Justin Lee

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WORK EXPERIENCE

Goleta Star Torrance, CA

Mechanical Engineer Contractor August, 2025 – Current

- Learned and applied SolidWorks CAM to generate toolpaths compatible with the Nomad 3 CNC, reducing reliance on third-party CAM software and streamlining the transition from design to manufacturing
- Authored and organized technical documentation on Atlassian Confluence to ensure knowledge transfer and accessibility across the team
- Tested and documented cutting parameters, establishing a reference library of feeds and speeds optimized for aluminum and other materials on the Nomad 3
- Gained proficiency with MeshCAM as a backup workflow to ensure production continuity
- Updated the mechanical design of a Raspberry Pi casing in SolidWorks to accommodate a fan mount, optimizing airflow paths while maintaining structural integrity and compact form factor

Mechanical Engineering Intern June – August, 2024

- Fabricated electrical radar component testing fixtures using CAD (SolidWorks) and 3D printing, enabling untrained personnel to perform electrical testing, reducing reliance on specialized technicians for testing
  - Optimized design for manufacturability during supplier quoting, resulting in around 20% reduction in machining costs
- Installed, learned, and taught how to operate the OMTech Polar laser cutter to coworkers to prepare for production
- Researched an improved drone radar PCB board housing design that increases thermal conductivity while reducing mass from the current design
- Contributed to radar testing at a local beach via improved real-world performance data

PROJECTS

TIGON Medical Suture Passer August, 2024 – May, 2025

- Collaborated with TIGON Medical to design and develop an improved suture passer model that increases the suture capture rate to 95%
- Ideated, designed, and machined a more efficient sharpened needle tip design, sharpening along a secondary axis and changing the angle to 35 degrees, ultimately reducing rotator cuff tendon puncture force by 50%
- Created the entire suture passer model using PTC Creo and designed and prototyped a new lower jaw design that is projected to increase Force efficiency by 115%
- Trained Nitinol needles at 500 degrees Celsius to transform at body temperature to reduce stress on the needle as it traverses through the apparatus's lower jaw
- Administered Microsoft Teams project management and created a GANTT chart to organize and schedule project tasks to coordinate project requirements with the sponsor
- Generated a Bill of Materials for budget estimation to satisfy the sponsor's project requirements

Autonomous Robot March – May, 2025

- Modeled and developed a fully functional robot equipped with motors, PING sensor, IMU sensor, ZigBee sensor, and color sensor to autonomously detect a hockey puck and drive it into the appropriate goal
- Assembled a 3D model using PTC Creo by drafting each individual part and then creating an assembly file to ensure the geometrical constraints allow for proper fitting during fabrication
- Coded in Arduino IDE using the IMU sensor and proportional integral derivative control for path correction to efficiently drive straight forward and backwards, closed-loop control for precise turns, and the color sensor for object and boundary detection

EDUCATION

Johns Hopkins University Baltimore, MD

B.S. Mechanical Engineering August, 2021 – May, 2025

- **Technical Skills:** SolidWorks, PTC Creo, MATLAB Simulink, PFMEA, Machining, Laser Cutting, 3D Printing, Wire EDM, DFM, Breadboarding and Circuitry, Minimum Design Loads Analysis, Ansys Granta EduPack
- **Interpersonal Skills:** Leadership, Attention to Detail, Conflict Resolution, Time Management, Proactive
- **Programming Language:** MATLAB, Arduino, Python, HTML, CSS, LATEX