John Nguyen

jnguyen31415@gmail.com | www.linkedin.com/in/jnguyen206 | johnbnguyen.com | 206-694-3303 | U.S. Citizen

SKILLS

Design: Siemens NX, SolidWorks, GD&T, FEA, PLM, DFM/DFA, Material Selection, Tolerance Analysis.
Manufacturing: Mill, Lathe, Additive, High Pressure Die Casting, Injection Molding, Process Capability, Assembly.

EXPERIENCE

VAST SPACE | Mechanical Design Engineer II – E-2 Rocket Engine Development Aug 2024 - Present

- Served as the responsible engineer driving design, analysis, and testing for the Main Fuel Valve (MFV), LOX Dome, main propellant ducting, and integrated engine layout of E-2, Vast's closed-cycle liquid rocket engine.
- Designed and iteratively optimized the next-generation MFV in Siemens NX using FEA-driven geometry refinements and DFM/DFA principles, achieving consistent performance and substantially improved reliability.
- Drove a 50% reduction in LOX Dome production time by optimizing geometries with DFM principles, improving draft angles and support strategies for additive manufacturing, and streamlining post-process machining.
- Developed internal ASME Y14.5-aligned GD&T standards and CAD protocols to clarify design intent and facilitate cross-functional communication between design, manufacturing, and quality teams.
- Led design and validation of valve production line tooling through 10+ extensive assembly dry runs, identifying and resolving issues to accelerate lead times from 8 hours to under 1 hour per MFV assembly and validation.
- Managed design and manufacturing of main propellant ducting across 5+ engine configurations, ensuring robust integration and supporting ramp-up to multiple test campaigns.

VAST SPACE | Mechanical Engineer I – E-2 Rocket Engine Development Mar 2023 - Aug 2024

- Collaborated with internal manufacturing teams and external vendors to produce 50+ unique components and tooling, overseeing additive manufacturing, machining, post-processing, and inspection to meet deadlines.
- Advanced MFV design through FEA and DFM optimizations to enable reliable stoichiometric combustion, boosting efficiency, functionality, and manufacturability.
- Leveraged Siemens NX proficiency to integrate and maintain the full engine assembly, ensuring correct and robust integration of all 11 subassemblies and their respective components.
- Supported 3 major engine test campaigns at NASA Stennis Space Center through on-site assembly support, data monitoring, and rigorous component validation.

TESLA | Mechanical Design Engineering Intern – Gigacasting Structures Mar 2022 – Sep 2022

- Designed a novel solution for bumper beam install issues that maintains crashworthiness, opening the assembly tolerance window by 200%, and saving Tesla $2.7 million annually.
- Demonstrated proficiency in CATIA by designing, iterating, and implementing the first-of-its-kind service line fixtures for large body castings, enabling service centers to repair broken/damaged vehicles.
- Conceptualized and fabricated installation jigs for the shock tower reinforcement bracket through continuous iteration based on field testing from production, FEA for stiffness improvement, and the application of GD&T.

TESLA | Manufacturing Engineering Intern – Global Battery Module/Pack Sep 2021 – Mar 2022

- Validated that pack fastening method and quality equipment meet specifications at high-volume production by managing a team of 10 technicians to conduct 4 Process Capability Analyses and Gage R&R studies.
- Designed components for and supported the introduction of 2 new manual riveting stations that met ergonomic, safety, and quality standards to decrease pack fastening cycle time by 40% per rivet.
- Optimized design of 2 different production tooling by conducting FEA for high-load cases and interfacing with supplier manufacturing to develop components with proper implementation of GD&T.

EDUCATION

University of Washington | BS in Engineering Physics/Applied Physics December 2022

- UW Formula SAE, Husky Robotics, UW EcoCAR, NASA Washington Space Grant Consortium Recipient.