Hirsh Kabaria

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# EDUCATION­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **­­****University of Michigan** | **May 2024** |
| Aerospace Engineering, Bachelor of Science in Engineering | Ann Arbor, MI |

Computer Science, Minor

3.6 / 4.0 GPA

Notable Classes: Fund of Product Development (MBSE), MATLAB Applications for Engineers, Spacecraft Dynamics, Aerospace Struct

Honors and Memberships: ΣΓΤ Honor Society (Fundraising Lead ’22-’23, Initiated Dec ’21), Dean’s List (Winter ’20), AIAA (Since ’20)

# SKILLS \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Engineering Administration:** Systems Engineering, Project Management, Business and Government Relations, Team Leadership

**Engineering:** Finite Element Analysis (Ansys Mechanical), CAD (SolidWorks & NX w/ Teamcenter), MATLAB

**Manufacturing:** Manual Lathe, Composite Layup, Waterjet, Metal and CO2 Laser Cutter

**Computer:** C++, Java, Ubuntu, Adobe CC (Lightroom Classic, Photoshop, Premiere, Illustrator), MS Office Master Certification

# EXPERIENCE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Space-Based Laser Interferometer Project,** *Systems Engineer* | **Fall 22, Winter 23** |
| AEROSP 288/388 Model Based Systems Engineering | Ann Arbor, MI |

* Developing optical stabilization systems for a laser interferometer technology demonstration in low earth orbit using drones.

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| **Michigan Aerospace Communications,** *Summer Assistant* | **Summer 22** |
| University of Michigan Department of Aerospace Engineering | Ann Arbor, MI |

* Raised community awareness and built community relations through a new ethos accompanied with refreshed graphics, giveaway merchandise, and social media outreach to best present Michigan Aerospace and share our values with current and future followers.

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| **Nosecone and Recovery,** *Systems Engineer* | **Fall 21, Winter 22, Summer 22, Fall 22** |
| Michigan Aeronautical Science Association (MASA) Rocket Team | Ann Arbor, MI |

* 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.

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| **Tank Pressure Control Vibration Testing,** *Engineer* | **Summer 2022** |
| Michigan Aeronautical Science Association (MASA) Rocket Team | Ann Arbor, MI |

* Designed mounting hardware for high pressure systems resulting in a design with a resonant frequency outside of the test range.
* Assembled the tank pressure systems for testing and recorded test data.

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| **Business Division,** *Lead* | **Summer 21, Fall 21, Winter 22** |
| Michigan Aeronautical Science Association (MASA) Rocket Team | Ann Arbor, MI |

* 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.
* Collaborated with NASA, airport, and local authorities to find a suitable liquid engine test site.
* Participated as a panelist at AIAA SciTech 2022 discussing student rocketry and the creation of the Academic Rocket Launch Alliance.

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| **MACH 6,** *FEA and Structures Engineer* | **Winter 22** |
| MACH AIAA Design-Build-Fly Team | Ann Arbor, MI |

* 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.

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| **Fin Testing,** *Project Manager* | **Summer 21** |
| Michigan Aeronautical Science Association (MASA) Rocket Team | Ann Arbor, MI |

* 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.

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| **Separation Mechanism,** *Engineer* | **Winter 21, Summer 22** |
| Michigan Aeronautical Science Association (MASA) Rocket Team | Ann Arbor, MI |

* Conducted FEA and multiple redesigns to ensure survival given significant bending moment loads on the nosecone-airframe interface.
* Researched and conducted trade studies to find the best COTS parts to ensure successful separation in an abort case.