

# Aaron McLean

📍 Ottawa, Canada    ✉ aaronmclean26@gmail.com    🌐 aaronmcleans    ☎ 705-351-1704

## Education

### Carleton University, Ottawa, Ontario

2021 – 2025

*Bachelor of Science, Computer Science (B.C.S)*

- Recipient of C.J. Mackenzie Scholarship Award
- Member of the Computer Science Society and Artificial Intelligence Society
- 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 Computing Capstone Project

2025

- Designed and implemented a multi-node quantum key distribution protocol using Qiskit, leveraging advanced entanglement techniques to simulate communication under realistic noise models locally and securely.
- Engineered a secure end-to-end quantum communication architecture by integrating classical post-processing techniques, ensuring resilient key exchange between distributed nodes with minimal latency impact.
- Applied advanced quantum error mitigation techniques to address channel noise and gate imperfections.

### Neural Network Architecture

2024

- 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