Ryan Y. Tanaka

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Education

University of Hawaii at Manoa — Honolulu, HI
Master of Science in Computer Science; GPA: 3.90 — *Jan. 2017 – May 2019 Expected*

University of Hawaii at Manoa — Honolulu, HI
Bachelor of Arts in Communicolgy; Major GPA: 3.45 — *Aug. 2010 – May. 2014*

Experience

Graduate Research Assistant — **Concurrency Research Group** — *Jun. 2018 - Present*

WRENCH v1.0.0 beta - v1.2: distributed computing simulation framework (C++11, STL, GoogleTest)

- Developed user and internal API for logging and obtaining simulation data from core services.
- Designed a backtracking search algorithm that generates custom Gantt chart layouts for plotting multicore cpu utilization. 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 9 feature requests and maintained a test coverage rate of at least 90 percent.

WRENCH Pedagogic Modules: distributed computing courseware (C++, 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. Used asynchronous requests to evoke a responsive dashboard feel.
- Developed 3 SVG visualizations with D3 that are currently being adopted into the WRENCH codebase.
- Coauthored 4 lessons covering distributed computing concepts, which are to be adopted into the Spring 2019, undergraduate operating systems course syllabus.

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.
- Implemented CRUD functionality into the web application for survey questions.
- Set up a Vagrant environment with project dependencies and database schemas pre-configured so that incoming student developers have an easier time developing 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, Cryptopp, 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 was invited to demo 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.