James Cooper Grace

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Objective

- I want to contribute to the research and development of the nation's defense technologies by gaining experience working on defense industry projects, ensuring that the nation is always a step ahead of its adversaries.

Education

University of Tennessee – Knoxville / University of Tennessee Space Institute   Knoxville, TN / Tullahoma, TN
Five-Year BS/MS Program: Mechanical Engineering BS & Aerospace Engineering MS   May 2025

- GPA: 3.70
- Minoring in Aerospace Engineering

Engineering Experience

ATA Engineering Co-op   Jan 2023 – Dec 2023
Co-op Engineer

- Created, optimized, and validated large, complex finite element models for structural and thermal analyses.
- Configured and ran various linear and non-linear, multi-step simulations using various load cases.
- Post-processed, verified, and documented the static, thermal, and modal results of the analyses.
- Helped with the computational fluid dynamics model of an aerospace structure and post-processed, verified, and documented the results of the analyses.
- Prepared reports, spreadsheets, and slideshows to summarize documented results and recommendations for the customer.

Air Force Materials Maturation for Hypersonics   Aug 2022 – May 2023
Undergraduate Research Assistant

- Working in a research team tasked with developing a computational model from experimental data for Hypersonics research.
- Team takes segmentations of microscopy images of a composite and applies Peridynamic Theory to evaluate defects and damage in the microstructure of the composite.
- Team uses the experimental data from aforementioned work to create a computational model for defects and damage in the microstructure of a composite.

RVR Coding Project   Spring 2022

- Team tasked with coding a Sphere RVR Rover to perform an autonomous procedure using a Python environment in MATLAB.
- Team wrote a code that makes the rover scan a specified number of boxes searching for boxes with a specified label.
- The intended use is for a warehouse environment with labeled boxes.
- The rover scans every box until it meets the specified number of boxes to check and stores the number, location in the shelves, and the x-y coordinates of the boxes with the specified label to be output.

Job Experience

University of Tennessee VolShop   Knoxville, TN
Sports Event Cashier   Oct 2021 – May 2022

- Learned to work efficiently and multi-task while scanning items, bagging items, and totalizing customers' purchases.
- Learned to work with a good attitude while providing the customer with a positive experience with fair, friendly, and courteous customer service.

Extracurriculars

- American Society of Engineers
- Tau Sigma
- AIAA
- University Consortium for Applied Hypersonics

Relevant Engineering Classes

- Computer Method/ Engineering Problem Solving
- Computer Aided Engineering and Manufacturing
- Engineering/Numerical Analysis
- Engineering Mechanics: Statics
- Engineering Mechanics: Dynamics
- Fluid Dynamics
- Heat Transfer
- Intro to Materials Science
- Intro to Mechanical Engineering
- Mechanics and Materials
- Physics for Engineers I
- Physics for Engineers II
- Professional Topics
- Thermodynamics

Technical Skills

- MS Office Suite
- MATLAB
- Structural Analysis
- SolidWorks
- PuMA
- Finite Element Analysis
- NX
- FEMAP
- Abaqus
- Nastran
- Star-CCM+
- Bolted Joint Analysis