

Replit

Software Lead
05/2023–present

Designing and implementing new protocols to enable better collaborative experiences.

Researching new paradigms for version control and collaboration on software.

Technologies: TypeScript, Rust, Go

Hypha

Software and protocol engineer
10/2022–present

Architecting a rewrite of [Distributed Press](#), an open source publishing tool for the web that utilizes distributed peer-to-peer protocols to improve content discoverability and archivability.

Implemented and tested the new rewrite to improve observability, performance, and security ([#31](#), [#32](#), [#35](#)). Integrated a DNS to resolve DNSLink queries for hosted sites ([#41](#))

Technologies: TypeScript, Fastify, IPFS, Hypercore, DNS, Swagger, Prometheus, LevelDB

Rhizome

Independent Research Practice
05/2022–present

Independent research studio focused on enabling [data-neutrality on the web](#) through creating a [peer-to-peer protocol](#) focused on live collaboration, data interoperability, and identity.

Produced several technical artifacts like a [Raft consensus algorithm implementation](#) and a [Byzantine Fault Tolerant JSON CRDT](#).

Technologies: Rust, IPFS

Verses

Technical Lead
11/2021–05/2022

Led engineering for [pluriverse.world](#) and [interdependence.online](#) artifacts, building technical infrastructure to support over **10,000+** signatures across both. Designed and crafted the [verses.xyz](#) homepage.

Developed an [open source package](#) for versioned permaweb document management on Arweave and a [GitHub action](#) to automatically persist documents to Arweave.

Technologies: Vercel, GitHub Actions, Node.js, TypeScript, Arweave

BentoML

Open Source Contributor
06/2020–07/2021

Implemented CLI command to containerize BentoML machine learning models, reducing dependence on external tool workflows ([#847](#), [#884](#)).

Proposed ([#1540](#)), implemented, and tested a distributed application-level locking module to allow multiple concurrent operations on models ([#1541](#), [#1567](#)).

Reduced Docker image size by **60%** to enable lighter deployments for model server ([#822](#)).

Technologies: Docker, PyTest, Python, Kubernetes, Helm

nwPlus

Co-President
09/2019–04/2022

Elected to lead and coordinate **7** subteams with a total of **48** team members to run **3** of the largest hackathons in Western Canada, reaching over **2000+** students.

Led logistics for [HackCamp](#), a beginner-focused virtual hackathon, attracting over **500+** attendees, **3,200+** livestream viewers, and **\$1200** in donations to local charities.

Technologies: JavaScript, GoLang, Firebase, React, GitHub Actions

bft-json-crdt

[github](#)
[blog post](#)

The first public implementation of a JSON-like BFT CRDT. The project implements a simplified Automerger-like CRDT as well as the ideas in Martin Kleppmann's 2022 paper *Making CRDTs Byzantine Fault Tolerant*. The blog post also [hit #3](#) on Hacker News the day it was released and has been [featured in go-to resources for CRDTs](#).

Technologies: Rust

Quartz

[github](#) (frontend)
[github](#) (scraper)

Website generator that enables users to host digital gardens for free. Built a custom Markdown scraper to enable full-text search, backlinks, local graph view, and link previews. Created a strong community with **1600+** stars on GitHub, **1200+** forks, and **50+** unique contributors. Forks average over **100,000+** total monthly active visitors.

Technologies: GoLang, JavaScript, Hugo, GitHub Actions

Portal

[github](#)
[producthunt](#)

Created an open-source command-line tool for efficient peer-to-peer encrypted folder syncing. Currently has **2500+** installations.

Technologies: React, TypeScript, Hypercore, xo, ava

University of British Columbia

Expected Grad: 05/2023
GPA: 4.0

Bachelor of Science in Computer Science, Minor in Philosophy

Dean's Honour List. Received the Trek Excellence Scholarship (Top 5%) and the Dean of Science Scholarship (Top 1%).