Jeremy Mark Tubongbanua

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Education

University of Ontario Institute of Technology Ontario, Canada
Bachelor of Engineering, Software Engineering (cGPA: 3.93) *Sep. 2021 – Apr. 2025*

- VP Communications for OTU CS Club (Apr. 2023 – Apr. 2024), responsible for internal/external communications, sponsorship hunting, assisting in organizing career-building workshops and events
- Relevant courses: Computer Networks, Introduction to AI, Operating Systems, Software Quality, Software and Computer Security, Embedded Systems, and Machine Learning

Work Experience

Software Engineer Jun. 2021 – Present
Atsign *San Jose, CA (Remote)*

- Represented Atsign at CES 2024 and Embedded World 2024, collaborating with the Qt Company to develop and showcase innovative IoT demos, including a smart IoT plant and an automated beer system
- Lead C developer overseeing the design, development, and maintenance of multiple SDKs used across Atsign products, ensuring secure IoT communication and edge encryption between networking devices used in real customer environments
- Actively contribute to cross-functional team communication, providing technical support to marketing, assisting with intern mentorship and recruitment, and participating in daily stand-up meetings

Volunteer Experience

FIRST Robotics Judge Advisor and Mentor Jun. 2020 – Present
FRC 5596 Wolverines *Toronto, ON*

- Volunteered as Regional Judge Advisor for the Mary Ward FLL Qualifier and as Provincial Judge for Ontario West/East FLL and FTC provincials, supervising up to 16 adult volunteers and judging elementary and high school robotics teams for two consecutive years
- Mentored grade 9-12 FRC students in Java and Robotics programming, leading weekly workshops over four months and providing guidance to up to 10 students at a time

Cpp North Volunteer Jul. 2023
CppNorth *Toronto, ON*

- Presented my own lightning talk on my experiences on carpal tunnel syndrome as a programmer with 50+ live attendees
- Volunteered in set up, tear down, and as a camera volunteer and time keeper for the full duration of the three-day long conference

Projects

Atsign C SDK | *C, CMake, IoT, Cryptography, Networking, Cross-Platform Development* Sept. 2024

- Lead developer of the C SDK, enabling secure IoT communication for devices in lower-level constrained environments
- Developed core AES-256 and RSA-2048 cryptographic implementations, end-to-end encryption, and atProtocol operations in C99 using MbedTLS, Espressif-IDF and CMake
- Library was successfully used as a core dependency of the NoPorts product re-written in C to allow for lower-level operating systems, such as OpenWRT, to be remotely accessible without exposing open port vulnerabilities

Atsign NoPorts C Daemon | *C, CMake, Cryptography, Networking* Sept. 2024

- Assisted in development of C Daemon software, utilized by customers seeking an easy-to-use security solution while maintaining their pre-existing remote access solutions
- Developed initial SSH NoPorts Docker end-to-end regression tests that simulated and tested the full NoPorts handshake between two Docker containers without opening any external ports
- Enhanced software stability and security by ensuring NoPorts operates without traditional port exposure, over long durations, and is free from memory leaks, utilizing tools like Valgrind and AddressSanitizer

jeremymark.ca | *Node.js, React, Tailwind CSS, Docker, Linux* Sept. 2024

- Designed and developed personal portfolio website in React and Tailwind CSS, featuring project/experience filtering, integration with the Spotify API, and a custom framework for easily adding and displaying new content
- Deployed on a Linux VPS using Docker Compose with three containers: one for the React web app, one for the Spotify API (on the subdomain spotify.jeremymark.ca), and an Nginx service for traffic routing, with SSL certificates for secure HTTPS access

codecraft.io | *Docker, React, AI/ML, Nginx* Aug. 2024

- Developed and deployed a code learning platform, leveraging Wolfram AI/ML that provides real-time coding assistance for the user, submitted to Ignition Hacks 2024
- Implemented a backend API that connects to a Docker containerized code-building service, which compiles and executes user-submitted code from the platform's interface

WeeklyWardrobe | *Node.js, React, Docker, CI/CD* May. 2024

- Developed and deployed a web application that allows users to subscribe to a service where they can borrow and try on clothing for a week, rate their experience, and receive personalized clothing, submitted to HawkHacks 2024 (Waterloo In-Person Hackathon) YouTube demo
- Implemented a Node.js Express backend API to service the front-end application, and implemented a full DevOps CI/CD pipeline using GitHub Actions and Docker for deployment on a Linux VPS, source code on GitHub

Qt/Atsign IoT Plant Demo | *Python, Qt (Python), Fusion360, Linux, Robotics* Jan. 2024

- Designed and developed a smart IoT plant with 4 sensors and 1 actuator that can be remotely controlled securely using Atsign's secure networking technology and Qt's rich user interface
- Closely involved in joint partnership between Atsign and Qt, where project was selected to be displayed at CES 2024 in Las Vegas as a demo at the Qt Company's booth, showcased to 138k+ attendees

Atsign ESP32 SDK | *C++, IoT, Cryptography, MbedTLS* Jun. 2023

- Lead developer of the C++ ESP32 Arduino SDK, enabling ESP32 Arduino developers to utilize the atProtocol for secure IoT communication via edge encryption
- Developed core AES-256 and RSA-2048 cryptographic implementations, end-to-end encryption, and atProtocol operations in C++ using Arduino IoT Development Framework
- Library was successfully used as a core dependency in UMass Boston's 2022/2023 Computer Science final projects, utilized by 125 students

Twitch IoT Plant | *Node.js, Raspberry Pi, Robotics* May. 2021

- Designed and developed a smart automated IoT plant system that can be watered by Twitch viewers in real-time during live streams based on events like follows, subscriptions, and donations
- Utilized a Raspberry Pi Zero running a Node.js web server to control a DC water pump, triggered by API requests from a secondary web server that listens for Twitch event interactions
- Showcased the project in action during a live stream here

Timber | *Spigot API, Java, Maven* Apr. 2019

- Developed a Minecraft plugin allowing trees that server owners can download and use in their own multiplayer servers using Spigot as a JAR dependency
- Achieved a peak of 15 concurrent servers using the plugin and 2.5k+ downloads