Tyler Chau

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WORK EXPERIENCE

Rocket Lab | *Spacecraft Structural Analyst* — Long Beach, CA | **February 2023 – September 2024**

LOXSAT & Victus Haze — **February 2023 – September 2024**

- Served as lead structural analyst for LOXSAT, Victus Haze, T2TL Beta, and several proprietary program phases while simultaneously supporting urgent tasks from other missions and business development contracts
- Developed detailed vehicle-level Finite Element Models (FEMs) for multiple programs at SRR/PDR/CDR, ensuring adherence to mission requirements and performance standards utilizing Simcenter 3D, NX Nastran, and SATK
- Performed static and dynamic FEA on primary and secondary structures including random vibration, sine vibration, thermal elastic distortion, buckling, bolted joint, environmental derivation, and shock attenuation
- Authored Quality Management System (QMS) documentation to effectively communicate structural analysis procedures, assumptions, and models while mentoring junior analysts and interns
- Presented PDR and CDR structural analysis to customers and leadership, effectively addressing design concerns

T2TL Beta Constellation — **November 2023 – September 2024**

- Secured a $515 million dollar contract with SDA through strategic early-stage structural design and analysis
- Presented and closed-out successful SRR campaign with structural input to requirements and mechanical design
- Conducted preliminary trade studies on spacecraft primary structure, defining a clear design path leading to PDR

Globalstar Constellation — **August 2023 – September 2023**

- Executed urgent vehicle-level thermal elastic distortion analysis based on worst-case orbit temperature differentials, providing margins and charts for the program's Critical Design Review (CDR)

NASA's ESCAPADE — **May 2023 – June 2023**

- Led and resolved solar array deployment issue by conducting mechanical tests and correlating Simcenter 3D Motion deployment analyses, identifying the root cause, and preventing schedule delays

Northrop Grumman | *Structural Dynamics Engineer* — Redondo Beach, CA | **September 2020 – January 2023**

NASA's James Webb Space Telescope (JWST) — **September 2020 – August 2021**

- Investigated NASA's JWST solar array (SA) deployment anomalies by analyzing resonance cases and several panel configurations through Craig-Bampton model reduction and frequency response analysis techniques
- Implemented nonlinear analysis method to account for geometric stiffening effects caused by JWST sunshield tensioning, then quantified errors introduced in other analyses that neglected them
- Partitioned JWST's system-level model into Sunshield and BUS sub-systems for model check analyses and reviews

Spacecraft Model Verification and On-orbit Loads Analyses — **August 2021 – January 2023**

- Established Linux shell scripts to automate frequency/transient response simulations for on-orbit loads analyses, revamping proprietary NASTRAN and MATLAB programming structures for NASA's JWST and various programs
- Revised and verified spacecraft model iterations to ensure the hardware capabilities do not exceed limit loads

Spacecraft Unit-Level Testing — **August 2021 – January 2023**

- Served as lead dynamicist for testing, verification, and documentation of numerous spacecraft unit-level tests
- Coordinated with test engineers to ensure hardware components satisfy acceptance and flight qualifications
- Performed functional and environmental (sine and random vibration) testing of multiple spacecraft modules
- Interpreted control and instrumentation data to determine performance and health of flight hardware

EDUCATION

University at Buffalo, State University of New York — **Graduation:** June 2020
Double Major in Mechanical and Aerospace Engineering B.S. — **Cumulative GPA:** 3.68/4.00

SKILLS

Software: NX/MSC Nastran | Simcenter 3D | Teamcenter | Femap | ANSYS | SATK | VA One | Confluence | Jira
Coding: Matlab | HTML | CSS | Javascript | Linux | GitHub