Donald Le

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Education

University of California, Berkeley **August 2021 - May 2024**

Mechanical Engineering, B.S. ***GPA:*** *3.34*

Experience

Amazon Robotics **August 2023-Present**

Hardware Functional Safety Engineering Co-op

- Conducted a comprehensive hazard and risk analysis for an 8-DOF robot arm, mitigating safety risks & ensuring compliance
- Enhanced robot safety and reduced operational risks by developing safety concepts and actively shaping the overall safety architecture
- Researched and documented safety functions for collaborative and industrial robots from ABB, KUKA, Fanuc, and Universal
- Conducted in-depth research on Speed and Separation Monitoring (SSM) systems for robotic work cells
- Drove the design and development of next-generation emergency brakes for robot rotary actuators

Solar Turbines - Caterpillar **May 2023-August 2023**

Mechanical Engineering Intern

- Created a calculator to optimize lifting lug geometry based on relevant failure modes and desired factor of safety
- Designed standardized lifting lugs for all turbine air intake ducts and verified design using finite element analysis in Ansys
- Carried out structural analysis of all turbine air intake and ventilation duct stiffeners for worse-case wind loads
- Ensured structural integrity and minimized wind load impact on turbine ducting through meticulous design of support mounts and comprehensive Ansys simulations

Johnson & Johnson - Robotics and Digital Solutions **January 2023-May 2023**

Mechanical Engineering Co-op

- Designed and implemented a robot joint torque testing machine using a torque sensor, planetary gearbox, and motor
- Performed an engineering study on the effect of absolute encoder rotor/stator axial spacing on robot joint friction
- Formulated a robust robot joint friction metric and seamlessly integrated it into a Python web application.
- Designed a 1mm pin pressing fixture for physician grasper manufacturing with undersized spring-loaded pins for alignment
- Created engineering drawings with GD&T to ensure proper alignment and clearances for all designed parts/components

Berkeley Formula Racing (FSAE) **September 2021-May 2023**

Brakes and Driver Interface Design Engineer

- Ideated and integrated a bespoke torsion spring throttle return mechanism enhancing driver control
- Optimized throttle pedal weight and stiffness through detailed finite element analysis (FEA) and targeted material subtraction, achieving a 50% weight reduction with no reduction in strength or stiffness
- Redesigned brake pedal geometry based on fundamental principles to optimize strength to weight
- Designed and manufactured carbon fiber pedal cups and their corresponding layup molds
- Optimized brake rotor design through thermal analysis (Ansys), improving performance and reliability of the braking system
- Conducted cost analysis for brakes and driver interface related assemblies

Technical Skills

CAD Software: Solidworks, Autodesk Inventor, Fusion 360, PTC Creo

Design & Analysis: Finite Element Analysis (FEA) - Structural and thermal (Ansys and Solidworks), Mechatronics, Sheet Metal Design, Carbon Fiber Mold Design, Geometric Dimensioning and Tolerancing (GD&T), Engineering Drawings

Product Management tools: Agile PLM, Jama, Jira, Asana

Manufacturing Methods: FDM/SLA 3-D Printers, Mill, Lathe, Waterjet, Laser cutting, Carbon Fiber Layups, Injection molding

Programming Languages: Python (Pandas, Matplotlib, SciPy, Tkinter), Matlab, Arduino