JOHN LIU

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John is an experienced mechanical engineer with a strong foundation in core engineering first principles. He has a proven track record in impacting cross-functional teams to deliver complex products from concept through full-rate production.

EXPERIENCE

Apple: Mechanical Quality Engineer | Battery Cell & Pack | AirPods & iPad March 2023 – Present

- Led the redesign of battery pack components on the M3 iPad Air to eliminate battery tab crack, enhancing product reliability and safety, through assessing the system MCO based on the tolerance analysis and cell cycling data
- Lifted quality alert on ~1M Airpods Pro 2nd gen Case due to pouch breach risk by lowering the DPPM, finding root cause to vendor's in house cell pouch punching die tool and recreating the failure mode
- Spearheaded a $500K cost-saving initiative over the Airpods 4th gen production lifetime by optimizing metrology equipment across multiple vendors through JMP simulation results, utilizing NPI build and MP legacy data
- Improved battery pack yield by 25% on the Airpods Pro 2nd gen buds by qualifying two new tag vendors and validating a new tag coating material through wetting balance soldering tests
- Increased pack yield by 50%, saving $600k through the Airpods 4th gen production lifetime by redesigning the cosmetic tape release liner to fix an in process tape warpage issue and qualifying a second die-cut vendor

Apple: Manufacturing Design Engineer | Thermal Modules | iPhone April 2022 – March 2023

- Qualified a second source vendor and led the development of an improved B-PET material for chemical and abrasion resistance properties, resulting in $1.5M savings over iPhone 15 and 15 Pro lifetime
- Enhanced production line efficiency from 30% to 60% resulting in a cost savings of $180k/line by driving the DFM and developing die-cut automation for new material, waste material and finished good material removal
- Developed a new synthetic graphite width by optimizing the sintering temperature profile through running TGA, SEM and DOE studies to support NPI programs for the Display team

Rivian: Body Structures Engineer Intern June 2021 – September 2021

- Developed engineering reports to drive future battery pack design by analyzing existing battery pack structures and presenting design recommendations to resolve current issues in manufacturability, complexity, and efficiency
- Redesigned the torque box to optimize for mass and assembly efficiencies (Reduced mass by 40% and number of components to two) by analyzing the critical load paths through each component in small overlap crash test
- Contributed to NPI project by establishing the design direction for a new pickup structure by benchmarking competitor designs through a Pugh chart

Tesla: Dimensional Engineer Intern (Body in White) September 2020 – March 2021

- Reduced production downtime and improved dimensional issues within tooling for Model Y front underbody assembly (FUB) by creating drawings in CATIA and validating a 4-way pin and pad detail redesign
- Developed a data analysis tool for Model S/X/Y to detect location of highest dimensional issue within an assembly and to visualize data from metrology by implementing macros in Excel
- Corrected dimensional issues to fall within 10% of tolerance in the Model 3/X/Y underbody by understanding part datum structure and assembly mating type to adjust locating pins in geo fixtures using data from metrology

EDUCATION

California Polytechnic State University in San Luis Obispo Graduated: December 2021

BS, Mechanical Engineering, Dean's Academic Achievement Award

PROJECTS

Cisco 1RU Standardization – Senior Design Project September 2020 – June 2021

- Reduced the number of future custom Cisco chassis by standardizing the perimeter mounting hole locations for PCB assembly and setting a guideline for Cisco design engineers
- Optimized chassis sets for tooling through a MATLAB script that compares chassis and tooling hole locations

SKILLS

- JMP, SolidWorks, CATIA V5/V6, AutoCAD, MATLAB, Casting, Microsoft Office Suite, Mills, Lathes, Mandarin, VBA, Autodesk Fusion 360, Violinist, ABAQUS, SimSolid, Autodesk Generative Design, 3D Printing

COURSEWORK

- Vibrations, Detailed Design/Assembly/GD&T, Technical Writing, Thermodynamics, Mechanics of Materials, Materials Engineering, Fluid Mechanics, Strength and Stiffness, Intermediate Dynamics, Applied FEA, Composite Materials Analysis and Design, Mechanical Systems Design, Additive Manufacturing