

Mechanical Engineer with 14 years of industry experience in structural design and design for manufacturing. Master's Degree in Mechanical Engineering, with thesis work on numerical modeling of nanomaterials. Dedicated to working toward the clean energy transition.

EDUCATION

UNIVERSITY OF WASHINGTON, Seattle, WA

Master of Science in Mechanical Engineering, March 2023

Thesis: Large Strain Finite Element Analysis of Spinodal Shell Structures

- Created finite element analysis (FEA) models in Abaqus to match compression test results.
- Developed FEA postprocessing methods in Python, to quantify structural behavior, stress distribution, and damage localization.
- Studied nanomaterial behavior in harsh environments with dynamic and thermal FEA.

Courses and Projects:

- Courses: Renewable Energy, Battery and Solar Cell Manufacturing, FEA, Elasticity, Composite Design and Analysis, Nanocomposites and Biocomposites.
- Research projects: Self-assembly and 3D printing of lithium-ion battery electrodes. Manufacturing and material properties of fungus and bacterial cellulose-based biocomposites.

Bachelor of Science in Mechanical Engineering, Cum Laude, June 2006

- Courses: Materials and Structures, CAD, FEA, Renewable Energy, Design for Environment.
- Projects: Formula SAE drivetrain design, Fuel Cell capstone project.

WORK EXPERIENCE

DISCRETE LATTICE INDUSTRIES, Seattle, WA

2021

Mechanical Engineer

- Conducted trade studies on the use of a lattice structure in wind turbine blades.
- Performed FEA in Ansys to determine blade deflection and test optimal structural parameters.
- Developed Python and MATLAB scripts for structural calculations and Ansys postprocessing.

KATERRA, Seattle, WA

2019 - 2020

Manufactured Assemblies Design Engineer

- Built prototypes of building components to test functionality, dimensions, and tolerances.
- Created model, drawing, and CNC templates for steel wall panels using Catia 3DEXperience.
- Developed bathroom kits in SolidWorks, providing BOMs and drawings for assembly and installation.

SAFRAN AEROSYSTEMS, Everett, WA

2015 - 2019

Design and Integration Engineer

- Led design work on a passenger loading stair for the 737, working with engineers and manufacturing.
- Conducted root cause analysis of failed aircraft waste valves, working with suppliers and customers.
- Designed an aircraft galley drain system integrating structure, sensors, and plumbing.

BOEING COMMERCIAL AIRPLANES, Everett, WA

2006 - 2012, 2014

Structural Design Engineer

- Designed critical structural parts and assemblies on 747-8 and 767, using CATIA V5.
- Coordinated with production facilities from concept to production.
- Worked across groups and disciplines to manage design completion and define interfaces.
- Developed design solutions to factory production problems.

KVICHAK MARINE INDUSTRIES, Seattle, WA

2012 - 2014

Project Engineer

- Developed structure and systems designs for aluminum hulled boats, for use in extreme environments.
- Worked from concept to production providing designs and drawings in Solidworks.