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
- Pursued research on blockchain consensus mechanisms leveraging quantum state fidelity

Work Experience

Software Engineer *2025 - Present*
MEDATech Engineering, Collingwood, Ontario

- Engineered embedded software control systems for custom industrial machinery collaborating closely with electrical and mechanical engineering teams to ensure robust maintainable solutions
- Integrated an automated testing procedure for vehicle control modules, replacing intensive manual processes and increasing manufacturing throughput to accelerate the delivery of a large-scale custom vehicle order
- Engineered and commissioned a custom pile-top drill-rig control system, leveraging continuous gyroscopic feedback to correct drill path deviation and ensure millimeter tolerance ore extraction
- Integrated cross-platform API integrations to automate data synchronization between financial and project management systems

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

- Collaborated on a distributed payment API with Node.js, implementing subaccount routing to support multi-entity payouts with cross-platform integration
- Succeeded in a remote-first setting, contributing features effectively across global software engineering teams

IT 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 and networking best practices

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

Neural Network Architecture

- Developed and optimized a convolutional neural network for diagnostic classification of chest X-rays
- 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++, JavaScript, MATLAB, Python, Rust, Swift, IEC 61131-3, *SQL*

Frameworks & Libraries:
Express.js, jQuery, Node.js, React, Simulink, TensorFlow, CodeSys

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