

Education

IOWA STATE UNIVERSITY | MECHANICAL ENGINEERING | GRADUATION FALL 2022

- 3.39/4.0 GPA

Experience

NASA OSTEM INTERN | NASA | JUNE 2021 – AUGUST 2021

- Developed CAD packages in Solidworks and optimized vision system camera placement for the Mars Sample Return (MSR) Earth Return Module (ERM) heatshield.
- Designed a CAD model in Solidworks using a Thorlabs' optical lens prescription for the Roman Space Telescope (RST) lenslet Integral Field Unit (IFU), imported the model into an optical design software (Code V) to study its optomechanical properties, and troubleshoot errors that came up along the way.
- Created various multiphysics models in COMSOL to optimize and analyze the reflective and absorptive properties of Black Silicon (BSi) for space-based applications.
- 3D modeled LISA's secondary mirror petal-shape mask in Solidworks to be assessed for lithography.
- Continued interpretation of data from multiphysics COMSOL studies in MATLAB using various graphing functions with the goal of duplicating lab-tested data.
- Mentored a high school level intern by providing and assisting with their workflow.
- Presented in-depth study findings to a technical audience.

NASA OSTEM INTERN | NASA | JANUARY – MAY 2021

- Co-authored a technical paper summarizing the advancements made in research of Black Silicon's optical properties.
- Developed multiphysics software models in COMSOL to analyze the reflective and absorptive properties of Black Silicon (BSi) in the sub-millimeter light range.
- Scripted and interpreted data from multiphysics COMSOL studies in MATLAB using various graphing functions with the goal of duplicating lab-tested data.
- Researched and documented previous Black Silicon (BSi) material properties and all related information.
- Presented in-depth study findings to a technical audience.

PROCESS DESIGN & DEVELOPMENT ENGINEERING CO-OP | THE TIMKEN COMPANY | JUNE – AUGUST 2020

- Created and revised engineering drawings using an in-house automation system to be used in plants worldwide.
- Corrected and added features on 3D models (NX) created by the automation system.
- Worked with data (JMP) to assist in cutting heat treat process timing down by 20%.
- Networked with more full-time employees to further my knowledge of the company and industry.

APPLICATION ENGINEERING CO-OP | THE TIMKEN COMPANY | MAY 2019 – AUGUST 2019

- Created a presentation to teach future co-op and full-time employees Timken proprietary CAD software.
- Wrote an aerospace application development guideline as reference for full-time use.
- Collected and organized back-end data for impactful company projects.
- Networked with current employees in different departments to better understand their role and the company.

Skills

SOLIDWORKS, AUTODESK INVENTOR, NX, MATLAB, COMSOL, JMP, PYTHON (NOVICE), MS OFFICE, HTML, 3D PRINTING

Clubs

SOLIDWORKS CLUB | 2020-2021

- Work through beginner, intermediate and expert Solidworks challenges to further knowledge in the software.
- Practice for the Solidworks Certification Exam (CSWE, CSWA, and/or CSWP)

Extracurricular Projects

DIY ELECTRIC BICYCLE | 2018 - 2019

- Converted a standard bicycle to electric with a low budget focus.
- Built my own battery pack to learn how it works and to cut costs.
- 3D modeled and 3D printed various custom parts for the bike to protect the upgrades from the elements.

3D PRINTING | 2016 - PRESENT

- Utilize two 3D printers, one of which I built in entirety.
- Learned how computers and 3D printers interact; Learned to troubleshoot and analyze challenges during the build process.

WEATHER BALLOON | 2015 - 2016

- Co-founded the Engineering Club at Downers Grove North High School.
- Launched a weather balloon to collect data in the stratosphere.
- Presented the project at the IJAS science fair and competed at the state level.
- Featured in Tom Skilling's Weather Day at U.S. Cellular Field as well as *TIME for Kids* magazine.

I.D.E.A. CAD COMPETITION | 2015, 2016

- Competed two times in the I.D.E.A. drafting competition using the CAD software Autodesk Inventor.