Aaron McLean

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Education

Carleton University, Ottawa, Ontario *2021 – 2025*
Bachelor of Computer Science (B.C.S.)

- Recipient of C.J. Mackenzie Scholarship Award
- Conducted applied research in quantum communication

Work Experience

Software Engineer *2025*
MEDATech Engineering, Collingwood, Ontario

- Developed Linux-based HMIs for heavy equipment using CodeSyS, implemented control algorithms in Structured Text, optimizing automation and reliability of large-scale electric machinery through iterative testing.

Software Developer *2024*
Chimoney, Ottawa, Ontario

- Collaborated with Chimoney's mobile-payment team in an Agile Fintech startup environment, extended wallet endpoints, and implemented subaccount routing to support multi-entity payouts.
- Delivered components for the Chimoney iOS SDK and authored extensive API documentation, enabling partners to more effectively launch integrations and reducing API support tickets by more than 40%.

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 high-priority point-of-sale functionality issues.

Technical Projects

Quantum Blockchain Consensus Protocol

- Synthesized a quantum-resistant blockchain consensus protocol that replaces proof-of-work with quantum state fidelity checks, significantly lowering the computational cost of block finalization.
- Implemented quantum hashing, teleportation, and entanglement validation using IBM Qiskit, delivering a five-layer encoding circuit deployable on quantum hardware.
- Benchmarked quantum vs. classical implementations and authored an accompanying research paper illustrating how fidelity-based consensus can propel decentralized payments beyond classical computational limits in the domain of performance, scalability, and security.

Neural Network Architecture

- Developed and optimized a convolutional neural network for diagnostic classification of chest X-rays.
- Optimized model architecture to maximize performance on resource-constrained machines.
- Adapted for deployment on mobile hardware by implementing mixed precision policy, Metal backend acceleration, and tailoring data pipeline for efficient memory and compute performance on Apple Silicon.

Technical Skills

Programming Languages:
C, C++, Haskell, JavaScript (ES5 / ES6), MATLAB, Python, Rust, Swift, TypeScript, *SQL*

Frameworks & Libraries:
.NET, Express.js, jQuery, Node.js, OpenGL, Simulink, TensorFlow

Tools & Technologies:
AWS, Azure, Docker, Git, IBM SPSS, JIRA, Jupyter, Kubernetes, QNX