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: Systems Programming, Software Design and Architecture, Data Management systems, Design and Analysis of Algorithms, 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

VP Communications Apr. 2023 – Apr. 2024
OTU CS Club *Oshawa, ON*

- Led internal and external communications, managed sponsorship hunting, and coordinated career-building workshops and events for the club

Volunteer Experience

FIRST Robotics Judge Advisor and Mentor Jun. 2020 – Jan. 2024
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

FRC 2020 Robot | *Robotics, Java* Jun. 2024

- Lead programmer for the FRC 5596 Robotics team, resolved a mechanical issue by utilizing 6 ball-point sensors and controlling belt motors to efficiently organize and move balls to the shooter
- Implemented a 6-ball scoring autonomous routine within a 15-second timeframe using motion profiling and PID robotics techniques, written in Java with WPI Lib (YouTube demo)

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