

# Neal Zeng

(919) 519-7708 | nealzeng@gatech.edu | www.linkedin.com/in/nealzeng | US Citizen

Aerospace engineering student (4.0 GPA) focused on guidance, navigation, and control and reinforcement learning-based controller optimization. Built simulation environments and tuned feedback controllers for dynamic aerospace systems.

## Education

**GEORGIA INSTITUTE OF TECHNOLOGY,**

**Atlanta, Georgia**

**BS/MS Honors Program in Aerospace Engineering**

*May 2027*

Minor in Computer Science with a Concentration in Data Analysis

**GPA: 4.0**

Relevant Coursework: Control System Analysis, Aerodynamics, Flight Test Engineering, Robust Control

## Skills

**Software:** MATLAB/Simulink, Python (NumPy, SciPy), Java

**Controls:** State-space modeling, PID/LQR tuning, stability analysis, root locus, frequency-domain methods

**Engineering Tools:** Cameo Systems Modeler, SolidWorks, STAR-CCM+

## Experience

**Aerospace Systems Design Laboratory, Atlanta, GA**

Nov 2024 – Aug 2025

*MBSE/SysML Research Assistant*

- Integrated Simulink dynamic models into SysML architectures using Cameo to trace 30+ subsystem requirements across a Concorde systems model.
- Developed parametric diagrams linking thermal regulations to control variables, establishing requirement-driven design.
- Created executable system instances to simulate subsystem interaction under transient operating conditions.

**NC State University, Raleigh, NC**

Mar 2021 – May 2023

*Research Assistant*

- Designed and built a miniature land-traversing robot using SolidWorks and 3D-printing focused on rapid testing hardware solutions and sensor implementation for a larger-scale robot.
- Developed MATLAB-based propulsion performance models analyzing thrust generation in low-traction environments.
- Validated large-scale helical propulsion system under simulated Arctic conditions.

## Projects

**GT Motorsports | Aerodynamics Sub-Team Member**

Sep 2025 – Present

*Designing and building a Formula 1 style car for an annual FSAE competition*

- Modeled aerodynamic force sensitivity on the downwash generators to ride height and pitch using CFD-generated data.
- Contributed to carbon fiber manufacturing and composite layup processes for aerodynamic components.
- Designed car body panels based on geometric requirements and a focus on DFM techniques.

**Reinforcement Learning Based PID Tuner | Individual Project**

Aug 2025 – Present

- Built a custom spacecraft landing simulation environment in Python for closed-loop control testing.
- Implemented an Advantage Actor-Critic (A2C) controller to tune PID gains dynamically based on trajectory error feedback.
- Reduced settling time and overshoot relative to baseline Ziegler-Nichols tuning through reward function shaping and hyperparameter optimization.

**Design Build Fly | Autonomous Ground Vehicle Team Member**

Aug 2023 – May 2024

- Contributed to multidisciplinary integration of air-to-ground autonomous system.
- Designed chassis and structural components for weight and stiffness optimization.
- Used OpenVSP to generate airfoil geometries and evaluate mission-specific aerodynamic trade-offs.

## INVOLVEMENT

**GT Men's Ultimate Frisbee, Atlanta, GA**

Aug 2023 – Present

*Team Captain, World Champion*

- Organized team events and budgets of up to \$15,000 for 250+ participants, securing funding and achieving 1st place at the U20 World Championships with Team USA.

**Triangle Ultimate, Chapel Hill, NC**

May 2025 – Sep 2025

*Head Coach*

- Led and coached practices for ultimate frisbee youth camps in the Triangle and worked with staff to create practice plans for younger children.

**Georgia Tech ECE, Atlanta, GA**

*Photography Assistant*

Aug 2023 – May 2024

- Captured professional photos for various student events and staff portraits. Recorded and edited faculty onboarding videos and other professional events around campus.