAD and Electrical Design:** Eagle, Spice, KiCAD, SolidWorks, Fusion 360, OnShape.