Yiqing Zhi

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Skills

Designs: AutoCAD, SolidWorks, SolidEdge, Kister 3D View Station, and Technical Drawing.
Prototyping & Technologies: CMM, Nital Etch Testing, Hardness Testing, 3D Printing, Resistance Welding, and Drill Press.
Software: SPC (Minitab), Python, MATLAB, Microsoft Word, Excel VBA, SAP, ODC, Java, C++, Html and RobotC.

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

Circadian Rhythm Regulating Device
- Designed and integrated a **mechanical wake-up device** eliminating snooze behaviour using a rotating arm with tickling end-effector and a gravity-fed water system controlled by an EV3 microcontroller.
- Engineered a **bearing-supported arm axle** and **gear transmission**, maintaining alignment about the rotation center to minimize friction, reduce backlash, and ensure smooth, low-torque rotation.
- Programmed **RobotC motor control logic** coordinating gear-driven rotation, valve actuation, and sensor inputs for reliable **multi-phase system** operation.

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**.

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.