

# Jeremy Mark Tubongbanua

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## SKILLS

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**Programming Languages:** C, C++, Java, Python, JavaScript

**Frameworks & Libraries:** React, Node.js, Express, Flask, MbedTLS, Espressif-IDF, Arduino

**Tools & Technologies:** Docker, Git, CMake, Maven, Linux, Fusion 360, 3D Printing, CI/CD (GitHub Actions)

**Soft Skills:** Leadership, Communication, Team Collaboration, Project Management, Mentorship

## EDUCATION

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**University of Ontario Institute of Technology**

Sep. 2021 – Apr. 2025

*Bachelor of Engineering, Software Engineering*

*Oshawa, ON*

- Current cGPA: 3.88 (4.0 Scale)
- Relevant coursework: Systems Programming, Software Design and Architecture, Data Management Systems, Design and Analysis of Algorithms, Computer Networks, Introduction to Artificial Intelligence, Operating Systems, Software Quality, Software and Computer Security, Embedded Systems, and Machine Learning

## WORK EXPERIENCE

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**Software Engineer (Contract Part-Time)**

Aug. 2022 – Present

*Atsign*

*San Jose, CA*

- 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
- 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 beverage dispenser
- 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

**Technology Intern**

Jun. 2022 – Jul. 2022

*Atsign*

*San Jose, CA*

- Implemented CRAM authentication and CRUD operations for the company SDK implemented in the atProtocol using Java and Maven
- Led a complete revamp of the developer website using HTML, CSS, and JavaScript; utilized the Hugo framework to create a standardized structure for developer documentation, making it easier for technical writers to add new content uniformly to the site

## LEADERSHIP EXPERIENCE

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**Vice President of Communications**

Apr. 2023 – Apr. 2024

*Ontario Tech University Computer Science Club*

*Oshawa, ON*

- Led internal/external communications and managed general club member monthly newsletter
- Managed sponsorship acquisition and coordinated career-building workshops and events for the club

**Robotics Judge Advisor**

Nov. 2022 – Dec. 2023

*Mary Ward FIRST Lego League Qualifier*

*Toronto, ON*

- Served as Judge Advisor, coordinating 25 adult volunteers and 4 student timekeepers, overseeing judging of robotics teams and ensuring judging standards are upheld
- Communicated safety expectations and event logistics to event attendees, ensuring safe and efficient operations

**Cpp North Volunteer**

Jul. 2023

*CppNorth*

*Toronto, ON*

- Created and presented my own lightning talk on my experiences with 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

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- Atsign C SDK** | *C, CMake, IoT, Cryptography, Networking, Cross-Platform Development* Oct. 2024
- Lead developer of the C SDK, enabling secure IoT communication for devices in low-level constrained environments and enables development of applications in niche operating systems like OpenWRT
  - Developed core AES-256 and RSA-2048 cryptographic implementations, end-to-end encryption, and atProtocol operations in C99 using MbedTLS, Espressif-IDF, and CMake
  - SDK is successfully used as a core dependency for the NoPorts product, enabling secure remote access without exposing open port vulnerabilities for niche customer hardware devices and operating systems
- Atsign NoPorts C Daemon** | *C, CMake, Cryptography, Networking* Oct. 2024
- Developed C Daemon software, enabling customers to route inbound traffic into their Linux servers without opening any external ports, while maintaining functionality of their original application layer tools, like SSH
  - Implemented 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, using Bash scripts
  - 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
- Qt/Atsign IoT Plant Demo** | *Python, Qt (Python), Fusion360, Linux, Robotics, 3D Printing* Jan. 2024
- 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
  - Designed and developed a smart IoT plant with 4 sensors and 1 actuator that can be remotely and securely controlled using Atsign's secure networking technology and Qt's rich user interface
- Atsign C++ ESP32 Arduino 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 MbedTLS and 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
- FRC 2020 Robot** | *Java, Robotics* May. 2020
- Designed and developed a 6-ball autonomous function that scored six points within fifteen seconds using techniques like PID control, motion profiling, and OpenCV vision, written in Java
  - Developed a software solution to overcome a mechanical issue with the Intake Subsystem by cascading the balls in an orderly fashion using 7 ball point sensors; wrote 1500 lines of code to track ball positions, count the balls, and decrement the counter when balls were ejected
- Timber** | *Spigot API, Java, Maven* Apr. 2019
- Developed and deployed Minecraft server plugin published on SpigotMC allowing trees to be broken in one break, using recursive principles
  - Achieved a peak of 15 concurrent servers using the plugin and 2.5k+ downloads

## AWARDS

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- 1<sup>st</sup> Place Overall** Oct. 2024  
*NASA Space Apps 2024* *Ontario Tech Faculty of Business and IT*
- Awarded 1<sup>st</sup> place overall with best project out of 55 competitors at the NASA Space Apps 2024, Oshawa event
  - Developed a website that generates STL meshes from SWOT (surface water and ocean topography) and DEM (digital elevation model) data from NASA Earthview open-source satellite data
- 2<sup>nd</sup> Place Overall & Best UI/UX** Apr. 2023  
*Schulich Hacks 2023* *Schulich School of Engineering — University of Calgary*
- Awarded 2<sup>nd</sup> place and Best UI/UX award out of 48+ in-person competitors at the University of Calgary
  - Developed a system integration application that allowed grocers to provide a QR code to educate customers of the environmental impact of the products they purchase and provide friendlier alternatives
- 1<sup>st</sup> Place Overall** May. 2021  
*UW Blockchain Hackathon 2021* *University of Washington*
- Won 1<sup>st</sup> place out of 80+ virtual competitors at University of Washington's Blockchain Hackathon in 2021
  - Developing a Discord game bot in Node.js that gamifies blockchain and cryptocurrency for educating the layman