
Joshua Kraus

Location: NJ, 08807 | **Phone:** (732)-515-1549 | **Email:** JoshuaJordanKraus@gmail.com | **Portfolio:** Joshuakraus.com
Citizenship: U.S. Native | **Willing to relocate** to CA/TX/FL/ | **Full-time** onsite availability starting *May 2027*

EDUCATION

Lehigh University, Bethlehem, Pennsylvania

Bachelor of Science in Integrated Engineering and Social Sciences (Graduation: **May 2027**)

GPA: 3.94

Honors: Integrated Engineering, Arts, and Science Honors Program (IDEAS); Dean's list: All Semesters

WORK & LEADERSHIP EXPERIENCE

Lehigh University Rocketry Association (LURA) – President, Bethlehem PA [Jun 2026 - Present]

- Leading a team of 120+ undergraduate students in the development of liquid and solid propulsion based rockets.
- Coordinating budget of \$40,000+ across three sub teams, focusing on lean operations and rapid growth for the organization.
- Fostering extreme ownership of the “part, process and plan” with LURA members.

SpaceX – Dragon Structures Engineering Internship, Hawthorne CA [May 2026 - Aug 2026]

- Developed static equivalent dynamic loads, refined models, and wrote structural margins for all liberated panels on Dragon 2
- Designed multiple tooling kits to improve thermal protection system panel placement accuracy during integration and TPS machining operations. Worked directly with launch and manufacturing engineers, reducing build risk and labor hours.
- Led multiple vibration test campaigns and correlated vibroacoustic breakout simulations in FeMap to burn down technical risk and correlate physical effects of hardware damping to full vehicle model. Refined and performed bolted joint analysis.
- Owned a first-principles risk analysis and design sprint for sensor pass-through ports on the NASA Crew-13 Dragon capsule, going from ideation to cross-team stakeholder buyoffs and qualification testing in four days.

Lehigh University – Head Teaching Assistant, Department of Engineering, Bethlehem PA [Aug 2024 - Jan 2026]

- Administering Raspberry Pi and Python robotics labs weekly for 80+ students & managing 4 junior level TA's.

ENGINEERING PROJECTS

Thrust Vector Controlled Vehicle - “Kalman” [Jan 2026 - Present]

- Implemented a Linear Quadratic Regulator on COTS drone avionics at 400 Hz, closing a 2-axis active stabilization loop for thrust vector control of a single engine solid-propellant vehicle. Validating LQR control law through MATLAB software-in-the-loop simulation with Gaussian sensor noise injection.
- Designed a 2-axis TVC mechanism using carbon fiber composite and aluminum, performing structural and thermal FEA in FEMAP/ANSYS to qualify CF-polymer components against hot-fire bounding heat loads at a 1.2× thermal safety factor.
- Analyzing vehicle primary structure and flight dynamics via ANSYS FEA, performing hand calculations to validate model setup and results, and iterating design upgrades using FDM printing and machine shop experience.

Robotic Surveyor Dog, International Rocket Engineering Competition – “Laika” [Feb 2025 - Jun 2026]

- Lead Payload Engineer, developed a 12-DOF robotic quadruped & mid-air deployment payload bay mechanism.
- Fabricated 40+ components in a R&D environment using: Fiber-reinforced FDM & SLA printing, manual & CNC machining of aluminum, stainless, mild steel, and nickel alloys.
- Programmed finite state machine in Python tracking launch vehicle flight phases through IMU signatures & triggering events.
- Analyzed payload bay structural loads using FEA solvers (Nastran, MAPDL) and ran breakout FMEA studies to define system margins and reduce single fault failures.

Autonomous Emergency Thermal High Elevation Reconnaissance Drone - “AETHER” [May 2024 - May 2026]

- Won academic grant to develop an open source UAV capable of streaming optical and thermal data to firefighters in the field.
- Designed Beyond Visual Line of Sight avionics architecture around a 4G LTE enabled and fully encrypted control system. Integrated flight computers via UART. Developed a low cost thermal & optical payload using Open CV.

SKILLS & CERTIFICATIONS

Programming & Fabrication – Proficient in Python, Java, ROS2, Lua, Matlab | 3D Printing, Manual Milling, Composite Layup

CAD & FEA – Proficient in Siemens NX, Fusion 360, ANSYS, FEMAP; Nastran & ABAQUAS solvers

Certifications – Siemens NX Design Associate, FAA Part 107 Remote Pilot, Mitutoyo GD&T EDU-G410 & G415 (*Expected 01/27*)