Aaron McLean

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Education

Carleton University, Ottawa, Ontario
Bachelor of Science, Computer Science (B.C.S)

- Recipient of C.J. Mackenzie Scholarship Award
- Pursued research in Quantum Communications and Networking

Work Experience

Software Developer *2024 – 2025*
Chimoney, Ottawa, Ontario

- Contributed to the mobile development team of Chimoney's global payment processing platform.
- Developed a modular iOS SDK in Swift for the Chimoney API, leveraging Alamofire for network handling, XCTest for unit testing, and wrote extensive documentation for integration into mobile applications.

IT Infrastructure Consultant *2023*
Stone Tree Clinic, Collingwood, Ontario

- Designed and implemented a secure file-sharing system based on the clinic's specifications using network-attached storage, incorporating role-based access control (RBAC) and encrypted data transfer protocols.
- Performed comprehensive diagnostics and timely resolution of critical point-of-sale functionality issues.

Technology Representative *2018 – 2022*
Staples Business Depot, Collingwood, Ontario

- Refined technical communication skills by translating complex technical concepts for non-technical customers, effectively driving sales by recommending tailored and premium software and hardware solutions.
- Conducted diagnostics for a wide range of technical challenges, showcasing proficiency in system troubleshooting, performance optimization, and solution implementation to ensure customer satisfaction.

Applied Projects

Quantum-Assisted Blockchain Consensus

- Developed a quantum-enhanced blockchain consensus protocol using Qiskit, replacing proof-of-work with fidelity checks for quantum state agreement across distributed nodes efficiently.
- Implemented quantum hashing, teleportation, and entanglement to optimize block validation, ensuring decentralized integrity with robust security and performance improvements.
- Benchmarked quantum vs. classical consensus using IBM's Aer simulator, analyzing throughput.

Neural Network Architecture

- Developed and optimized a neural network to extract diagnostic information from chest X-ray images.
- Designed a network architecture incorporating Conv2D, MaxPooling, Dense, and Dropout layers, and trained the model on AWS using TensorFlow's mixed precision for improved efficiency and scalability.
- Adapted the model for mobile platforms on resource-constrained environments, optimizing its performance and maintaining usability on Apple M-Series CPUs through lightweight architecture optimizations.

Technical Skills

Programming Languages:
C, C++, Go, Rust, Java, Swift, Python, R, Haskell, JavaScript, TypeScript, Objective-C, CSS

Frameworks & Libraries:
Node.js, jQuery, JSON, RESTful APIs, TensorFlow, MATLAB, Express.js, OpenGL

Tools & Technologies:
Git, SVN, JIRA, Travis CI, AWS, Azure, Docker, Kubernetes, SQL, MongoDB, Jupyter, IBM SPSS, QNX, Embedded Systems, Real-Time Operating Systems (QNX), Parallel Computing, Compiler Construction