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Liam Doran

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Education

Masters of Engineering in Mechanical Engineering — Berkeley, CA 2019 – 2020
Product Design Concentration – 3.94/4.00 GPA

Boston University — Boston, MA 2015 – 2019
Bachelors of Science in Mechanical Engineering
Technology Innovation Concentration – 3.64/4.00 GPA, Cum Laude

Skills

- CAD: Catia, Onshape, Solidworks, Creo
- Rapid prototyping: additive, CNC, shop tools
- GD&T, Design for Manufacture & Assembly
- Injection, blow mold design
- Arduino, electronics prototyping
- Office, Adobe suites, HTML/CSS
- MATLAB, VBA
- FEA analysis
- Supplier management

Professional Experience

Tesla, Inc. – Mechanical Design Engineer, Thermal Systems — Jan 2021 – Dec 2023, 3 yr

- Managed aggressive timelines to launch dozens of build-to-print and build-to-spec parts on Cybertruck (full product development cycle), S, X, 3, Y vehicle platforms
- Developed ~50 Thermal/HVAC parts end-to-end, spanning concept creation, calculations/modeling, CAD design, prototyping, testing/validation, supplier selection and transition to high-volume manufacturing
- Cabin Air Quality company subject matter expert and engineer responsible for components across all consumer vehicle programs: cabin filters, humidity & temperature sensors, air extractors, ducting etc.
    - Designed novel Cybertruck HEPA filter, exceeding HEPA standard and aerodynamic targets, critical to Bioweapon Defense Mode
    - Devised and launched Cybertruck humidity/temp sensor, increased average vehicle range by ~1.2 miles due to HVAC efficiencies, saving ~$40/vehicle
    - Designed all air ducting on Cybertruck, 15 unique parts/vehicle. Supported manufacturing ramp-up in Gigafactory Texas to ensure smooth launch

Boston University Morphable Biorobotics Lab – Mechanical Engineer — May 2019 – Jan 2020, 7 mo

- Characterized expansion behavior of soft robotic actuators to build low-cost devices used to passively track sunlight, improving solar panel energy efficiency throughout the day
- Mentored a team of student researchers on their capstone project, guiding characterization research efforts

Boston University Robotics Lab – Undergraduate Researcher — Summer 2018

- Designed and built ultrasonic transceiver device to capture audio echoes used for acoustic localization and mapping (SLAM) research - enables autonomous exploration of new environments using sparse sensor data
- Executed experiments validating SLAM methodology (echo characterization) across diverse test environments

General Electric Aviation – Quality Co-op, Supply Chain Co-op — Summers 2016, 2017

- Quality – analyzed large datasets to drive design changes to engine compressor airfoils, saving $1000-$3000/part in rework cost, ensuring jet engine safety and efficiency.
- Supply Chain – created VBA tools to aggregate Indirect Manufacturing Expense data from large datasets, compiled into reports to identify delinquent business cells/machine operators/parts to increase jet engine supply chain efficiency and reduce costly downtime

Projects & Affiliations

- Ventilator SOS – designed components used to outfit re-purposed sleep apnea devices into PEEP ventilators to combat worldwide shortages caused by COVID-19. Created diagrams and assembly documentation included in ventilator kits to help medical professionals administer treatment
- Swarm of Underwater Laser Communication Devices, Theoretical & Applied Fluid Dynamics Lab – designed duplex laser based system for high-bandwidth underwater communication between autonomous devices. Intended to relay geographic information for undersea exploration, search & rescue, etc.
- Paradigm Hyperloop – air skate levitation subsystem design for NEU Hyperloop pod, which placed 2nd overall at 2017 SpaceX Hyperloop Pod Competition
- American Society of Mechanical Engineers (ASME) — Boston University Chapter, President (2017-18)