Matthew Glimcher

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EDUCATION

MS in Aerospace Engineering, Purdue, West Lafayette — GPA 3.3/4.0 — ***Aug 2024 – May 2026***
BS in Aerospace Engineering, Purdue, West Lafayette — GPA 3.3/4.0 — ***Aug 2019 – Dec 2023***
Relevant Studies: Elasticity Theory, Design of Composite Structures, Introductory Materials Engineering

WORK EXPERIENCE

Research Assistant,* Composites Manufacturing and Simulation Center**, Purdue — ***Jan 2024 – May 2026

- Refactored legacy tape placement simulation in Abaqus to achieve 4x speedup and increased robustness
- Applied connector forces and displacements to allow the placement head to rotate to simulate tape placement on curved surfaces to determine strategies for defect minimization in industrial applications
- Presented a poster of my tape placement modeling work as part of the Intelligent Digital Twins (iTwin) for Advanced Manufacturing ERC proposal site visit for the NSF
- Developed a proprietary Python-based substitute for the Abaqus and Ansys composites modelers capable of simulating layer-by-layer delamination of 90+ layer tapered laminates
- Calibrated tapered laminate impact simulation results to proprietary experimental data from P&W to efficiently explore the impact resistance of various configurations
- Developed a genetic algorithm-based ply drop wizard for determining ply drop locations in large and complex tapered laminates based on human-readable soft rules

Teaching Assistant,* Aerospace Structures Lab** — ***Aug 2024 – May 2024

- Rewriting the course manual and making mathematical derivations easier to follow
- Developing lab procedures and illustrations to help the students complete the course experiments
- Mentoring students in aerospace engineering and choosing future coursework

ADDITIONAL EXPERIENCE

Astronautics Senior Design, Purdue, West Lafayette — ***Jan – May 2023***

- Designed an efficient satellite structure with integral radiation shielding, propellant tanks, and high gain antenna.
- Developed detailed engineering requirements for a Uranus Orbiter and Probe mission based on science goals from the NASA Decadal Survey and the measurement capabilities of available instruments
- Designed a bi-refringent Fourier transform VIS-IR spectrometer as our technology demonstration instrument with improved spectral resolution and reduced weight compared to legacy staring spectrometers.

Purdue Lunabotics, Purdue, West Lafayette — ***Jan 2020 – May 2023***

- Introduced rivet nuts to simplify assembly and maintenance of the robot
- Programmed and manufactured complex CNC parts using Fusion360 CAM software
- Mentored incoming students in design for manufacturing and CNC programming
- Created a GUI-based fastener advisor in consultation with team leadership

Composites Manufacturing and Testing Courses, Purdue, West Lafayette — **Aug 2023 – *May 2024***

- Improved the consistency of thermoplastic composite plates manufactured by hot pressing by introducing innovative knots to the fiberglass rope dam.
- Introduced hand-held low-power microscopy using a smartphone camera attachment for preliminary failure analysis of tested specimens
- Wrote extensive lab reports under the guidance of the head of the Purdue CMSC

SKILLS AND INTERESTS

Technical Proficiencies: CAD, FEA, Python, Numerical Optimization, Surrogate Methods
Engineering Interests: Structure Optimization, Advanced Materials, Multifunctional Design
Areas of Personal Study: Aerospace History, Design for Manufacturability, Interdisciplinary Engineering