Ethan Gray Mechatronics Engineering Student

ergray85@gmail.com | 604 618-4090 | GitHub | Portfolio

TECHNICAL SKILLS

Software
Python, OpenGL, 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**
- Developed a compartmentalized toolbox for GNSS-aided inertial navigation to provide accurate position, velocity, and attitude estimates to other software modules
- 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 in a custom test environment

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 Engineering 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 API 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