# Ben Xavier

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## Overview of Qualification

- Highly proficient with software **CAD** such as **SOLIDWORKS, Fusion, CATIA**
- Implemented **process improvements** for a manufacturing department, allowing for increased **process automation**, time savings and a reduction in defects
- Developed strong **mechanical problem-solving skills** and **hands-on experience** during my experience as a mechanic and in my numerous **engineering projects**
- Self-taught and **independently repaired** and **operated** machines with no prior experience, greatly reducing downtime and saving thousands by **avoiding** the need for specialized technicians

## Work Experience

**Manufacturing Support Engineer | Broy Engineering Etobicoke** June - September 2026

- **Operated and serviced** a variety of machines and tools to **improve throughput**, resolve production issues and test the **viability of new processes**
- Assisted the Technicians, Mechanical, Testing and Programming departments to alleviate personnel shortages and **assist production**, especially for rush jobs
- **Learned, implemented, trained** managers and employees on the operation and best practices of new machines
- **Machined, Fabricated, Resin and 3d printed parts** and jigs to save operator's time and assist production
- Designed parts in **CAD** using **Fusion**

**Mechanic & Detailer | Wells Auto Milton** April - August 2025

- Repaired or **fabricated new parts** for vintage vehicles where original parts were unavailable or unserviceable
- Diagnosed and resolved electrical, mechanical, hydraulic, and fueling issues on Delorean DMC-12s
- Maintained and detailed vehicles with a **high attention to detail** for sales and customer satisfaction

**Mechanic | Bartz Motorcycle Shop Mississauga** March - October 2024

- Diagnosed and resolved complex mechanical and electrical issues on motorcycles, ATV's and trikes
- Proactively identified customer needs and provided transparent service and suggestions
- Maintained a strong desire to **learn new skills** allowing me to perform complex repairs on **engines** and suspension

**Apprentice | TotallyHR, Inc.** June 2019 - June 2021

- Streamlined administrative tasks and data management | Diagnosed, repaired and upgraded computer hardware

## Extra-Curricular Experience

**Drivetrain Member | McMaster Baja Racing Team** September 2024 – Present

- **Machine complex parts** out of steel and aluminum using **lathe, vertical mill** and other shop tools
- Use **SolidWorks** to **design** components and create drawings for machining
- Attend testing sessions, participate in competitions and meetings to review performance and discuss ideas

**General Member | McMaster Rocketry Team** September 2024 – September 2025

- Used OnShape to create drawings and review parts for machining

## Personal Project Experience

**Transportation**

- **Designed and built** a minibike with full suspension, pivot point chain idler, custom machined steering
- **Fully designed and fabricated** a 3kW e-scooter with a custom frame and homemade lithium battery
- **Independently** installed a new clutch, connecting rod bearings and timing belt, then fabricated a TIG welded downpipe and valved exhaust, steel brake lines and methanol injection system for a 2004 Volvo V70R, among over 60 smaller repairs featuring certain custom-made parts **without access to a shop**.
- **2** e-bike conversions with 1.5kW and 2kW motors **used** for **daily** commuting
- **Built** a cruise control system for a 2003 Toyota Corolla
- Designed and built a go kart using a treadmill motor and **custom modified** motor controller

**Electronics**

- **Designed and built** numerous Perfboard circuits such as a Binary Counter, Class AB and D audio amplifiers, astable multivibrator, PWM driver for custom heated seat, ZVS circuits with voltage multipliers, induction heaters, plasma speaker, e-scooter motor driver, SMPS, spot welder timing circuit, AC voltage detector, etc.
- Built numerous lithium battery packs using 18650, 21700 and prismatic cells for various applications
- Custom personal appliances I use daily such as an 1800W capable foot heater, 100W Bluetooth speaker, multi-voltage tool battery chargers, 100W LED lantern, spot welder, etc.

**Software & Computing**

- Self-Hosted internet accessible media hosting server running Immich in a Docker VM through a Cloudflare reverse Proxy, also hosting my personal website.
- **CAN bus** interface for displaying hidden information on the dashboard of my Volvo

## Education

**McMaster University**, Hamilton — September 2024 - Present

Bachelor of Technology (Co-op) | Automotive and Vehicle Engineering Technology – Year 3

- **CATIA project** – Modelled and simulated a 5-Cylinder Audi engine with fully functional components in a group of 5 people as a CAD final project
- **SolidWorks project** – Designed a simplified oil pump rig with a 2-stage gearbox, created an assembly and performed various motion studies on it in a group of 5 people
- Relevant Courses: **Advanced CAD – SolidWorks & CATIA, Material Engineering, Finite Element Analysis, Fluid Mechanics**, **Minitab,** Thermodynamics, C++
- Will be awarded: Bachelor of Technology (McMaster), Advanced Diploma in Mechanical Engineering (Mohawk), Business Management Certificate (Mohawk)

## Skills

- Proficient in TIG, MIG and Stick welding with experience in laser welding
- Precision machining and micrometry experience (Lathe, vertical mill, micrometer, bore gauge, etc.)
- Proficient with electronics lab equipment (Oscilloscope, function generator, power supply, soldering, etc.)
- Strong mechanical abilities, very comfortable with tools
- French comprehension verbal & written

## Activities and Interests

- Hard Enduro dirt biking
- Track driving
- Photography