MARIE ANNAËLLE ALISON EMILIEN

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SKILLS

- **Software & Scripting:** C, C++, MATLAB, HTML, CSS, Tailwind, Javascript, React, Python, Typescript, C#, Go.
- **Tools and Frameworks:** Git, CI/CD (Vercel), Git, Unity, VScode, Docker, Jenkins, AWS.

ENGINEERING UNIVERSITY PROJECTS

Capstone Project – Autonomous hosting Robot – On going
- Designing robot control logic in Stateflow to model high-level behaviors suitable for real-time implementation.
- Integrating Python-based RRT* algorithm with MATLAB to compute minimum-cost paths to target coordinates.

C++ Bonanza Card Game
- Leveraged Factory and Singleton design patterns for efficient card generation and state control.
- Ensured code modularity and maintainability by separating interface definitions from implementation logic.
- Optimized resource management by utilizing C++ smart pointers and STL vectors and lists to handle dynamic collections like player hands and card decks.

Streaks Tracker Discord bot
- Engineered a concurrent event loop to manage real-time interactions, reducing latency for command processing.
- Implemented asynchronous concurrency using Python's asyncio library to handle multiple user commands and event triggers simultaneously without blocking the main execution thread.

Water Quality Analyzer - https://youtu.be/vMlDdeUzurE
- Designed a front-end interface for real-time data display and analysis, integrating sensors with Arduino for data collection.
- Utilized Node.js to establish communication between the hardware and the web application, ensuring seamless data flow.

Project Engineering Portfolio Website – Interactive Terminal – Vite & Vercel Deployment – aliemi.com
- Developed a portfolio using Vite and integrated CI/CD pipelines through Vercel for automated builds and deployments.
- Built a centralized Notion-based knowledge base to document end-to-end hardware and software lifecycle

WORK EXPERIENCE

University of Ottawa – Teaching Assistant   *Jan 2024 – Apr 2026*
ITI 1500 – Digital System | GNG 1106 – C Programming
- Guided students through assignments with rapid code reviews and debugging support in Quartus and their selected IDE.
- Explained coding and digital design concepts to strengthen engineering skills during lab sessions and office hours.
- Strengthened students' understanding by helping them articulate their logic and providing real-time evaluation.

University of Ottawa – Pension and Benefits Assistant   *May 2023 – Apr 2026*
- Leveraged past experiences with systems such as Workday and Ariel database to anticipate common data discrepancies.
- Proactively document "lessons learned" from previous pension data validation tasks to refine future workflows.
- Applied "Divide and Conquer" logic to large incoming pension tasks, enabling continuous quality assurance without delays.

ACADEMIC EXPERIENCE

BASc Electrical Engineering and BSc Computing Technology, Electronics option   *Sept 2020 – May 2026*
University of Ottawa, Ottawa, Ontario
IEEE Member, 2024 – Present