

Sam Clark

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EXPERIENCE

Raytheon BBN — Cambridge, MA

Staff Scientist I, Software

January 2021 - PRESENT

Graduate Intern, Software

June 2020 - August 2020

- Helped write and optimize a real-time C++ program from a Matlab source.
- Worked with embedded devices using C++, Python, GNU Radio, and Buildroot.
- Wrote various tools and C++ mex functions for Matlab.
- Setup an automated build system using Jenkins, Autotools, GitLab, and GoogleTest.
- Helped implement a detection, localization, and tracking system in C/C++. Additionally wrote Python scripts to test and measure various aspects of the system.
- Designed and implemented a user interface. Created mockups for different displays and features.
- Provided documentation for the client, which included my design and code contributions.

UVM Department of Computer Science — Burlington, VT

Graduate/Research Projects

August 2019 - March 2021

- Led a team of graduate students in the creation of a software defined network of Raspberry Pis for use in teaching and future research projects. Created an SDN controller that allows students to upload forwarding tables via a REST API which deploys the tables to the Pis running OpenVSwitch. Additionally implemented an API to set the topology of the network by bringing up and down outgoing ethernet interfaces on the devices.
- Created a Python framework built on Flask for implementing simple micro-service architectures. Modified an existing network security program to work with the framework.
- Worked on a secure multi-party computation project that facilitated the transfer of data between parties performing machine learning computations. Helped to develop a Python MPC library and an optimized C++ MPC server. Additionally ran networking experiments on AWS to collect results for the paper.

Research Assistant

May 2019 - August 2019

- Contributed source code and data to a research project on dynamic taint analysis in Java. Our paper is published in the [Journal of Computer Security](#).
- Modified existing taint analysis software for Java with additional features for taint propagation and logging.
- Built software to test the modifications by traversing an instance of [OpenMRS](#) and logging information needed for the paper.

Teaching Assistant

January 2018 - December 2020

- Teaching assistant for UVM's Computer Organization, Algorithm Design & Analysis, and Computer Networks classes.
- Presented and facilitated weekly programming labs.
- Graded student assignments, labs, and exams.
- Wrote assignments and labs completed by students, as well as corresponding solutions and rubrics.
- Held office hours for students wanting help with homework, labs, and final projects.
- Guest lectured on introductory topics in computational tractability and asymptotic notation for UVM's Algorithm Design and Analysis.

Vermont HITEC — Burlington, VT

Software Development Intern

June 2019 - August 2019

Developed the infrastructure for two online Computer Science classes for high school students. This was an open source project and is hosted on a [public Github repository](#).

- Implemented a web portal for students, mentors, and instructors to interact with the course content.
- Implemented a web hosting service using Nginx that allows students to host static files and Python Flask applications created during their coursework.
- Managed and automated Azure virtual machines for each student to use for software development during the courses.

UVM Department of Molecular Physiology and Biophysics — Burlington, VT

Research Assistant

February 2018 - May 2019

Various software development projects associated with image classifying and processing.

- Built an image viewing and manipulating application with features targeted for single particle 3D reconstruction with electron micrographs.
- Maintained existing image processing software, fixing problems and adding features as requested.
- Created a system for parallelizing existing single-core image processing software.
- Designed and implemented intuitive user interfaces for use with existing and newly developed software.
- Contributed to the [EMIRA language](#), intended for creating image processing pipelines.

SOFTWARE DEVELOPMENT

OS Familiarity:

- MacOS, Debian based Linux

Language Familiarity:

- Python, Java, C/C++, C# (Unity), HTML/CSS, JavaScript, Swift (iOS), Bash

Relevant Classes:

- Advanced Programming, Linux/Unix Programming, Open Source Software Development, Network Programming, Computer Organization, Data Structures and Algorithms, Computability and Complexity, Software Engineering, Computer Networks, Algorithms Design and Analysis, Mobile Application Development (iOS), Operating Systems, Human-Computer Interaction, Machine Learning, Programming Languages, Compiler Constructions, Data Privacy, Secure Distributed Computation, Data Science I

EDUCATION

University of Vermont

- **Master of Science, Computer Science**
- **Graduated - Fall 2020**
- **GPA - 4.00**
- **Bachelor of Science, Computer Science**
- **Graduated - Fall 2019**
- **GPA - 3.92**

High school (home school)

- **Graduated - 2016**
- **Governor's Institute of Vermont**
- Asian Cultures, Entrepreneurship, Mathematics
- **Academy of Visual and Performing Arts at Essex High School**
- Film, Animation, Graphic Design

INTERESTS

- Classical piano
- Aviation
- UI Design