Jonathan Wang

647-675-8097 Mail Linkedin Portfolio

Technical Skills

Design and Analysis: SolidWorks, AutoCAD, GD&T, DFMA, ANSYS, Microsoft 365
Manufacturing: 3D Printing, Composite Fabrication, TIG welding, Lathe, Mill, Waterjet, Sheet Metal
Languages: Java, Matlab, Python, C++, SVN

Experience

Mechanical Engineer Intern — May 2026 – August 2026

Sigma Tools Ltd. — *Toronto, Ontario*

- Led the redesign of 3 tensile/bending test fixtures, implementing a self-tightening wedge grip and correcting alignment issues, reducing a wire fixture setup time by 80% while improving setup efficiency across the remaining fixtures.
- Conducted 100+ tensile tests on nail and wire samples analyzing stress-strain curves measuring yield strength, UTS, and maximum force for quality assurance, and batch comparisons.
- Manufactured 200+ machine components using manual mills, drill presses and cutting tools including guards, blocks, frames, and plates
- Inspected parts resolving tolerance and fits, and alignment issues to ensure on-time delivery and meet company/customer quality standards
- Created hundreds of GD&T compliant manufacturing drawings for dozens of machines converting and rebuilding components between Solid Edge and SolidWorks for machinists and customers

Senior Chassis Member — May 2026 – Present

University of Waterloo Formula Electric — *Waterloo, Ontario*

- Designed and validated 6-point harness mounts by calculating failure modes and optimized mounting geometry and material thickness to satisfy required belt angles and maintain factors of safety above 1.0
- Led the design and optimized the headrest structure and mounting system, redesigning tubing and eliminating the need for mounting tabs and used FEA to validate structural stability when material was removed for weight reduction
- Owned the impact attenuator and anti-intrusion plate design validation creating drilling and bonding fixtures, performed structural calculations, quasi-static testing and SES documentation to verify compliance with FSAE requirements.
- Developed and tested composite monocoque panels through 3 point bending and perimeter-shear testing and evaluated layup schedules for the front bulkhead performance to meet requirements

Chassis and Driveline Member — September 2025 – May 2026

University of Waterloo Formula Electric — *Waterloo, Ontario*

- Evaluated chassis torsional stiffness in ANSYS Static Structural, analyzing deformation under torsional loading and comparing FEA results with physical test data
- Designed and prototyped a polycarbonate MoTeC screen cover, using a custom bending fixture and heat gun to achieve required angles; used 3D-printed prototypes to validate fit and account for tolerance stack up
- Machined aluminum extrusions to ± 0.01 mm for a custom limited slip differential test bench, enabling breakaway torque and ramp angle testing
- Designed welding jigs to position the MoTeC screen within ± 1 mm during tack welding

Projects

Automatic Checkers Sorter | — **September 2025**

- Collaborated in a 4 person team to design and build an autonomous 3 axis gantry for checkerboard setup and piece placement
- Designed a rack and pinion positioning system with integrated motor and colour sensor enclosures for precise checker placement, fabricated components using 3D printing, laser cutting, and waterjetting
- Programmed C++ microcontroller control logic to coordinate checker dispensing, colour detection, motion control, and system safety

Secondary Firewall | *University of Waterloo Formula Electric* — **September 2025**

- Designed and optimized aluminum sheet metal firewall geometry in SolidWorks, refining bend profiles to achieve a 10% mass reduction while maintaining structural requirements
- Designed firewall mounting hardware using C-clamps and fasteners to constrain X/Y movement and minimize vibration during vehicle operation
- Evaluated driver line of sight by modeling sight lines in CAD to verify firewall geometry did not obstruct the driver's view
- Modeled a seatbelt heat shield around the harness path to provide protection from radiator heat

Education

University Of Waterloo — Sep. 2025 – April 2030

Bachelor of Applied Science in Mechanical Engineering — *Waterloo, Ontario*