Yiqing Zhi

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Skills

Designs: AutoCAD, SolidWorks, SolidEdge, Kister 3D View Station, Technical Drawing, and MATLAB.
Prototyping & Technologies: Nital Etch Testing, Hardness Testing (Rockwell, Brinell), 3D Printing, Stamping, Resistance Welding, Bandsaw, Drill Press, Java, Python, and C++.
Software: Minitab, Statistical Process Control (SPC), Microsoft Word, Excel (VBA), SAP, ODC and PowerPoints.

Education

Mechanical Engineering | University of Waterloo *Sept.2024 – Present (2029)*

Candidate for Bachelor of Applied Science in Mechanical Engineering

Experiences

Quality Engineer | Linamar Vehcom Manufacturing *Guelph, ON* (Sept 2025 – Present)

- Performed **precision dimensional inspections** using **CMM machine**, **profile projector**, **gear analyzer**, and **contour tracer**, ensuring compliance with engineering specifications.
- Applied **statistical process control (SPC)** and **Minitab analysis** to evaluate measurement data, identify trends, and reduce process variation.
- Conducted **metallurgical and hardness testing (Nital Etch, Rockwell, Brinell, MPI)** to verify structural integrity of automotive parts.
- Supported cross-functional teams in **root cause analysis (RCA)** and **corrective/preventive actions (CAPA)**, enhancing quality assurance processes.

Process Engineering Assistance | PWO Canada Inc. *Kitchener, ON* (Jan 2025 – Apr 2025)

- Supported the Process Engineering and Tooling departments with system implementation using **Excel VBA** to improve operator efficiency by **20%**, developing knowledge of **stamping**, **tooling** and **machining**.
- Designed and optimized manufacturing equipment using **SolidEdge** and **Kister 3D View Station**, improving stamping press speed from **50 SPM to 60 SPM**, increasing efficiency by **30%**.
- Conducted time studies & inventory optimization using **SAP & ODC software**, reducing **discrepancies by 10%** between reports and physical inventory.
- **Led cost-reduction initiatives**, including the Glove Plan Project, cutting monthly PPE costs by **$120**, and **tool crib management optimization**, improving **efficiency by 5%**.

Chassis Team Member | University of Waterloo Formula Electric *Waterloo, ON* (Sept 2024 – Present)

- Designed a **20 x 70 mm circuit board enclosure** and a **dashboard layout in SolidWorks**, integrating waterproofing and mounting requirements, and validated performance through **quality testing**.
- Manufactured prototypes using **3D printing (PETG, Bambu Lab hardware/software)** and support chassis fabrication through **lathe machining**, **waterjet cutting**, and **welding jig assembly**.
- Created **CAD models designs** and **DXF drawings** under strict mechanical constraints in collaboration with team leads.

Projects

Motorized Maze Toy

- Collaborated in a team of four to **design**, **manufacture**, and **assemble** an interactive motorized maze toy, meeting all functional requirements.
- Integrated rotating walls driven by a **stepper motor**, vertically actuated pistons via a **crankshaft mechanism**, and detection system using an **ultrasonic sensor and buzzer**.

3D Printing and SolidWorks

- Conceptualized and self-designed a **CAD model** for an ergonomic bottle opener to assist with opening bottles that posed a challenge for my parents and elders.
- Developed the design using **SolidWorks**, incorporating an enhanced strength and user comfort optimized handle, supported by data analysis in **Python** and **Excel**.
- Successfully **3D-printed** the prototype, exceeding performance expectations.

Engineering Data Analysis

- Developed and implemented data analysis algorithms in **Python** to interpret and process feedback from a **control system**.
- **Analyzed large datasets** to identify trends, **optimize system performance**, and **improve overall control accuracy**.
- Utilized libraries such as **NumPy**, **Pandas**, and **Matplotlib** to perform statistical analysis and visualize data insights.