Samuel Lenc

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SUMMARY

Aerospace Engineer, Specialize in GN&C, Test & Integration, and Embedded Systems

EXPERIENCE

Lead Systems Engineer   *May 2024 – November 2025*
Washington Aerial Robotics   *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   *September 2023 – June 2024*
University of Washington Aero & Astro Engineering Department   *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
- Validated and Programmed ESP32 firmware for servo actuation, data logging, and sensor reading

Structures Lead   *October 2022 – April 2024*
Washington Tunneling   *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   *September 2020 – June 2025*
Aeronautical & Astronautical Engineering, 3.61 GPA, Dean's List   *Seattle, WA*