

Stuart T. Hamilton

AEROSPACE ENGINEERING

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EDUCATION

Georgia Institute of Technology, College of Engineering

B.S. in Aerospace Engineering

May 2028
Atlanta, GA

- Relevant Coursework: Jet & Rocket Propulsion, Aerodynamics, Thermodynamics, Vibrations & Dynamics, Control Systems, Probability & Statistics, Statics, Differential Equations

George Washington University, School of Engineering & Applied Science

Completed Coursework for B.S. in Mechanical Engineering - [Transferred Out]

Aug. 2024 – May 2025
Washington D.C.

- Relevant Coursework: Engineering Computations, Geometric Dimensioning & Tolerancing

EXPERIENCE

Georgia Tech Propulsive Landers

Propulsion Systems Engineer - [Student Organization]

Aug. 2026 – Present
Atlanta, GA

- Developing the world's first hybrid-propellant lander, integrating nitrous oxide and paraffin-wax propellant systems with automated oxidizer feed and vent valve assemblies.
- Contributed to propulsion system design, testing, and integration, collaborating with structures, avionics, and systems teams to support flight readiness.

Georgia Tech Supersonics Club

Combustion & Propulsion Systems Engineer - [Student Organization]

Aug. 2026 – Present
Atlanta, GA

- Executed computational fluid dynamics (CFD) simulations and structural finite element analysis (FEA) to evaluate thermal stress and component fatigue.
- Designed and optimized afterburner fuel injectors for flame stability at high-Mach conditions.

Computational NanoBio Technology Lab

Undergraduate Researcher

Jun. 2026 – Present
Atlanta, GA

- Modeling sorbent behavior for carbon capture, characterizing how material structure drives capture performance and what limits it, with a publication expected by summer 2027.
- Running density functional theory and molecular dynamics simulations of material systems.

Panera Bread LLC

Team Lead

Jun. 2022 – Apr. 2024
Mechanicsburg, PA

- Supervised and supported team members during shifts to ensure efficiency and high-quality customer service.
- Trained new employees on food safety, company procedures, and electronic systems.

PROJECTS

Neurally Enhanced Wind Tunnel (NEWT) | MATLAB, Fluent, Ansys, C++, 10+ APIs

Sep. 2025 – Present

Project Lead, Responsible Engineer, Software Developer, Programmer

- Trained deep learning models on historical calibration data to predict aerodynamic load-induced structural deformation during high-velocity testing.
- Designed an active deformation approach that shapes the model in real-time to match expected full-scale geometry, rather than suppressing structural deflection.

NoVA - Personal AI Assistant and Information System | Java, Python, 25+ APIs

Oct. 2024 – Present

Project Lead, Software Developer, Programmer

- Developed an AI information system and personal assistant capable of aggregating, analyzing, and synthesizing information across 20+ AI models to improve accuracy, reducing the failure rate by 94%.
- Integrated computer vision, screen capture, and eye-tracking technologies to enable AI-assisted visual understanding and more efficient human-computer interaction.

TECHNICAL SKILLS

Tools & Programming Languages: MATLAB, Simulink, SolidWorks, CFTurbo, Ansys, Ansys Fluent, Siemens Simcenter STAR-CCM+, OpenFOAM, C++, C#, Java, Python, JavaScript, HTML, CSS, NumPy, Pandas, Matplotlib

Analytical: Structural Analysis, Finite Element Analysis, Fluid Flow Analysis, Numerical Methods, Statistical Methods, Optimization Methods, Multivariable Calculus, Differential Equations

Logistical: Communication, Project Planning & Scheduling, Task Prioritization, Technical Documentation, Test Planning & Execution, Failure Analysis, Troubleshooting, Group Problem-Solving

Interests: Propulsion, Aerodynamics, Rocketry, Defense Applications of Aerospace, Applications of AI, Computer Simulations, Material Science, Electrical Engineering, Computer Science