

ANTHEA BLAIS

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SKILLS

Software: C, C++, Python, HTML/CSS/JavaScript, Bash, SQLite, PostgreSQL, Linux, Git, Pytest, CMocka, Selenium, REST APIs, Azure DevOps (CI/CD), STM32CubeIDE

Hardware: STM32, Arduino ATmega2560, RF Communications, Soldering

EDUCATION

University of Victoria, Victoria, BC

2020 - Present

- Bachelor of Science in Computer Science

WORK EXPERIENCE

National Research Council - Herzberg Astronomy & Astrophysics Research Centre, Victoria, BC

Jan 2025 – Apr 2025

Junior Realtime Interface Software Engineer (Co-op)

- Redesigned and refactored the browser-based real-time user interface for the Herzberg Extensible Adaptive Real-time Toolkit (HEART) used in Adaptive Optics systems.
- Worked with HTML/CSS/JavaScript, C, Python, and Git in a Linux development environment on an Agile Scrum Team.
- Improved usability and scalability by restructuring the application layout based on user feedback and observed workflows; standardized component styling, spacing, and sizing.
- Improved user experience by implemented new UI features, including a dropdown error log viewer, and loading indicators.
- Enhanced code readability and maintainability by refactoring and debugging the web application's front-end codebase.
- Developed unit tests in C using CMocka to verify Adaptive Optics calculations and ensure correctness.
- Prototyped and presented an automated browser testing framework using Selenium and Python, enabling repeatable UI validation.
- Improved data handling by designing and implementing a JSON-based data transmission system between the server and web application.

Zetron, Victoria, BC

Sept 2023 – Aug 2024

Software Engineer Co-op

- Collaborated and consistently delivered scrum goals on two Agile Scrum Teams, one on an embedded Linux platform for a radio system product and another on a new library implementing the Digital Fixed Station Interface (DFSI) protocol.
- Automated the build, test, and deployment process by designing and implementing Azure DevOps YAML CI/CD pipelines.
- Led the design and implementation of an object-oriented automated test suite for the DFSI library, using Python and C++. Created a multithreaded, event-based architecture to simulate UDP packet transit between a Fixed Station Client and a Fixed Station Host. Integrated D-Bus, UDP Sockets, Pytest, and managed the library's executable as a background process.
- Decreased the product's automated test suite speed by 60 minutes through modifying and retrieving the radio system's internal epoch time via PUT and GET HTTP endpoints in C; verified functionality by creating Pytest tests.
- Monitored the radio system's SoM internal temperature and configured GPIO pin values via PUT and GET HTTP endpoints in C; verified functionality by creating Pytest tests.
- Contributed to developing a STM32L4 custom bootloader and implemented firmware update mechanisms in C.
- Integrated SWUpdate with the product's reverse proxy, along with obtaining the current and previous software versions in C. Crafted a JavaScript/HTML/CSS webpage to preform software updates and display software versions. Developed automated tests with Pytest and Selenium to validate both the front-end and back-end software update functionalities.

PROJECTS

Password Manager (in progress), https://github.com/Antheablz/password_manager

Jan 2025 - Present

- Developing a Python application for secure password storage. Implements PostgreSQL database integration and an intuitive Tkinter GUI for password entry, retrieval, and management.

Personal Portfolio Website (in progress), <https://github.com/Antheablz/Web-Portfolio>

June 2024 - Present

- Developing a responsive portfolio website using JavaScript/HTML/CSS to showcase personal software development projects, technical skills, and achievements.
- Implements interactive features such as pop-up dialogs, smooth navigation buttons, with optimization for both desktop and mobile views to enhance user experiences.

AI Snake Game, <https://github.com/Antheablz/AI-snake-game>

June 2024

- Developed and trained an AI agent using a forward-feeding neural network in Python to autonomously play a snake game. Utilized libraries such as PyTorch and Pygame.
- Visualized real-time progress with Matplotlib by generating scatter plots of the agent's scores, effectively demonstrating performance improvements, and learning trends.