Ben Girdwood

647-640-0611 | bengirdwood950@gmail.com

Education

Western University
Mechatronic Systems Engineering | London, ON | Sep. 2023 – Aug. 2027

Experience

Senior Vision Co-op - Hardware Engineer
Taymer International | Markham, ON | May 2025 – Aug 2025

- Designed and manufactured 3 custom PCBs, each replacing 100+ wires and reducing assembly time by 2 hours for every system produced
- Developed a custom circuit combining XOR logic and a low-pass filter to operate as a DAC supporting both line-scan and area-scan cameras simultaneously
- Programmed in Embedded C++ to integrate hardware directly with cameras, removing the need for an extra microcontroller and reducing costs by over $100 per installed unit
- Performed through-hole soldering on 200+ components, ensuring quality with a 100% success rate across all completed boards
- Validated and approved PCB designs by building test circuits and analyzing performance using oscilloscopes, multimeters, and other diagnostic equipment

Mechanical Engineering Co-op
Taymer International | Markham, ON | May 2024 – Aug 2024

- Applied Onshape CAD modeling to design and assemble a 50-component machine, maintaining precise tolerances and alignment across 5 integrated subassemblies
- Used CAD and 3D printing (FDM) to design and prototype a custom dust cover fitting a 10mm × 8mm × 20mm space, reducing part cost by 95% compared with machining methods
- Implemented tolerancing and assembly checks to confirm the fit of 20+ mechanical parts, eliminating rework and ensuring smooth manufacturability in production
- Improved inventory accuracy by 50% by identifying 5+ high-demand parts through workflow analysis and updating detailed assembly checklists used by technicians

Projects

Robotic Arm
Personal Project | Jan 2025 – Mar 2025 |

- Designed and 3D-printed 10+ custom parts, then fully assembled a robotic arm with a gripping mechanism for object manipulation
- Programmed Arduino in Embedded C++ to control 3 servo motors via joystick input, enabling precise motion across 3 axes of movement

File Compression Utility
Academic Project | Jan 2024 – Apr 2024 |

- Developed a Huffman coding utility in C, compressing text files by an average of 70% during testing and evaluation
- Implemented priority queues and binary trees to encode symbol frequencies, producing 500+ lines of modular code

Certified SOLIDWORKS Associate (CSWA)
Certification | Nov 2024 |

- Achieved CSWA certification, validating professional-level skills in 3D part modeling, 2D drawings, and multi-part assembly design projects
- Demonstrated proficiency in parametric modeling, GD&T standards, and building assemblies of 10+ interconnected components in CAD

Technical Skills

Mechanical: Onshape, SOLIDWORKS, 3D Printing (FDM), GD&T, Assembly Methods, Mechanical Design
Electrical: PCB Design, AUTOCAD, Soldering, Oscilloscope, Multimeter, Circuit Debugging, Test Equipment
Software: C, C++, Python, Java, Microsoft Office