

Samuel Lenc

samuellenc@gmail.com ♦ (971) 268-4954

SUMMARY

Aerospace Engineer, Specialize in GN&C, Software Development, and Embedded Systems

EXPERIENCE

Lead Systems Engineer

Washington Aerial Robotics

May 2024 – November 2025

Seattle, WA

- Directed flight computer system architecture and implementation on 3 quadcopter drones employing swarm coordination, environment mapping, and trajectory planning by applying MBSE method
- Designed custom PCB in Altium Designer for power management, ESD protection, and motor control, PCB assembly, soldering, masking, reflowing surface components and external connections
- Tested and Integrated avionics, validated digital signals through hardware-in-the-loop (HITL) tests

Undergraduate Researcher

University of Washington Aero & Astro Engineering Department

September 2023 – June 2024

Seattle, WA

- Integrated avionics for airbrake control of high-power rocket, guiding to target trajectory for 3 flights
- Constructed the avionics bay by soldering, harnessing, routing wires and 3D-printing housing units
- Fabricated airbrake deployment mechanism on lathe following GD&T guidelines with SolidWorks CAD, structural integrity verified in Ansys Mechanical FEA
- Programmed ESP32 firmware for servo actuation, data logging, and sensor reading, validated in HITL

Structures Lead

Washington Tunneling

October 2022 – April 2024

Seattle, WA

- Led 7 student engineers to shield electronics, pipes, and conveyor belt of a 1 meter wide tunnel boring machine (TBM), withstanding 300kPa maximum ground pressure
- Planned the manufacturing timeline of all structural components, procured tools and equipment, maintained bill of materials (BoM), allocated \$8,000 budget across 5 multidisciplinary teams
- Machined brackets and couplers with CNC mill for chassis connectors and laser cut the outer shell

PROJECTS

Quadcopter Simulation

- Built software-in-the-loop (SITL) Linux test environment interfaced with ROS2 and Gazebo
- Developed kalman filter, PID control, and trajectory optimization algorithms in C++
- Simulated disturbances and failure modes and validated fault tolerance from Monte Carlo runs

AeroTEC Sponsored Capstone Project

- Refurbished AeroTEC UAV avionics by configuring telemetry via Lua and automating tests using Python
- Modified AeroTEC's pilot training simulator, improving model fidelity and real-world accuracy
- Determined operational limits of flight maneuvers, power, and balance from CFD analysis in XFLR5

Flight Simulator

- Constructed a 6-DOF, non-linear dynamic model of the Boeing 777 with real-time inputs and visuals
- Incorporated numerical optimization techniques in Simulink for aircraft control and stability
- Hand-Calculated the analytical equations describing the flight dynamics, translated to MATLAB

SKILLS

Design: Altium Designer, MATLAB/Simulink, Ansys Fluent/Mechanical, SolidWorks, XFLR-5

Programming: C/C++, Python, Julia, Linux Development, Git, ROS2, Lua

Lab Equipment: Oscilloscope, Multimeter, Logic Analyzer, Function Generator

EDUCATION

Bachelor of Science, University of Washington

Aeronautical & Astronautical Engineering, 3.61 GPA, Dean's List

September 2020 – June 2025

Seattle, WA