Jacob Antonious

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Education

Queen's University **Sep 2022 - Apr 2026**
Bachelor of Computer Engineering, *Kingston, ON*

Relevant Coursework: Intro to Programming, Data structures and algorithm, Object Oriented Programming, Computer Architecture, Intro to Data Science, Operating Systems, Algorithms, Software Development Methodology.

Experience

Software Developer Intern **May 2024 – August 2024**
Univerus - Sport and Recreation

- **Collaborated** with a development team using **Jira** for project management, and **Git** and **GitHub** for version control.
- Implemented front-end features using **HTML**, **CSS**, and **JavaScript** to enhance user experience based on client request
- Utilized **PHP**, **SQL**, and **MySQLi** for backend development to manage server-side logic and **database** interactions.
- Integrated **AJAX** calls to enable **asynchronous** data retrieval and improve application responsiveness.
- Worked with **APIs** and **Postman** to handle real-time data and trigger events by interacting with specific **endpoints**.

Queen's Cryptography and Cybersecurity Club **Jan 2024 – Present**
Founder *AMS Ratified*

- **Founder** and currently serving as the **President** of **Q3C**. Queen's one and only Cryptography and Cybersecurity club.
- **Leading 50+** members and multiple specialized teams tackling **real world** problems in the cybersecurity and cryptography space in the form of **software** and **hardware** projects
- Under my lead, Queen's competitive capture the flag team rose to **9th** in Canada.

Projects

Cat Feeder **C/C++ | HTML | CSS | Java-Script**

- **Engineered** automated cat feeder using **ESP32** WiFi chip to set up an **access point**, allowing users to connect to a custom-made **website** and select the desired amount of cat food to be dispensed based on weight.
- Designed and created a custom **PCB** and **CAD** design to integrate and enclose the **ESP32**, servo motor, and weight plate for seamless operation.

Restaurant Management Software **C++**

- **Collaborate** with a team of 8 to designed a **graphical user interface (GUI)** for the layout of a restaurant, allowing users to sign in, reserve specific tables, and pay the bill through the **software**
- Utilized **C++** and **Qt** framework for the development of the **front-end GUI** and implemented server-side **back-end** to manage user accounts, ensuring **secure** and **efficient** account creation and management.

Smart Sign Language Glove Translator **C | Arduino | UART**

- Utilized **Arduino Uno Wi-Fi** and flex sensors to **track** finger movements for translating **American Sign Language**, incorporating **reset** and **space** features, resulting in a **75%** translation accuracy.
- **Translations** are outputted on a custom made **website** through the Arduino Uno Wi-Fi **Universal Asynchronous Receiver and transmitter capabilities.**

Quantum Key Distribution Algorithm | QMIND **Python | Qiskit**

- Application of **Quantum Computing** to simulate **quantum key** generation system for use with **network communication** using **Python** and **Qiskit** library
- **Quantum Keys** will be generated by passing **Quantum Circuit objects** from user to user. Generated keys will be interfaced with **SSH** for identity verification and encryption.
- Final product presented at **CUCAI 2024**

Technical Skills

Languages: C, C++, Java, Java-Script, HTML, CSS, Python, PHP, SQL, Assembly
Developer Tools: Git/GitHub, Jira, MySQL Workbench, Postman, VS Code, Qt, Firebase