Alex Zhou

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EDUCATION

BSAAE, Aeronautical & Astronautical Engineering | Purdue University *August 2020 - December 2023*

- Specialization in Propulsion
- Dean's List and Semester's Honors List
- Relevant Coursework: Aeromechanics I & II, Thermodynamics I & II, Rocket Propulsion, Air-Breathing Propulsion, Introduction to Computational Fluid Dynamics, Spacecraft Design

MSAAE, Aeronautical & Astronautical Engineering | Purdue University *Expected January 2024*

PROFESSIONAL EXPERIENCES

Purdue Energetics Research Center | West Lafayette, IN *August 2023 - Present*

Undergraduate Researcher

- Performed particle analysis to construct a predictive modeling of additively manufactured energetic materials
- Collaborated with a small team of researchers to develop code for theoretical frameworks
- Produced weekly reports and technical documents explaining design parameters and results

AAMP-UP Program | West Lafayette, IN *May 2023 - August 2023*

Undergraduate Researcher

- Conducted research under faculty Principal Investigator for the Advancing Army Modernization Priorities-Energetic Materials (AAMP-EM) organization
- Presented research at a Symposium to key Purdue, ARL stakeholders, and other university-affiliated individuals
- Participated in professional development events with Army Research Lab and national defense industry leaders
- Attended energetic materials workshops at the Purdue Energetic Materials Summit

Composites Manufacturing And Simulation Center | West Lafayette, IN *June 2022 - May 2023*

Undergraduate Research Assistant

- Investigated and analyzed textile composite and prepreg wrinkle modeling for structural performance
- Applied RTM and VARTM process to fabricate prepreg and resin coupons bar models for physical prototyping
- Explored effects of bridging, ply wrinkling, and voids on dimensional accuracy and structural integrity
- Organized data of sensor data and geometric distortions to understand optimal manufacturing procedures
- Standardized schematics of molds and experimental procedures to improve safety, efficiency, and communication
- Assessed and recommended approaches for designing a virtual lab linked to FEA simulations

TECHNICAL PROJECTS

Purdue Space Program: A SEDS Chapter - Liquids *September 2023 - Present*

- Worked with a team of 100+ students to develop and design an ethanol-LOX pressure-fed rocket
- Assessed heat source contributions to fin can to calculate maximum temperatures during pre-launch and in-flight phases
- Evaluated aerodynamic heating effects on nose cone to create model of in-flight temperatures
- Completed an engine design project to calculate design parameters and geometry of a 1500 lbf kerolox engine

Senior Spacecraft Design Project *August 2023 - Present*

- Constructed a mission that uses Global Navigation Satellite System Reflectometry (GNSS-R) technology to provide accurate and cost-effective measurements of global sea-surface wind speed and direction
- Investigated satellite onboard propulsion systems and rideshare programs to meet mission requirements
- Conducted trade studies to evaluate and compare different orbital parameters and communication architecture

LEADERSHIP EXPERIENCE

Purdue Cornerstone Christian Fellowship | West Lafayette, IN *August 2022 - Present*

Flex Team Member

- Coordinated with a small team in planning events for over 50 students, including scavenger hunts and potlucks
- Collaborated in planning multiple charity events to raise funds to support club activities

Purdue Valorant Club | West Lafayette, IN *August 2021 - May 2022*

Team Captain

- Managed and organized team to compete in National Esports Collegiate Conference and Collegiate Esports Association
- Tailored practice and tournament schedules to accommodate needs and preferences of team

SKILLS & AWARDS

Software: Solidworks, Siemens NX, ANSYS, Abaqus, ParaView, Microsoft Office

Programming Languages: MATLAB, Simulink, Python, Java, FORTRAN

Awards: 2020 Elks Most Valuable Student Contest Scholarship, 3rd Best Poster Presentation Award at AAMP-UP Symposium