Michael Zhang

3B Mechanical Engineering | University of Waterloo

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Portfolio: michaelytz.github.io

Skills

CAD/FEA:

Catia V6/3DX
NX/Unigraphics
ANSYS (Icepak, Structural, and ACP)
SolidWorks
Star CCM+

Design:

GD&T
Surface Modelling
FEA/CFD
Tolerance Analysis
Material Selection

DFMA:

Injection Molding
Casting
CNC machining
FDM/SLS/SLA
Composites
Bulk Deformation

Programming:

Python
Java
C++
VBA
Matlab
SQL
HTML/CSS

Courses:

Manufacturing
Thermodynamics
Fluid Mechanics
Electromechanical Devices

Experience

Zipline International | Mechanical Engineer — Jan - Aug 2022

- Owned end-end mechanical design of power conductors for next generation vehicle
  - Reduced part mass by over 60% compared to previous aircraft through thermal, structural, and material optimization
  - Simplified assembly story through engineered compliance of conductor; derisked lifetime durability through environmental and fatigue testing
  - Defined targets for ingress protection of the conductors and interfaces, designed ...
- Concepted and protoyped mechanisms to define solution space for a multi DoF system; Designed solution that enabled the system design team to save over $500/vehicle while meeting vehicle control requirements
- Fabricated composite parts to inform EI/GJ/mass trades for structural and natural frequency optimization

Lucid Motors | Interior Components & Systems — Sept - Dec 2021

- Developed assembly fixtures to constrain complex-curved A-surface parts to +/- 0.2mm; decreased rework time by 15% and defects by 30%
- Concepted and prototyped mechanical user interfaces; enabled double-detented HVAC switch while halving packaging volume
- Root cause analysis of manufacturing and fitment issues; developed and carried out permanent and immediate corrective actions
- Worked in a cross-functional team to enable a carry-over tool for a new program, while satisfying homologation and studio standards

Multimatic Inc. | Senior Design Engineer — Jan - Apr 2020

- Design of production automotive components, applying DFMA concepts for injection molded (MIM/plastic), CNC machined, welded, and extruded parts
- Enabled an additional degree of freedom in adjustment of damper F-V curve while reducing part count by 66% through development of a bespoke check valve
- Performed tolerance analysis for hydraulic valves and product assemblies; utilized GD&T in drafting for external manufacture, interfacing with suppliers and clients

Solar Car Team | Suspension Lead — Dec 2019 - Jun 2020

- Decreased suspension system packaging volume by 25% through exploring and proposing multiple assembly-level architectures