Nikita Korchnoy

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EDUCATION

University of Miami — Coral Gables, FL

Bachelor of Science in Aerospace Engineering — December 2026

- GPA: 3.80/4.00
- Teaching Assistant – MAE303, Thermodynamics

SKILLS

Certifications: SOLIDWORKS CAD Design Associate (CSWA) | NAR, Level 1 High Powered Rocketry
Technical: SOLIDWORKS, MATLAB, COMSOL Multiphysics, OpenRocket, Creo, 3D Printing, Ansys FLUENT, SAP

EXPERIENCE AND LEADERSHIP

Bosch Group — Charleston, SC

Electric Machine Series Development Engineering Co-Op — May 2025 - July 2025

- Worked on the development and manufacturing of separated motor generators for electric vehicles in the automotive industry, focusing on process optimization and assessing the risks of procedures
- Designed and executed trials to replicate field-reported motor failures by varying parameters and manipulating parts; performed root cause analysis and recommended updates to process specifications
- Developed a MATLAB script to analyze historical press-fit force displacement curves, establishing new thresholds and detection windows to improve sensitivity and accuracy of in-line failure detection; new thresholds caught the original field-reported failures proving improvement from falsely passed parts

American Institute of Aeronautics and Astronautics - Rocket Canes — Coral Gables, FL

Payload Mechanical Team Lead, Senior Mentor — August 2024 - Present

- Built a high-powered rocket to NASA Student Launch standards; flight reached an apogee of over 5,000 feet, top speed of 424 miles per hour, and approximately 13 g peak acceleration, confirmed by avionics
- Led a team of five students; designed, constructed, and integrated a spring-dampening payload mechanism intended for jettison after apogee and independent landing for data collection. Integrated with avionics and recovery and validated through benchmark and ground tests
- Created models and engineering drawings in SOLIDWORKS; performed finite element analyses in COMSOL Multiphysics to assess stress margins computing a safety factor of 2.6

Capstone - Senior Design Project — Coral Gables, FL

Mechanical Lead – Canard Control System — August 2025 – Present

- Designed and constructed a controllable canard actuation system enabling active flow control allowing flight path correction for a waypoint guided rocket intended for rapid payload delivery
- Optimized and tested canard geometry using Ansys FLUENT (CFD) and integrated the mechanical canard control system

Research — Coral Gables, FL

Research Assistant – Materials for Aerospace Applications — December 2024 – Present

- Synthesized BCC high entropy alloys of composition TiNbZr using an arc melter, optimizing conditions for single-phase structures enhancing mechanical and corrosion resistance properties for aerospace use
- Direct Ink Writing (DIW) Carbon-Fiber Composite 3D Printing with varying oscillation infill patterns to optimize fiber orientation and mechanical performance for specific anisotropic applications

Pi Tau Sigma — Coral Gables, FL

Co-President – Mechanical and Aerospace Engineering Honor Society — August 2025 – Present

- Represented the Miami Sigma Upsilon chapter at the 2025 Pi Tau Sigma National Convention while overseeing chapter budgeting, organizing workshops, and leading initiatives to improve resources