CHRISTOPHER GOUL

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EDUCATION

Bachelor of Science, Mechanical Engineering **June 2019**
Massachusetts Institute of Technology Boston, MA

WORK EXPERIENCE

Senior Mechanical Design Engineer **August 2020 – Present**
Tesla Palo Alto, CA

- Leading enclosure architecture for Megapack 3 product. Created MATLAB model and ran FEA studies across key product load cases to optimize enclosure structure across possible battery module configurations
- Design lead for Megapack 2XL structure. Developed FEA workflow using 1D elements to enable rapid iteration of structural members, improving seismic performance, enabling ramp, and saving Tesla $15 million/year
- Led Megapack 2XL door design and dynamic analysis. Doors seal to IPx6 and are required to withstand high temperature, high pressure deflagration events and remain manufacturable at 100,000/year volumes
- Led ramp of Megapack 2 product from 0 to 2500 units/year, reviewed line processes and quality issues, optimized part design for cost and manufacturability
- Designed sheet metal parts, plastics, busbars, harnesses, and coolant manifolds for V3 Supercharger Cabinet based on thermal simulations in GT Suite
- Responsible for EMC noise reduction initiative in V3 Supercharger product. Used custom shielding, ferrites and capacitor boards to reduce emitted noise by 16x

Robotics Engineer **June 2019 – April 2020**
Contour Crafting Corporation El Segundo, CA

- Developed a novel concrete delivery system for construction 3D printing. System transported concrete from a dispensing station to a moving 3D printer head on a 9m wide gantry
- Integrated mechanical design with electric and pneumatic actuators, sensing, and controls. Machined and fabricated critical modules to test system viability

Undergraduate Researcher **June 2018 – June 2019**
Conservation International with MIT Photovoltaics Lab Boston, MA

- Led a student team in designing and building autonomous solar quadcopters to monitor deforestation in the Andes
- Integrated sensors, charging electronics, GPS and LIDAR modules to enable autonomous performance over long-distance data gathering missions

Engineering Intern **June 2017 – August 2017**
Meggitt Defense Systems Lake Forest, CA

- Designed electromechanical devices, such as a compact lifter for an airplane flap and an actuator for fin detachment mid-flight, from concept to manufacturing

PERSONAL PROJECTS

Pneumatic Weight Machine: Designed and built several iterations of a compact, portable home gym system that uses pneumatic actuators to tension cables and apply a constant, adjustable force to the user
X-Beams: Started a business designing, sourcing, and selling extruded plastic T-slot framing
Seaweed Harvesting Robot: Developed remotely operated seaweed harvesting platform to significantly reduce manual labor involved in the seaweed harvesting process

TECHNICAL SKILLS

Design and Modelling Tools: CATIA, SOLIDWORKS, MATLAB, Hyperworks, GT Suite, ANSYS
Part Design: Sheet Metal Stamping, Roll Forming, Injection Molding, Thermoforming, Forging, Machining, Welded Assemblies, Powdercoating, Coolant Manifolds, Harnesses, Extruded Gaskets, GD&T, Tolerance Stackup Analysis
Programming: Python, C, C++, MATLAB