Joshua Jordan Kraus

Integrated Aerospace Engineering and Behavioral Psychology

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EDUCATION

Lehigh University, Bethlehem, Pennsylvania   **Graduation:** May 2027
B.S. Integrated Social Science and Engineering   **GPA:** 3.91
Honors: IDEAS Honors Program, Dean's list: All Semesters
Related Coursework: Materials & Processes, Calculus I,II, III, Linear Algebra, Electricity and Magnetism, Mechanics
ORCID: 0009-0006-3163-3312   **GITHUB:** github.com/jjk-star-bash

PROJECT & PROGRAM EXPERIENCE

Autonomous firefighting drone (AETHER), Personal project   *Aug. 2023 – Present*

- **Flight engineer:** Designed and fabricated 10+ flight mechanisms, 25+ custom hardware components, 16 control Python/Raspbian software scripts.
- **Team manager:** Recruited and built a team of new members resulting in 400% growth over 1 year. Maintained a detailed series of technical documentation and video logs available publicly for rapid onboarding.
- **Funding manager:** Led AETHER in securing $1,500 of the Lehigh University IDEAS Learning & Research grant.
- **Behavioral & legal integration:** Integrating first responder psychology and habitual systems with the AETHER project design and project priorities. Obtained FAA 107 UAS drone license to learn the legal and human systems of United States controlled airspace.

Lehigh University Rocketry Association (LURA), Lead payload engineer   *Feb. 2025 – Present*

- **Robotic dog payload:** Developing a robotic quadruped "LAIKA" for international competition using ROS2 and Gazebo simulation. Payload launching to 10,000 feet on a 15ft SRAD rocket.
    - Fabricating 40+ LAIKA project components using additive & subtractive manufacturing. Documenting ROS2 and LAIKA development for teaching purposes and competition submission.
    - Designing mount & deployment actuators, writing scripts and payload state monitoring systems in Python.
    - FEA & CAD in Fusion 360, Siemens NX, experimental thermal analysis, and destructive testing for payload bay & payload objects.
- **High power rocketry course:** Created a 30 minute YouTube tutorial guiding team members through rocket fabrication, and Level 1 NAR certification to speed up onboarding and free up team leads.

NASA L'SPACE Proposal Writing and Evaluation Experience Academy   *May. 2025 – Present*

- **Virtual NASA workforce preparation academy** funded by the U.S. government to teach skills in writing and evaluating professional technical proposals at NASA standards.
    - Conceptualized and pitched novel a reusable-rocket robotic solution to a NASA panel.
    - Co-authoring a technical proposal regarding robotic swimmers for Titan in response to a request from NASA Marshall Space Flight Center.
    - Completing CAD designs and tailored learning projects using Siemens NX.
    - Chairing a review panel for NASA solicitation responses and serving as Primary Reviewer by scoring proposals based on internal solicitation rubrics.

PROFESSIONAL EXPERIENCE

Applied Computer Engineering, Teaching Assistant   *Aug. 2024 – Present*
Lehigh University, Bethlehem PA

- **Lab TA:** Administering introductory Raspberry Pi and Python-based mechatronics labs weekly for 80+ students.
- **Grader:** Scoring and providing feedback on Python-based Engineering Assignments on a bi-weekly basis.
- **Student success advisor:** Providing guidance to students personal projects.

Technical Skills: Siemens NX, Fusion 360, Ansys Fluent, Additive & Subtractive Manufacturing, ROS2/ROS, Python, Unix Platforms, Drone Piloting, U.S. Airspace, Documentation, Team engagement

Certifications: NAR Level 1 Rocketry, CO2 Laser Cutting, 3D Printing, NASA Open Science 101, FAA 107 Drone Pilot (Expected July), FAA 141 Private Pilot (In progress), Siemens NX (In progress)