

# Ryan Y. Tanaka

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## EDUCATION

### University of Hawaii at Manoa

Master of Science in Computer Science; GPA: 3.92

Honolulu, HI

Jan. 2017 – July 2019 Expected

### University of Hawaii at Manoa

Bachelor of Arts in Communicolgy; Major GPA: 3.45

Honolulu, HI

Aug. 2010 – May. 2014

## EXPERIENCE

### Graduate Research Assistant

### Concurrency Research Group

Jun. 2018 - Present

*WRENCH v1.0.0 beta - v1.4: distributed computing simulation framework (C++ 11, GoogleTest, CMake)*

- Developed user and internal API for logging and obtaining simulation data from core services.
- Designed a backtracking search algorithm that generates suitable Gantt chart layouts for plotting multicore CPU utilization data. Resulted in the discovery and resolution of a major resource allocation bug.
- Implemented the decentralized network coordinate system, Vivaldi, into a network proximity service. Facilitated a range of scenarios to be simulated by supporting configurable host communication patterns.
- Wrote GoogleTest unit tests for 10 new features and maintained a test coverage rate of at least 90 percent.

*WRENCH Pedagogic Modules: distributed computing courseware (C++ 11, Javascript, Node, D3, Docker)*

- Created a visualization tool that allows users to execute WRENCH simulations through the browser and view interactive SVG visualizations of their data.
- Developed 3 SVG visualizations with D3 that are currently being adopted into the core WRENCH codebase.
- Integrated OAuth2 Google authentication into the application and developed the data acquisition pipeline for conducting user usage analytics.

### Software Developer

### Environmental Research and Design Lab

Aug. 2017 - Present

*SurveyAdmin: web application for distributing online surveys (Python, Flask, Javascript, SQL, Postgres)*

- Eliminated data acquisition delay time by directly connecting application component with Postgres database.
- Implemented create, read, update, and delete functionality into the web application.
- Configured a Vagrant environment with project dependencies and database schemas provisioned so that incoming student developers have an easier time developing and testing locally.

### Robotics Coach

### Maryknoll School

Aug. 2016 - Apr. 2017

- Guided team to a 1st place victory out of 47 teams at the 2016 Aloha Vex IQ Qualifier, and a 2nd place victory out of 35 teams in the autonomous category of the Vex CREATE U.S. Open Robotics Championships.

## PROJECTS

- Steganographic Protocol** Developed a program to encode and decode an AES encrypted image within in image in parallel. (C++ 11 threads, OpenCV, Python)
- MPI Reduction Algorithm Implementation and Benchmarking** Implemented 3 Message Passing Interface reduction algorithms from scratch, then benchmarked them against a newly proposed greedy algorithm using a range of message sizes on a simulated HPC cluster platform. (C, Python)

## ADDITIONAL EXPERIENCE AND AWARDS

- Intel Student Ambassador Certificate of Appreciation Q1 2018**
- Spring 2017 Office of Graduate Education Dean's Achievement Scholarship**
- Nasa Space Apps Challenge World Semi-Finalist** Created a "revolving sun" weather module in C# for a Unity game. Our team exhibited the game at TEDxHonolulu 2016.
- AT&T Mobile App Hackathon 2016 2nd Place Winner** Coded an Android application GUI in Java and XML for a "smart mailbox" project and pitched idea to panel of judges.