Hirsh Kabaria

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

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

Computer Science, Minor

**3.6 / 4.0 GPA**

Notable Classes: Model Based Systems Engineering, MATLAB Applications for Engineers, Spacecraft Dynamics, Aerospace Structures

Honors and Memberships: ΣΓΤ Aerospace Honors Society, Dean’s List (Winter ’20), AIAA

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

**Engineering:** Ansys Mechanical FEA, SolidWorks, Siemens NX, Teamcenter, MATLAB, Siemens System Modeling Workbench (SMW)

**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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

* Raised community awareness and built community relations through a new ethos accompanied by refreshed graphics, giveaway merchandise, and social media outreach to best present Michigan Aerospace and share our values with current and future followers.
* Managed time while working on MASA Nosecone and Recovery, TPC Vibration Testing, and flight part production.

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

**Model-Based Systems Engineering Lab**

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| *Formation Flying Space Interferometer, Firmware and Integration Lead* | **Fall 22 - Present** |

* Demonstrating formation flight, stabilization, and optical systems using drones for future telescope formation in space.
* Implementing industry systems engineering tools to integrate control algorithms and flight vehicles while meeting project requirements.

**Michigan Aeronautical Science Association (MASA) Rocket Team**

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| *Nosecone and Recovery, Systems Engineer* | **Fall 21 - Present** |

* 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 22** |

* 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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| *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.

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| *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.
* Researched and conducted trade studies to find the best COTS parts to ensure successful separation in an abort case.

**MACH AIAA Aircraft Design-Build-Fly Team**

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| *FEA and Structures Engineer* | **Winter 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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **MASA Business Division,** *Lead* | **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.
* 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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| **Sigma Gamma Tau,** *Fundraising Lead* | **Fall 22 - Spring 22** |

* Raising community morale through Michigan Aerospace merchandise and professional development events.
* Building business experience among society members through sales events and marketing opportunities.