Hirsh Kabaria

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EDUCATION

University of Michigan – Ann Arbor **3.6 / 4.0 GPA**

M. Eng. Space Engineering – May 2025 (Pending Admission)
B.S.E Aerospace Engineering – May 2024
Computer Science, Minor
Notable Classes: Hypersonics, Electric Propulsion, Model Based Systems Engineering, Spacecraft Dynamics, Aerospace Structures
Honors and Memberships: ΣΓΤ Aerospace Honors Society, Dean's List (Winter '21 & Winter '23), AIAA

SKILLS

Engineering: SolidWorks, MATLAB, Ansys Mechanical FEA, Siemens NX, Teamcenter, Siemens System Modeling Workbench
Manufacturing: Manual Lathe, Composite Layup, Waterjet, Metal and CO2 Laser Cutter
Languages and Programs: C, C++, Java, Ubuntu Linux, Adobe CC (Lightroom Classic, Photoshop, Illustrator), MS Office Master Cert

WORK EXPERIENCE

AeroVironment **Summer 23**
Aeromechanical Engineering Intern Petaluma, CA

- Conducted a trade study between wet layup and prepreg carbon fiber operations, considering material properties, tooling, core, and cost.
- Interfaced with suppliers, production, and engineering in order to determine needs and capabilities for prepreg composite manufacturing.
- Developed a user-friendly weight and balance calculator, allowing seamless flight operations in adverse conditions, incorporating all aircraft configurations and payloads. Further accounted for aircraft performance limitations, future capabilities, and customer requirements.
- Analyzed post-life material to evaluate current production methods and lifecycle fatigue.

PROJECT EXPERIENCE

CubeSat Flight Lab
Payload Integration Engineer **Fall 23**

- Responsible for sensor integration and flight survivability for a CubeSat simulator being flown on a high-altitude balloon in November 2023.

Model-Based Systems Engineering Lab
Formation Flying Space Interferometer, Firmware and Integration Lead **Fall 22 – Spring 23**

- Demonstrated formation flight, stabilization, and optical systems using drones for future telescope formation in space.
- Conducted multiple flight tests and evaluated flight telemetry to determine the stability of drone platforms.

Michigan Aeronautical Science Association (MASA) Rocket Team
Nosecone and Recovery, Systems Engineer **Fall 21 – Summer 22**

- Determined design requirements and coordinated deadlines, funding, and design reviews between the nosecone, recovery, and airframe teams to facilitate nosecone attachment and separation as part of our recovery sequence.
- Laid up multiple couplers and airframes, delivering flight components ahead of schedule despite redesign due to equipment failures.
- Conducted full system testing and integration with deployment, including redesign of pyrotechnic bolt.

Tank Pressure Control Vibration Testing, Engineer **Summer 22**

- Designed mounting hardware for high pressure systems resulting in a design with a resonant frequency outside of the test range.

Fin Testing, Project Manager **Summer 21**

- Designed a rotating test stand for the fin can allowing for induced roll and fin loading evaluation in a wind tunnel.
- Collaborated with the fin team and wind tunnel management to determine requirements and timelines for wind tunnel testing.

Separation Mechanism, Engineer **Fall 20 - Summer 21**

- Conducted FEA and multiple redesigns to ensure survival given significant bending moment loads on the nosecone-airframe interface.

MACH AIAA Aircraft Design-Build-Fly Team
FEA and Structures Engineer **Spring 22**

- Simulated loads on a wing box and motor mount and proposed a composite design for the motor mount to better survive given loads.
- Designed a one-step removable rear fairing for easy and quick access to the aircraft cargo bay during competition.

LEADERSHIP

MASA Business Team, *Director* **Summer 21 - Spring 22**

- Led a team of 5 to manage over $100,000 in funding, design team merchandise, and oversee public relations.
- Raised $28,000+ in NASA and UMich grants, corporate sponsorships, and crowdfunding.
- Responsible for 600% growth of the team's Twitter, Facebook, and LinkedIn pages through engaging visual content.
- Participated as a panelist at AIAA SciTech 2022 discussing student rocketry and the creation of the Academic Rocket Launch Alliance.

Sigma Gamma Tau (Aerospace Honors Society), *Fundraising Lead* **Fall 22 - Spring 22**

- Built business experience among society members through merchandise sale, marketing opportunities, and professional development events.