Matthew Carullo

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Education

University of Waterloo — Waterloo, ON
Bachelor of Applied Science in Mechanical Engineering — *Sept. 2019 – May 2024*

- 4.0 GPA, Dean's Honors List

Technical Skills

Mechanical Design: SolidWorks, AutoCAD, GD&T, DFM/DFA, Tooling & Fixture Design, ANSYS
Manufacturing: CNC Machining, 3D Printing, Injection Molding, Rapid Prototyping
Analysis & Testing: FEA, DOE, SPC, Tolerance Stackup Analysis
Software: Python, MATLAB, PLM Systems

Experience

Engineering Analyst — Aug. 2024 – Present
Hatch Ltd. — *Mississauga, ON*

- Built a Python-based platform for acoustic and ultrasonic NDT signal processing, reducing analysis time by **40%** and improving defect-detection accuracy by **30%**.
- Authored technical reports and process instructions informing **multi-million-dollar** maintenance and reline decisions across global industrial clients.
- Analyzed large-scale time–frequency datasets to identify process inefficiencies, driving measurable reductions in downtime and operational cost.
- Led end-to-end execution of **20+** industrial inspection campaigns across international sites, coordinating logistics, data workflows, and client deliverables.

Mechanical Design Engineer — May 2023 – Aug. 2023
Tesla Toronto Automation — *Markham, ON*

- Designed upgraded powertrain assemblies for high-speed lithium-ion cell automation equipment, improving mechanical precision and long-term reliability.
- Delivered tooling and fixture redesigns for sealing systems, validating improvements through structured statistical quality control.
- Collaborated with controls, manufacturing, and quality teams to integrate equipment upgrades into live production lines with minimal downtime.

Product Design Engineer — Sept. 2022 – Dec. 2022
Tesla Inc. — *Palo Alto, CA*

- Designed 3D-printable protective tooling for Semi-truck electronics, preventing **$25M+** in potential launch-critical hardware damage.
- Evaluated new process and equipment designs for manufacturability, robustness, and failure-mode resilience.
- Developed assembly tools and fixtures for supercomputer cabinet manufacturing, improving ergonomics and increasing throughput.

Process Optimization Engineer — Jan. 2022 – Apr. 2022
Tesla Inc. — *Fremont, CA*

- Optimized laser-welding systems by analyzing weld signatures and tuning parameters, raising yield from **92%** → **99.8%**.
- Built a machine-learning–enhanced vision system to detect weld defects, improving detection sensitivity and reducing false negatives.
- Introduced offline inspection workflows and SOPs that improved quality consistency while reducing rework and scrap.