

# Kai Laugesen

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## EDUCATION

### Western University & Ivey Business School

*Dual Degree - Bachelor of Engineering Science, Mechatronic Systems Engineering & Honours Business Administration*

**London, Ontario**

*Expected April 2028*

- **Academics:** GPA (3.7/4.0), Dean's Honor List (2023)
- **Awards:** 2023 Schulich Leader Scholarship in STEM (\$120,000)

## WORK EXPERIENCE

### Morrisette Institute for Entrepreneurship (Western University)

*Makerspace Manager - Woodworking, Machining & Prototyping*

**London, Ontario**

*Aug 2026 - Present*

- Leading the woodworking, machining, and prototyping shop at the newly opened Morrisette Makerspaces; transitioning a partially equipped, non-operational facility to a fully equipped community prototyping makerspace.
- Designing the shop's infrastructure; managing setup and consumables budgets; selecting, purchasing, and installing equipment.
- Implementing comprehensive safety protocols for shop use, and training students with varying experience across faculties.
- Hiring and managing a team, and working with industry partners to secure tool and material sponsorships.

### C&G Custom Cabinets

*Manufacturing Intern (Seasonal)*

**Clifford, Ontario**

*May - Aug 2025; May - Aug 2026*

- Wrote a custom Fusion 360 post processor to connect BiesseWorks and Fusion on the plant's CNC machine, unlocking toolpath strategies that extended tool life and produced geometries the stock workflow could not.
- Self-taught in programming and operating the plant's industrial CNC router and edge bander, running one-off bespoke parts and high-volume production on the same machines.
- Progressed from basic shop tasks to fully independent production, building several kitchens solo by the end of term, learning advanced finish carpentry under master Mennonite craftsmen.

### Built By Kai

*Founder - Custom Design & Fabrication*

**Toronto, Ontario**

*Sept 2021 - May 2025*

- Founded and ran a design and fabrication business serving 40+ clients, taking projects from a napkin sketch to finished product (e.g., custom cottage signs, solid wood furniture, cutting boards, replica 1962 Fender Stratocaster).
- Used CAD/CAM, CNC machining, and shop automation to broaden the service offering and deliver better results.
- Built a renewable material supply by milling standing deadwood into lumber, cutting material costs against alternative sourcing.

## PROJECTS & EXTRACURRICULARS

### 6-DOF Robotic Arm

- Building a 6-DOF robotic arm fabricated from advanced 3D-printed materials, including custom split-ring compound epicyclic gearing for a high reduction ratio in a small form factor, and topology optimization to minimize weight and deflection.
- Using cascaded position and velocity PID loops with FOC and Hall-effect encoders on BLDC motors to achieve servo performance at a fraction of the cost.

### Tormach PCNC 770 Full Restoration

- Restored a Tormach CNC mill: mechanical repair, axis scraping and calibration, reprogramming, and a custom enclosure.

### Western Varsity Athletics - Ultimate Frisbee

- Core member of Western's varsity ultimate frisbee team, competing nationally against Canada's top collegiate teams.

### Triathlete

- Most recently, competed in the July 2026 Olympic Distance at the Toronto Supertri Race (placing in the top quartile overall).

### Matarus Math Tutoring

- Brought on to assist in scaling a startup educational math tutoring software company, focused on K-12 students.

## TECHNICAL SKILLS

**CAD / CAM / Simulation:** SolidWorks (CSWA certified), Autodesk Fusion 360 (CAD, CAM, FEA, Generative Design).

**Manufacturing:** CNC programming and operation (Tormach PCNC 770, Biesse, Shapeoko), custom post processor development, GD&T, DFM/DFA/DFAM, fixture and soft-jaw design, MIG welding and metal fabrication.

**Controls, Electronics & Software:** C++ (robotic control systems), C, Java, ROS, FOC and PID motor control, custom PCB and motor-driver design, 3D printing.