Omer Farooq

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EDUCATION

University of Waterloo **Expected: Apr 2028**

Candidate for BASc in Mechanical Engineering, Specialization in Mechatronics *Waterloo, ON*

- **Honors:** President's Scholarship of Distinction ($5,000)
- **Relevant Coursework:** Dynamics II, Thermodynamics I, Materials II, Electromechanical Devices II

EXPERIENCE

Manufacturing Engineering Intern **May 2025 – Aug 2025**

ALMAG Aluminum *Brampton, ON*

- Optimized part placement and equipment layout for **Tesla's automotive project**, contributing to a **$77M** manufacturing program focused on **lean production**, ergonomic flow, and scalable automation
- Developed and proposed **Kaizen-driven** factory layout redesign, projected to boost efficiency by **45%**, unlock **38 days** extra production per year, and delivers **$4.5M** in annual savings through lean flow and 5S practices
- Produced AutoCAD layouts for two facilities totaling **140,000 sq ft** and used them to design a **FIFO** flow for **70,000** parts, support **Value Stream Mapping**, and reduce internal travel distance by **37%** to boost part flow and efficiency
- Designed a CNC fixture in **SolidWorks** applying **GD&T** and tolerance stack-up analysis, minimizing setup time
- Created and updated **SOPs** for CNC machining, **quality assurance (QA)**, and troubleshooting caustic system issues
- Crosschecked aluminum billet inventory daily in **EPICS**, resolving **80%** of discrepancies to ensure supply chain accuracy
- Built a **VBA-powered** tool to auto-highlight alloy substitutions from drop-downs, boosting material selection by **65%**

Management Engineering Intern **Sept 2024 – Dec 2024**

Vision Extrusions Group *Toronto, ON*

- Integrated a online database for **5,400+** dies, enabling **Just-in-Time** access and improving retrieval efficiency by **72%**
- Performed **FEA** in **ANSYS Workbench** to optimize performance, enabling clamps to support **45** kilograms
- Engineered an ultra-lightweight PVC-aluminum prototype window frame (<**2.3 kg**) using **DFM/A** in AutoCAD
- Led a **Kaizen initiative** that decreased changeover downtime by **28%** and standardized workflows across extrusion lines

Mechanical Design Engineering Intern **Jan 2024 – Apr 2024**

Vision Extrusions Group *Toronto, ON*

- Engineered **8+ GD&T-based** drawings of window profiles in AutoCAD optimized for ease of **manufacturability**
- Used **Root Cause Failure Analysis** to enhance waterproofing by **22%**, ensuring an airtight seal against wind and rain
- Achieved a **64%** increase in Moment of Inertia of a frame through material analysis and cross-sectional optimization
- Applied **DFA** principles in AutoCAD to redesign window profiles for easier assembly and accuracy during fabrication

Mechanical Engineering Team Member **Sept 2023 – Dec 2023**

Electrium Mobility *Waterloo, ON*

- Engineered a lightweight lithium-ion battery compartment (<**3 kg**) for an electric skateboard using **SolidWorks FEA**, reducing deck deflection by **28%** and ensuring compartment durability under dynamic loading conditions
- Assisted in wiring the **ESC** of an electric skateboard to optimize motor response and support safe **30A** operation

PROJECTS

PianoBot | *SolidWorks, AutoCAD, 3D Printing, C++* **Summer 2024**

- Designed and programmed a **piano-playing robot** with accurate 3-axis movement, **3D-printed** parts, an ultrasonic sensor, and a color sensor to read color-coded sheet music, achieving an **92%** accuracy while playing **70** notes

Spin N' Shoot | *SolidWorks, 3D Printing, Laser Cutting, Arduino* **Fall 2023**

- Designed and built a motorized toy with a **custom gear system**, slip-ring cable management, and laser-cut/3D-printed parts; integrated **Arduino** motor control and impact sensors to detect Nerf bullet hits and rotate 5 targets dynamically

iPhone 13 Pro Max Replica | *SolidWorks* **Winter 2023**

- Designed an iPhone 13 Pro Max replica in SolidWorks from scratch, leveraging **Motion Study** for dynamic visualization

SKILLS

Tools: SolidWorks, AutoCAD, ANSYS Workbench, 3D Printing, Laser Cutting, CNC Machining, Extrusion Moulding

Design & Manufacturing: FEA, GD&T, RCFA, DFM/A, JIT, 5S, Kaizen, Lean Six Sigma, Value Stream Mapping

Programming Languages: C++, JavaScript, HTML5, SCSS, MATLAB