Christina Alexandrov

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Dedicated mechanical engineering student with strong communication skills, cross-functional leadership experience, and a passion for aerospace innovation

EDUCATION

Stevens Institute of Technology — B.E. in Mechanical Engineering, Aerospace Concentration
Anticipated Graduation: May 2026 | GPA: 3.25 | U.S Citizen | Eligible for Security Clearance
Graduate Certificate: Computational Fluid Mechanics and Heat Transfer
Honors: SWE Collegiate Leadership Institute, Greek Leader of the Year, Provost Research Award, DAAD RISE
Campus Involvement: AIAA President, SGA Vice President of Academic Affairs, President of Order of Omega

EXPERIENCE

Manufacturing Engineering Intern May 2025 – Present
ThorLabs Newton, NJ

- Designed SolidWorks jigs with GD&T to ensure <0.05 mm shift tolerance under 2 lb preload
- Conducted time studies to reduce optic cleaning cycle time by 60% through workflow optimization
- Authored assembly documentation, improving onboarding speed by 30% for new hires
- Prototyped and tested 3D-printed fixtures to validate part alignment before full-scale machining

Principal Investigator May 2025 – Present
NASA L'SPACE Program Remote

- Led 12-member team to design a Variable Geometry Injector System (VGIS) enabling 10:1 throttling
- Communicated complex design tradeoffs and thermal constraints to multidisciplinary L'SPACE team during injector proposal development
- Created NASA-style proposal with KPPs, risk matrices, and milestone charts; praised for innovation
- Developed CAD models in Siemens NX under strict technical deadlines

Undergraduate Researcher October 2024 – Present
Rabinovitch Research Group Hoboken, NJ

- Modeled and validated rarefied gas entrainment from Cassini probe data in MATLAB, reducing trajectory prediction error by 12%, informing lab research on particle-gas interactions in cryovolcanic plumes
- Tuned grid and solver settings to improve rarefied flow accuracy in low-pressure simulation environments
- Automated parameter sweeps in MATLAB to evaluate solver stability across varying Knudsen numbers

Payload Engineer September 2024 – April 2025
NASA RockSat C Remote

- Built and validated thermal reentry payload with thermocouples and ablative panels using ANSYS Thermal; performed pre-flight fit checks and post-flight material analysis
- Led end-to-end system integration across mechanical and electrical domains; ensured traceability and test coverage under solid rocket payload constraints
- Presented at NASA reviews (CoDR–VVC) and collaborated with engineers at Wallops to meet safety standards and secure flight approval

PROJECTS

Rocket Combustion Chamber + Regen Cooling Simulation

- Simulated regenerative cooling flow for LOX/RP-1 combustion chamber in ANSYS Fluent using SST k-omega turbulence model
- Performed wall thickness and injector offset study; reduced predicted wall heat flux by 20%
- Compared copper vs. Inconel chamber designs in Thermal Desktop under 1800°C conditions

SKILLS

Simulation: ANSYS Fluent, CFX, Thermal Desktop, NX Nastran, Simulink
Modeling & Analysis: MATLAB, Python
CAD & Design: SolidWorks, Siemens NX, Creo, GD&T
Soft Skills: Team Leadership, Technical Communication, Cross-Functional Collaboration