Joshua Dolgin

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Technical Skills

CAD (Solidworks, Fusion 360, Onshape, NX, Creo, Catia), **FEA** (Ansys, Autodesk, Solidworks), **CAM** (MasterCAM, CAMWORKS)

Manufacturing: injection molding, die casting, blow molding, sheet metal stamping/forming, manual machining, laser cutting, **3D printing** (FDM, SLA, SLS, MJF), statistical tolerance analysis

Software: C++, C, Python, Verilog, System Verilog, VBA, MATLAB

Experience

Tesla – San Francisco Bay Area, California **May 2024 - August 2024**

Mechanical Design Engineer Co-op

- Led end-to-end mechanical design for blow-molded HVAC ducts on two vehicle projects, from concept to CFD analysis, prototyping, and production, achieving a 20% reduction in system pressure loss through optimized aerodynamic surfaces.
- Designed, analyzed, and tested high-volume plastic injection-molded and die-cast components for high-temperature, pressurized coolant systems, ensuring manufacturability and assembly efficiency, reducing assembly time by up to 50%.
- Designed a kinematic 3-way valve to direct air through three outlets with lateral air adjustment, integrating motors, injection-molded casings, die-cast linkages, and an overmolded plastic-rubber valve body for precise operation and reliability.

Verkada – San Francisco Bay Area, California **September 2023 - January 2024**

Product Design Mechanical Engineer Co-op (Cameras) – CM42–S / ACC-POE-90W-E

- Led the full-cycle development of outdoor PoE injector (ACC-POE-90W-E) , encompassing design, thermal analysis, IK/IP testing, cost negotiations, and tooling design/launch for die cast and sheet metal components.
- Managed mechanical engineering efforts for a new security camera project (CM42-S), taking it through Research, Prototyping, RFQ, PRD, and EVT stages; the camera is now commercially available.
- Collaborated with JDM's & overseas tooling vendors to update mechanical designs, 2D drawings, and review DFM/tooling designs; traveled to Taiwan to meet with JDM's and tooling vendors to conduct a preliminary build inspection of the device.
- Directed material selection for components (screws, inserts, sheet metal, die cut, die cast, injection mold) across indoor and outdoor products, balancing durability, environmental suitability, and cost while coordinating with engineering and manufacturing teams to meet performance standards.

Kindred AI – Toronto, Ontario **January 2023 - April 2023**

Robotics Hardware Engineer Co-op - On Grid Robotic Pick

- Researched and fabricated custom FDA-compliant suction cups with varying durometers using urethane casting, increasing the number of pickable grocery items by 10% and improved maximum robot acceleration by up to 15% for certain items.
- Performed FEA on critical components, analyzing stress distribution and material efficiency to optimize part geometries, ultimately reducing weight by up to 25% and strengthening areas subject to high stress.

OMERS Ventures – Toronto, Ontario **May 2022 - August 2022**

Software Developer Co-op

- Developed a signal processing pipeline to notify teams of potential deals, using Prefect to orchestrate Python code integrating web scraping tools, Web APIs, and SQL databases, which improved the accuracy and timeliness of deal identification and enhanced the team's decision-making efficiency.

Untether AI – Toronto, Ontario **September 2021 - December 2021**

AI Accelerator Hardware Engineer Co-op

- Wrote Python code to instantiate Verilog test modules with customizable I/O hubs and communication lanes, automating the writing of multiple test bench modules, resulting in modules that can verify 98% of the hardware.

NMC Dynaplas – Scarborough, Ontario **January 2021 - April 2021**

Manufacturing Engineer Co-op

- Designed and fabricated multiple test fixtures (3D printing, Machining) to hold parts for CMM measuring, reducing the average time to measure parts by 500%.

Education

University of Waterloo: BASc, Mechatronics Engineering – **GPA: 3.99** **September 2020 - May 2025**

- Awards and Honors: President's Scholarship of Distinction, 5x Term Dean's Honour List