

Trot Davis

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EDUCATION

- University of British Columbia** Vancouver, British Columbia
 - Bachelor of Applied Science - Electrical Engineering* Expected April 2027
 - Courses: Circuits, Data Structures & Algorithms, Electromagnetics, Signals & Systems, Differential Equations, Computing Systems*

SKILLS SUMMARY

- Languages:** C, C++, Assembly, Verilog, VHDL, Python, HTML, CSS, G
- Electrical:** Circuit & Schematic Design, Power Distribution, Instrumentation, Process Control, PLC, PCB
- Software Tools:** AutoCAD, Excel, Git & Visual Studio, Altium Designer, Quartus, Modelsim, MATLAB
- Soft Skills:** Leadership, Communication, Writing, Organization, Time Management, Problem Solving

TECHNICAL EXPERIENCE

- BCS Automation** Belleville, ON
 - Electrical Control System Designer (Full-time)* May 2025 - Aug 2025
 - Diagnostic Test Bench Design:** Spearheaded the design of a multi-purpose test bench panel that's capable of testing components and circuits, improving shop efficiency and reducing diagnostic time.
 - Training Circuit Development:** Developed ideas for simple fault-injectable circuits for employee training, onboarding and troubleshooting practice, increasing employee on-site preparedness by an estimated **50%**.
 - Safety Assurance:** Performed load analysis and heat rise calculations using **Excel** to model worst-case operating conditions, validating the system's operating capacity and ensuring safe performance margins.
 - Electrical Verification:** Edited schematics and panel layouts on **AutoCAD** for MCCs, switchboards, ISPs, distribution panels and network communication systems prior to Factory Acceptance Testing, catching early issues and reducing late-stage changes by **25%**.
 - Compliance Confirmation:** Reviewed single-line diagrams to verify protective device sizing, feeder routing, and sequencing against client requirements and code constraints, ensuring regulatory compliance between upstream and downstream systems.
- Mirmil Products** Campbellford, ON
 - Production Associate (Full-time)* May 2024 - Aug 2024
 - Machinery Operation:** Operated CNC machinery to produce high precision wood components for large-scale corporate projects, meeting tolerances within **0.01mm** while maintaining quality standards and meeting daily quotas.
 - Engineering Drawing Proficiency:** Analyzed engineering drawings and cut sheets designed on **AutoCAD**, recommending design adjustments and improvements to make on-site assembly and material usage more efficient.
 - Code Enhancement:** Revised and enhanced **G-code** programs, effectively lightening the workload of the Mechanical Engineering Technicians and increasing productivity by **25%**.
 - Collaboration and Communication:** Collaborated effectively with a team of multidisciplinary engineers to troubleshoot manufacturing challenges, enhancing strong interpersonal and communication skills.

PROJECTS

- PCB Business Card - Personal Project** Vancouver, BC
 - Altium Designer, Schematic Design, RLC Circuits, NFC Programming, SMD Soldering* Jan 2025 - Current
 - Networking Application:** Designing a PCB business card that utilizes NFC technology to transfer a LinkedIn profile URL to a phone as a unique way to share contact information at job fairs or recruitment programs.
 - Antenna Optimization:** Generated an antenna with sufficient inductance to ensure the business card resonated at the NFC's frequency for a reliable signal, and optimized its geometry using calculations modeled in **Excel**.
 - Circuit Design:** Imported custom schematic and PCB libraries for the NFC tag and antenna in **Altium Designer**, and implemented the electronic schematic for the **RLC** circuit.
 - Routing & File Generation:** Currently placing the components on the PCB's 3D layout and preparing the Gerber files to be sent for PCB fabrication.
- Dual Mode Coin Picking Robot - School Project** Vancouver, BC
 - Circuitry, C, UART Communication, Soldering, Microcontrollers* Mar 2025 - Apr 2025
 - Controller Creation and Communication:** Built controller hardware and programmed a **C** application that transmitted joystick coordinates every **10ms** using **UART** communication, ensuring the car would travel with minimal input delay and maximum responsiveness.
 - Motor Optimization:** Created a **PWM** based motor system, allowing for improved user control and increasing pickup efficiency in manual mode by **150%**.
 - Audio Playback:** Designed a circuit that had an audio playback system capable of bootloading a **5000KB** WAV file onto a microchip, enabling the robot to provide feedback sounds whenever a coin was picked up and deposited.
 - Touchscreen Interface:** Integrated a **Nextion** touchscreen interface to allow the user to switch modes between manual and automatic, while displaying live data such as the current mode and the strength of the coin's signal using the homemade inductor under the car's chassis.