Michael Zhang

3B Mechanical Engineering | University of Waterloo

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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
Stamping

Programming:

Python
Java
C++
VBA
Matlab
SQL
HTML/CSS

Courses:

Manufacturing
Thermodynamics
Fluid Mechanics

Experience

Zipline International | Mechanical Engineer Jan - Aug 2022

- Owned end mechanical design of power conductors for next generation vehicle
  - Reduced part mass by over 60% resulting in savings of more than $25 million over the platform's lifetime
  - Simplified assembly story to reduce cycle times by 50% and increase install consistency
  - Defined targets for ingress protection of conductors and interfaces; derisked lifetime durability with environmental and fatigue testing
- Proposed a novel solution to simplify and mass-down a multi DoF system; Selected as POR, saving 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

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
- Performed kinematic analysis to minimize vehicle energy loss through wheel path, spring rate, and damper optimization
- Analysis driven design (FEA) of suspension lower control arm and vehicle chassis to withstand highway driving load conditions; used mechanics hand calculations to validate simulation data