

# MAVERICK HOZIEL

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## Profile

- McGill Varsity Lacrosse two time Team Captain and Varsity Council Representative
- Skilled in **MATLAB/Simulink, Python**, circuit simulation, CAN bus systems, and oscilloscope-based testing
- Experience in control-signal integration, avionics-style system architecture, and safety-related logic for electric propulsion systems
- Background in numerical methods, MNA solvers, and defining power distribution and logic paths
- Technical skills include control systems, SPICE/MNA analysis, and feedback loops
- Proficient with **LTS defense**, AutoCAD, Power BI, and Git; bilingual in French and English

## Education

### McGill University – Montréal, QC

August 2022 – April 2026

Bachelors of Engineering in Electrical Engineering - Internship Program

Minor in Aerospace Engineering

## Professional Experience

### Électricité Kingston

May 2023 – August 2025

Electrical Engineer Intern

Terrebonne, QC

- Developed and presented an AI-based internal tool to the board of directors, streamlining operations
- Directed end-to-end project execution, ensuring on-time delivery and cost efficiency that maximized profitability

## Projects

### AA-1C Yankee Electric Propulsion Conversion | Power BI, Avionics Architecture

December 2025

- Redesigned the aircraft's electrical and avionics architecture for electric propulsion, defining system interfaces and control signal paths between cockpit controls, inverter, contactor module, BMS, and avionics loads.
- Integrated CAN communication between the BMS, inverter, and cockpit displays to manage system status and safety related signals.
- Established logic-enable conditions, HV contactor sequencing, and DC to DC power paths while replacing Lycoming-dependent circuits with electric system equivalents.

### Optical Communications Capstone | TFLN, IM/DD, High-Speed Photonics

September 2025 – May 2026

- Designing a 20+ Gbps intensity-modulation/direct-detection (IM/DD) optical transmission system using thin-film lithium niobate (TFLN) technology.
- Developing modulation, driver, and detection architecture to evaluate link performance and photonic integration feasibility.

### Circuit Simulation Engine | MATLAB, SPICE Netlist, Numerical Methods

September 2025 – December 2025

- Developed a MATLAB program that reads SPICE netlists, builds MNA matrices, and performs operating-point, transient, Harmonic Balance, and nonlinear circuit analysis.
- Implemented Newton-Raphson and Backward Euler methods and verified simulation results against LTspice.

### Missile–Target Engagement Simulator | Python, Aircraft Flight Kinematics & Simulation Systems

2025

- Developed a 3D aerospace game-simulator with missile-aircraft engagements, radar detection, aircraft flight kinematics, evasive maneuvers, altitude dynamics, flare countermeasures, bomb hit probability, and scoring logic.

### Operational Amplifier Design Project | LTS defense, BJT Circuits

September 2024 – December 2024

- Designed and simulated a multi-stage BJT operational amplifier in LTS defense (reference, amplifier, differential, buffer, and Class AB stages), then assembled the circuit on a breadboard and verified performance using an oscilloscope.

### AI Model | AI, Python, Computer Vision, Template Matching

June 2024 – August 2025

- Led testing and refinement of a partner-developed AI model, identifying bugs, proposing enhancements, and aligning functionality with company needs. Presented the improved system to the board, and it is now actively used in operations.

## Leadership

### Captain, McGill Redbirds Men's Lacrosse Team

2024 – Present

- Elected for a second season as team captain; led team culture and represented athletes on the Varsity Council.

### Recipient, Evans Huber Memorial Award – Most Dedicated Player

2023 – Present

- First McGill lacrosse player to receive the award three consecutive years.