

Jaden Xander Hernandez

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Education

Purdue University - West Lafayette, IN

August 2022 - May 2026

Bachelor of Science in Aeronautical and Astronautical Engineering

Cumulative GPA: 3.32 / 4.00

Relevant Coursework: Aerodynamics, Thermal Sciences, Dynamics and Vibrations, Control Systems Analysis

Awards: Northrop Grumman S.P.A.C.E. Award, Purdue University Presidential Scholarship

Experience

Undergraduate Research Assistant | West Lafayette, IN

February 2025 -

Purdue University Elmore Family School of Electrical and Computer Engineering

- Performing finite element analysis to predict failure points for complex mechanisms within a novel ornithopter robot.
- Conducting computational fluid dynamics analyses using the Ptera Software library to evaluate aerodynamic behavior for various wing actuator linkage geometries.
- Creating MATLAB scripts using fast Fourier transform methods to filter thousands of force transducer test points, refining future data analyses for performance evaluation.

Undergraduate Teaching Assistant | West Lafayette, IN

January 2025 -

Purdue University College of Liberal Arts

- Creating lesson plans and activities to teach 35 students the foundations of professional writing with a focus on grant seeking and proposals.

Undergraduate Teaching Assistant | West Lafayette, IN

August 2024 - December 2024

Purdue University School of Engineering Education

- Taught over 100 first-year students fundamental engineering skills such as data analysis, design process, and collaboration methods as part of the course "Transforming Ideas to Innovation I".

Undergraduate Researcher | West Lafayette, IN

September 2023 - November 2023

Purdue University School of Engineering Education

- Evaluated the viability of 6 toys aimed at providing STEM education through elaborate testing.
- Surveyed and tabulated data from over 50 children on toy attributes to ensure holistic product evaluation.
- Coauthored the INSPIRE Institute's annual "Engineering Gift Guide" with informative reviews detailing key product features and learning outcomes.

Projects and Involvement

Five Dynamics

October 2024 -

Co-Founder, Chief Engineer

- Co-founded the club and developed its membership structure to streamline collaboration for over 25 members specializing in various rocketry-focused divisions and projects.
- Overseeing and designing a custom unmanned aerial vehicle intended to test avionics and control systems. Using XFLR5 to determine optimal wing geometry, MATLAB to calculate takeoff parameters, and Autodesk Inventor to model crucial components with attention to aerodynamic performance and structural integrity via finite element methods.
- Utilizing computational fluid dynamics methods in Ansys Fluent to analyze heat transfer and flow behavior for multiple rocket airframe iterations to inform design choices for fin geometry and insulation measures.

Association for Computing Machinery: Special Interest Group: Robotics

August 2022 - May 2024

Strategy Subteam Lead, Treasurer, Mechanics Specialist

- Coordinated documentation and time management via Gantt charts among subteams to assure timely robot development as Strategy Subteam Lead.
- Managed accounting and finances for club member reimbursements as Treasurer.
- Designed custom parts in Autodesk Inventor with consideration for manufacturability and durability to be easily and sustainably utilized on competition robots.

Introduction to Aerospace Design: Mars Sample Retrieval

August 2023 - December 2023

- Developed mathematical models in MATLAB to determine mission parameters, including ΔV , vehicle stage mass, and orbital periods for a Mars sample retrieval mission.
- Researched and selected launch vehicles, propellants, and risk mitigation strategies tailored to mission objectives.
- Authored and presented a 72-page design report, contributing to the team's recognition with the Northrop Grumman S.P.A.C.E. Award for excellence in design communication.

Skills

Computer Aided Design: Siemens NX, Autodesk Inventor, SolidWorks

Analysis and Computing: Ansys Fluent, MATLAB, Simulink, XFLR5, Python, C

Product Data Management: Aras Innovator