Caleb Joseph

(647) 335 - 9945 | caleb.joseph@torontomu.ca | linkedin.com/in/Calebj28 | github.com/Calebj28

Education

Bachelor of Engineering, Computer Engineering (Co-op) Toronto, ON

Toronto Metropolitan University *Sep. 2021 – Apr. 2026 (Exp.)*

- **Relevant Courses**: Digital Systems, Software Systems, Computer Organization & Architecture, Electronic Circuits, Data Structures, Embedded Systems, Object-Oriented Programming (OOP), Solid State Physics, Operating Systems

Technical Skills

Languages: Python, Java, C/C++, VHDL, SystemVerilog, Verilog, TCL, Perl, Bash/CSH
Technologies: Arduino, Multisim, Simulink, Intel Quartus II, ASIC/FPGA, RTL, UVM, Linux, UNIX
Frameworks, Dev. Tools & Libraries: React, Node.js, JUnit, Git, VS Code, Visual Studio, NumPy, Matplotlib, JSON
Other: Verification, Validation, Debugging, Scripting, CMOS, Digital Systems, VLSI Design, Computer Architecture

Experience

Video Domain Engineer Intern May 2024 – Present

Advanced Micro Devices (AMD) *Toronto, ON*

- Standardized a custom report generator using Python and RegEx for design verification regressions, reducing error repeatability steps by 30% and speeding up error identification by 40%.
- Developed a dynamic scheduler with Cron for parallel execution of design verification regressions, improving resource usage efficiency by 80% and reducing report generation time by 50%.
- Set up a UVM test bench using SystemVerilog and Verti for graphics encoder verification, ensuring accurate testing.
- Orchestrated a full-stack solution using React, Node.js, Python, JSON, and ThreadPoolExecutor, enhancing software security with CodeQL for static testing and reducing runtime by 50% through parallelized Git commits.
- Streamlined frontend development with GitHub Copilot, enhancing UI creation, code generation, refactoring, and real-time vulnerability detection, improving development efficiency.
- Utilized Bash scripting for automation and process improvement in various tasks, enhancing workflow efficiency.

Information Technology Intern May 2023 – Aug. 2023

Environics Analytics *Toronto, ON*

- Spearheaded donation of 30+ laptops, gaining expertise in computer software architecture, including BIOS, OS, and drivers, while ensuring data integrity via secure boot and UEFI, showcasing hardware diagnostics.
- Resolved firmware incompatibility for 150+ internal phones using IPv4, achieving annual cost savings of $5,000.
- Automated inventory cost allocation with a Python script for over 300 assets, improving efficiency by 40%.
- Deployed 10+ software packages using command line and PowerShell, enhancing software installation processes and gaining valuable scripting experience.

Projects

Multi-stage RISC Pipelined Processor | *VHDL, Quartus II, Cyclone-IV EP4CE115F29C7*

- Developed a 32-bit 3-stage pipeline RISC CPU in Quartus II using VHDL on an Altera DE2-115 FPGA board, achieving a target frequency of >50MHz.
- Designed and simulated a register set, program counter, ALU, data path, and control unit, leveraging instruction set architecture, register transfer, and control hardware, achieving efficient RISC processing.

Bluetooth RC Robot Car | *C, C++, Arduino UNO, L298 Motor, HC-05 Module*

- Engineered a Bluetooth-controlled RC robot car using Arduino, enabling remote control from smart devices and achieving seamless communication and control.

Bookstore Application Design Project | *Java, JavaFX, JUnit*

- Led a team in developing a JavaFX Bookstore App, incorporating UML diagrams, state design patterns, and a user-friendly GUI with a secure login system, efficiently parsing files to scale with customer and owner objects.
- Applied organizational, problem-solving, and communication skills to achieve a 100% in design documentation.

Helicopter Escapes | *Python, Jupyter Notebook, Wiki API, SQL*

- Interpreted escape data using Python, implementing dynamic bar plots to enhance communication of complex trends and demonstrating algorithmic proficiency through nested loops and conditional statements.