Aidan Mendoza

aidanmendoza.com Calgary, Alberta

Education

The University of British Columbia **Sept 2021 – Expected May 2026**

Bachelor of Applied Science in Electrical Engineering | *Co-op Program* Kelowna, British Columbia

Experience

ATCO **May 2023 – Aug 2024**

Distribution Engineering Improvements Co-op Student Calgary, Alberta

- Managed and designed $1.3M natural gas main replacements, balancing load, routing, and constructability
- Coordinated with construction, land, and environmental teams to align outages, access, and restoration
- Ran Synergi network studies to check distribution capacity, feeder loading, and reliability margins
- Wrote detailed tie-in procedures for safe, sequenced system cutovers and live-gas connections in distribution mains
- Reviewed multidisciplinary design packages for compliance with CSA Z662 and AUC regulatory requirements
- Produced alignment plans in Bluebeam/ArcGIS to support construction and as-built model updates

The City of Calgary **May 2022 – Aug 2022**

Electrical Rail Systems Engineering Intern Calgary, Alberta

- Produced 15+ single-line diagrams for WAGO relay terminal boxes in AutoCAD Electrical to support rail signal upgrades
- Updated railroad switch schematics to capture as-built field changes and comply with revised safety standards
- Surveyed C-Train grade crossings to diagnose signaling issues and prioritize targeted safety and reliability upgrades
- Supported troubleshooting of signal, control, and interlocking systems during maintenance to restore operations

Makmend Media **May 2019 – Present**

Owner/Operator Calgary, Alberta

- Operate Makmend Media, a creative business providing photo, video, and technical solutions for 100+ clients
- Designed and built a solar-powered photo booth with MPPT charge control, DC–DC regulation, and 10–12 hr off-grid runtime
- Delivered professional services media using advanced camera systems, stabilization tools, lighting, and Adobe
- Managed end-to-end operations including media production, technical design, client acquisition, marketing, and financials

Projects

ARTMS QIS Capsule Tracking - Capstone Project | *STM32, LTSpice, KiCad* **Sept 2025 (Ongoing)**

- Developing sensor array (Hall-effect, inductive, piezoelectric) for 36 mm QIS capsules
- Prototyping non-invasive current-sensing and signal-conditioning stages for 0–5 A, 24 V DC actuator and coil loads
- Implementing embedded firmware for multi-sensor sampling at 1–5 kHz, digital filtering, and position estimation
- Building bench-scale shielded hose rig and logging capsule passes to quantify detection latency and accuracy

Brushless DC Motor | *LTSpice, Fusion 360* **Mar 2025**

- Designed and hand-assembled a 3-phase BLDC motor with a wye-wound stator and 4-pole neodymium rotor
- Refined rotor mass balance and magnet placement to reduce vibration and achieve smooth, stable rotation
- Integrated 40A ESC, RC receiver, and 14.8V LiPo battery pack to enable wireless throttle and speed control
- Tested and validated motor responsiveness using Fly Sky FS-T6 transmitter/receiver system for speed regulation

Tractive System Active Light - OK Motorsports Club | *Altium, LTSpice* **May 2024**

- Designed TSAL circuitry and isolated DC supply to indicate >60 V accumulator status
- Developed comparator and FET-based driver stages, validated via LTSpice simulation and bench testing
- Collaborated with vehicle and safety teams to integrate TSAL with tractive system and interlock hardware

Self-Driving Pi Car | *Raspberry Pi, Python, Keras, OpenCV* **Jan 2023**

- Trained a CNN on steering-angle dataset to enable autonomous lane-following from Pi camera input
- Reduced validation MSE to 75 using ReLU activations, convolutional filters, and dropout layers
- Deployed the trained model on Raspberry Pi for real-time inference and closed-loop motor control
- Integrated OpenCV with PWM control to achieve smooth, responsive autonomous navigation

Technical Skills

Engineering/Design Tools	LTSpice, PSIM, AutoCAD, Altium, KiCad, Cadence Virtuoso, Intel Quartus
Programming Languages	Python, MATLAB/Simulink, ARM Assembly, SystemVerilog, C++, R
Professional Tools	Microsoft Excel (data analysis, VBA), Word, PowerPoint, Bluebeam