# Ethan Yoon

GNC Engineer

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## SKILLS

- MATLAB
- Simulink
- C++
- Python
- Kalman Filtering
- Sensor Fusion
- State Estimation
- Monte Carlo Analysis
- Flight Dynamics
- Git

## EDUCATION

**Master of Science** 06/2023

University of Washington

Seattle, WA

Aeronautics and Astronautics

## SUMMARY

GNC engineer with 3 years building guidance, navigation and control software for launch vehicles and autonomous drones. Designs Kalman filtering and sensor fusion algorithms, models flight dynamics in MATLAB and Simulink, and ports flight code to C++ with Monte Carlo analysis behind every release.

## EXPERIENCE

### GNC Engineer

08/2024 - Present

Evergreen Launch Dynamics — Kent, WA

Developer of a reusable small launch vehicle.

- Develop navigation filters for a **2**-stage launch vehicle, fusing IMU, GPS and star tracker data.
- Run Monte Carlo analysis of 5,000 trajectories per release to verify landing and margin requirements.
- Translate Simulink control laws into C++ flight code that passed 300 hardware-in-the-loop tests.
- Tune attitude control gains with flight dynamics models, cutting roll oscillation 40% on the third flight.

### Guidance and Controls Engineer I

07/2023 - 07/2024

Puget Aerial Robotics — Redmond, WA

Autonomous drone maker for inspection and delivery.

- Wrote state estimation code in Python for 4 drone models, bringing position error under 0.5 m.
- Built sensor fusion for lidar and visual odometry used in 1,200 autonomous test flights.
- Managed GNC code reviews in Git for a team of 6, holding test coverage above 85%.
- Tested flight software in 300 simulated missions before each field release, catching 14 control faults.

### Graduate Research Assistant

09/2021 - 06/2023

University of Washington Autonomous Flight Systems Lab — Seattle, WA

Research on navigation for small aircraft during the master's program.

- Designed a Kalman filtering method for GPS-denied navigation and presented it at a 2023 AIAA conference.
- Flew 80 quadrotor test flights to validate state estimation code in MATLAB and Python.
- Taught 2 flight dynamics lab sections for 40 undergraduate students.