MARIE ANNAËLLE ALISON EMILIEN

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SKILLS

- **FPGA and RTL tools:** Verilog, SystemVerilog, Quartus, Altera, GowinIDE, Tang Nano 9k, Python Cocotb, UVM.
- **EDA and ASIC tools:** Cadence Virtuoso, Cadence AWR, Yosys, KLayout, MagicVLSI, xschem.
- **Software & Scripting:** Python, C, C++, MATLAB, Simulink, Bash, TCL, Git, CI/CD (Vercel).

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 on Raspberry Pi to compute minimum-cost paths to target coordinates.

FPGA – ALU and UART
- Implemented an Arithmetic Logic Unit (ALU) and calculator using Verilog HDL with FSM and ASM-based control logic.
- Engineered a full-duplex UART controller featuring a custom baud-rate generator and finite state machines (FSM) for reliable serial communication between the FPGA and host peripherals.

ASIC – Cadence Virtuoso, HSPICE and Opensource
- Executed custom CMOS layout design and physical verification (DRC, LVS) in Virtuoso to ensure parasitic minimization.
- Explored open-source ASIC design tools to understand the RTL to GSDII process.
- Conducted transistor-level circuit simulations using HSPICE to analyze transient response, propagation delay, and power consumption (PPA) across multiple process corners.

Microwave Amplifier Design – Cadence AWR (2.8 GHz)
- Designed and simulated a 2.8 GHz microwave amplifier to achieve high gain and stability.
- Optimized S-parameters, biasing network, and matching circuits for efficient power transfer.
- Selected and analyzed a BJT transistor using its datasheet to determine biasing and performance parameters.

Project Engineering Portfolio Website – Vite & Vercel Deployment
- Developed a portfolio using Vite and integrated CI/CD pipelines through Vercel for automated builds and deployments.
- Applied Git-based version control and configuration management for maintainability.

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.
- 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