ANTHONY ALAM

OTTAWA, ONTARIO, CANADA | OPEN TO RELOCATING WITHIN CANADA AND TO THE U.S

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EXPERIENCE:

Cisco Systems | Software Engineer Intern (IOS XE)   **Kanata, Ontario | 01/2025 - 04/2025**
- Led the development of a code injection tool, created with Python (Flask), utilized by **50+ engineers** to hit previously untestable code and **increase line coverage by 13% and branch coverage by 22%** on average.
- Architected and developed a **ConditionBlock graph data structure**, used to store relationships between C code conditional statements, **reducing file parsing time by 18% and memory usage by 20%** compared to the current implementation.
- Developed a **library of 15 utility functions** for ConditionBlock graphs, already **leveraged in 20+ Python files**, providing functionality for traversals, generating conditional statement paths and writing object info to SQLite databases.
- Designed and implemented automated pre-commit routines, leveraging Python (pyATS) and YAML, entirely **eliminating a 2-hour manual upgrade and downgrade process** for Cisco Catalyst 9400 series switches.

Cisco Systems | Software Engineer Intern (IOS XR)   **Kanata, Ontario | 05/2024 - 08/2024**
- Led the development of an automated test suite, written in Python (pyATS) as part of **a multi-million dollar contract** to enhance the functionality of gRPC (gNMI) requests to Cisco routers.
- **Prevented client network downtime** by leveraging trace calls and the GDB debugger to diagnose and resolve critical codebase failures and **flagged 5+ self-discovered false positive errors** throughout the IOS XR codebase.
- Developed unit tests with C (Cmocka) and **increased line coverage by 5%** to achieve **team's codebase coverage goal of 80%**.
- Upgraded team's nightly sanity runs to include ASan and Valgrind analyses, significantly **improving the maintainability of 100+ C files** and **greatly enhancing bug detection processes**.

ThinkBeyond AI | Software Development Consultant   **Ottawa, Ontario | 06/2023 - 08/2023**
- Created web scraper routines, with Node-Red and JavaScript, in order to **automate invoice downloading for 100+ mobile data and internet providers** by fetching authentication information from NocoDB.
- Monitored and executed Python (Selenium) routines ensuring **that 1000+ clients** receive new invoices expeditiously.

EDUCATION:

University of Ottawa | BASc in Software Engineering (CO-OP)   **Ottawa, Ontario | Graduation: 12/2027**
- **CGPA: 9.87/10 (3.95/4) | Dean's list**

PROJECTS:

Award Winning ChatBot Accessibility Tool (with Rutgers University) | Front End Design, OpenAI API | Github
- Spearheaded the development of a grant-winning full-stack application for Rutgers University, utilizing JavaScript and the GPT-4o API to assess the accessibility of online courses. Central to the project was a custom-built CSV parser capable of efficiently analyzing thousands of lines of exported Canvas data, enabling faculty to upload course content and instantly receive tailored recommendations aligned with the WCAG 2.1 standards.

Event Attendance Management System (EAMS) | Android Studio Application | Github
- Developed a full stack Android Studio application with 3 colleagues that utilized Java and Firebase Realtime Database manipulation to support lightning fast **user enrollment** and **event registration**. Users can, **depending on their permissions**, approve account creation, create events with registration limits, and easily find new events via a dynamic search bar.

SKILLS AND KNOWLEDGE:

Programming and Scripting Languages: Python, C, Java, JavaScript, Node-Red, SQL, YAML

Frameworks, Tools and Platforms: HTML, CSS, Flask, Selenium, pyATS, Cmocka, Git, GitHub, CI/CD pipelines, Android Studio, Firebase Realtime Database, SQLite, VS Code, MS Office Suite, VNC Server, Unix, Linux (RHEL), Jira, Jenkins, Figma

Engineering: Frontend/Backend Development, API Development, Agile Development, Automation Testing, Object-Oriented Design, Computer Networking, Distributed Systems, Relational Databases, Parsers, Debugging (GDB, Valgrind), Complexity Analysis

Relevant Courses: Data Structures and Algorithms, Digital Systems and Computer Architecture, Software Engineering Design Patterns, Operating Systems, Quality Assurance, Discrete Mathematics, Linear Algebra, Calculus I and Calculus II