

Andrew Davis

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Education

BASc – Applied Mathematics and Systems & Robotics Engineering – Queen's University – ON, Canada Exp. May 2027

- 3.65 GPA, Dean's Honour List 2024 & 2025, Applied Mathematics DSC VP External 2025-26, Intramural Volleyball

Experience

Electric Propulsion Intern, Airbus Defence and Space – Immenstaad am Bodensee, Germany May 2025 – Aug 2025

- Designed custom C/C++ STM32 firmware and bootloader for a 2U electric propulsion CubeSat launching in 2026
- Developed a space-grade Modbus protocol over RS-485 to enable reliable payload to satellite communication
- Optimized software size by 24% and increased communication efficiency with custom data compression by 95%
- Managed sensor control systems, flash/RAM and firmware reallocations, crash recovery, and single-event effects
- Verified and tested satellite subsystems while managing schedules, risks, and strategies for space electronics

Circuit Analyst Intern, TechInsights – Ottawa, Canada May 2024 – Aug 2024

- Performed circuit extraction on passive and active circuit dies in CMOS technology from SEM processed images
- Extracted standard logic cells from CPU, GPU, and NPU dies in MOSFET, FinFET, and FinFlex circuit technology
- Created accurate CAD schematics for complex circuits, showing functionality for customer reports
- Designed precise KLayout cell schematics for standard and complex gate cells from extracted GDSII die layers
- Produced a comprehensive user guide for KLayout streamlining employee training and enhancing team efficiency

Customer Service Representative, City of Ottawa – Ottawa, Canada May 2022 – Aug 2023

- Provided customer support and facility management in large-scale recreational and community centers
- Regularly updated documents and databases storing >500,000 customer accounts, for city programs and camps
- Managed customer inquiries and complaints, and maintained a positive attitude while de-escalating situations
- Developed strong teamworking abilities, self-management, organizational, and interpersonal skills

Projects

Rocket Payload & Avionics, Queen's Rocket Engineering Team – Kingston, Canada Sept 2023 – Present

- Designed attitude determination board to determine accurate position and orientation of a 3U CubeSat payload
- Used CI/CD to design Kalman filters in C++ fusing data from GPS, IMU, and magnetometer, optimizing rocket GNC
- Integrated Raspberry Pi controlled ground station to display avionic telemetric data and live camera feed
- Created CAD assemblies and integrated aluminum bulkheads with FEA to ensure safe modular deployment

Air Traffic Control Consensus Algorithm – Queen's University, Smith Engineering Sept 2024 – Dec 2024

- Led a team of 5 students to design an autonomous airplane landing consensus formation algorithm
- Designed a leader-based consensus algorithm optimizing current landing paths to save fuel and time
- Mathematically modeled fluctuating position-time functions based on simulated GPS & INS signals
- Simulated the landing of N agents in for modeled London Heathrow airspace using MATLAB architecture

Terrain Collision Model and Force Detector – Queen's University, Smith Engineering Jan 2024 – Apr 2024

- Led a team of 5 students to design an IMU based force and impulse detector for Queen's Baja SAE team
- Developed a filtered algorithm in C++ to fuse accelerometer, gyroscope, and magnetometer data using Arduino
- Modeled the movement and impulse of suspension system of the car chassis over rough racing terrain
- Organized team meetings, documented progress, and participated in design reviews with key stakeholders

Skills

Software and Electrical: C, C++, Git, GitHub, Python, Java, Excel, Arduino, Raspberry Pi, MATLAB, KiCAD, SPICE, Soldering
Engineering and Systems: JIRA, Confluence, SolidWorks, CATIA, FEA, Kalman Filters, Sensor Fusion, Data Analysis