Tanner Zagrodnik

U.S. Citizen
262-443-1283 linkedin.com/in/tanner-zagrodnik TannerZagrodnik@gmail.com

Education

Georgia Institute of Technology May 2025
Master of Science in Aerospace Engineering *GPA: 3.62/4.0*
Relevant Coursework: Flight Test Engineering, Optimization for the Design of Engineered Systems, Hypersonic Technology & Systems, Statistical Methods, Kinetics & Thermodynamics of Gases, Mechatronics, Aeroacoustics

Georgia Institute of Technology May 2024
Bachelor of Science in Aerospace Engineering *GPA: 3.81/4.0*
Relevant Coursework: Rotorcraft Design, Aerospace Vehicle Performance, Aeroelasticity, Jet & Rocket Propulsion, Aircraft Flight Dynamics, Computational Fluid Dynamics

Work Experience

Flamefront Propulsion | *Propulsion Systems R&D Engineer* June 2025 – Present
- Built static test stand for micro turbojets with flow, thrust, and thermal/pressure instrumentation
- Developed Python tool for micro turbojet sizing, performance modeling, and geometry estimation
- Worked with vendors to prototype additively manufactured engine components

Mach Industries | *Propulsion Engineering Intern* May 2024 – Aug 2024
- Conducted testing and performance characterization for various micro turbojet engines, including afterburner configurations
- Designed and deployed a live multi-angle camera system for remote test cell monitoring, improving safety and visibility
- Developed LabVIEW code for real-time mass flow measurements using a custom bellmouth flow meter
- Supported system integration through 3D-printed components and external afterburner cooling system fabrication

Heraeus Electro-Nite | *Product Engineering Intern* May 2022 – Aug 2022
- Designed product models and assemblies using Autodesk Inventor Pro and Fusion 360
- Authored technical manuals for QuiK-Punch 2000 product line
- Created photorealistic renderings of product models

Research & Projects

eVTOL Optimization Research | *Undergraduate Research Assistant* Jan 2024 – May 2024
- Developed flight dynamics modules in Python using OpenMDAO to support electric motor optimization
- Linked dynamics and trajectory to necessary rotor performance using Blade Element Momentum Theory

Vertical Flight Society International Design Competition | ***Team Captain**, Propulsion Lead* Aug 2023 – May 2024
- **1st place-winning** team in conceptual design of a modular UAS for disaster relief, presented at **VFS Forum 81**
- Iterative design process, optimizing for mission requirements and verifying performance models
- Authored comprehensive technical report detailing design and validation

Flow Distortion Metric Research | *Undergraduate Research Assistant* May 2023 – Aug 2023
- Developed Python package to enable comparative analysis of existing metrics of flow distortion, using Sphinx and Jupyter Notebooks for technical documentation
- Investigated inlet air distortion effects on jet engine compressors

Air Force Propulsion Outreach Program | *Engine Modeling Lead* Aug 2022 – May 2023
- Modeled turbojet engine performance using NPSS, identifying areas for optimization
- Collaborated with hardware team on prototyping and fabrication

Skills

Simulation: OpenVSP, XFOIL, NPSS, Ansys Fluent, Tecplot, Pointwise
CAD: Autodesk Fusion 360, Inventor, Solidworks, Siemens NX
Programming: Python (OpenMDAO, SciPy, NumPy, JAX, pandas), MATLAB, C, R
Manufacturing: FDM 3D Printing (10+ years), Soldering
Communication: Microsoft Suite, LaTeX, GitHub, Sphinx
Involvement: GT-AIAA, GT-VFS, GT Supersonics, Rotor Jackets, Climbing Club