

Ethan Gray Mechatronics Engineering Student

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TECHNICAL SKILLS

Software

Python, OpenCV, Pandas, NumPy, MATLAB, Java, C, C++, Git, VHDL, Assembly

Electrical

NI Multisim, Embedded Programming, Reading Datasheets, Lab Equipment, FPGA

Mechanical

SolidWorks, AutoCAD, Navisworks Simulate, 3D Printing, Laser/Waterjet Cutting, Machining, Composite Manufacturing, FEA

EDUCATION

University of British Columbia

Bachelor of Applied Science – 3rd Year Mechatronics Engineering, CGPA: 91.1%

TECHNICAL EXPERIENCE

UBC AeroDesign, UBC

Avionics

May 2023 – Present

- Designed a custom GNSS-aided inertial navigation system and implemented it in Python
- Utilized Folium, Pygame, OpenGL, NumPy, and Matplotlib to visualize flight data and generate flight diagnostics
- Implemented a GNSS/IMU data emulator to generate sensor data for system testing

Advanced Fuselage

September 2021 – May 2023

- Designed and tested tail boom attachments, empennage attachments, and sensor mounts in SolidWorks
- Manufactured the fuselage using techniques including laser/waterjet cutting, 3D printing, and carbon fiber layups

Seaspan ULC, Vancouver, BC

September 2023 – December 2023

Mechanical Engineering Intern

- Participated in 3D model reviews in Navisworks Simulate and updated system drawings in AutoCad
- Updated pipe support, routing, and coupling in six zones including the engine room on the Joint Support Ship
- Conducted proof of concept and financial analysis to justify the acquisition of a new machine that has the capacity to save Seaspan over \$200,000 on every applicable vessel built in the future

EBC – Site C Dam, Fort St. John, BC

May 2023 – September 2023

Field Engineer Intern

- Installed thermal sensors and boxes in concrete pours following thermal control drawings and recommended courses of action to maintain specified temperature differentials and thresholds
- Scheduled, performed, and documented inspections on grounding cables and second stage inserts
- Updated engineering drawings and prepared drawing packages for upcoming concrete pours
- Managed concrete pours onsite by ordering concrete trucks, checking pour rate with the formwork drawings, monitoring the thermal readings, and replacing damaged thermal sensors

TECHNICAL PROJECTS

Night Vision Monocular, C, MMAL, Bash, SolidWorks, 3D Printing, Soldering

- Architected and manufactured a digital night vision monocular that is compatible with helmet mounting technology and is competitive in cost and performance with available alternatives
- Wrote software for camera interfacing with MMAL and configured the SPI driver to get 60fps
- Designed the power circuit to meet the power requirements of the Raspberry Pi, have a battery life of at least 5 hours, and be safely rechargeable
- Designed the housing in SolidWorks in three revisions, with fixes/improvements made in electronics storage, ease of assembly, and mounting features

Discord Bot, Python, BS4, discord.py, NumPy, Matplotlib

- Programmed a Discord bot for analyzing the Escape from Tarkov economy and generating user-specified reports
- Implemented web scraping with BS4 to populate a custom data repository