ALEX DING

Website: alexding.me | **Email:** alexander_ding@brown.edu |**Github:** alexander-ding | **LinkedIn:** alexander-j-ding

Education

Brown University *September 2020 - May 2024*

Concurrent B.S.. and M.S. in Computer Science | GPA: 4.00

> **Relevant Courses**: Operating Systems, Programming Languages, Software Security and Exploitation, Computer Graphics, Prescriptive Analytics, Machine Learning, Blockchains, Information Theory, Abstract Algebra.

Work Experience

Software Engineering Intern *September 2022 - December 2022*

Google, GCloud GCP, Anthos Storage

> Released **Container Storage Interface** (CSI) Proxy v2 as a **Go** library to support **Kubernetes** storage drivers to run as privileged HostProcess Containers in **Windows**, eliminating the need to install separate binary in clusters.

> Migrated GCP PD CSI **storage driver** to use CSI Proxy v2, running performance tests to verify lack of regression, fixing broken e2e **Prow** tests, and updating CI/CD pipeline to reduce image size on Windows by **99.5%**.

> Supported developers from **Microsoft** and elsewhere to migrate other storage drivers to use CSI Proxy v2.

> Wrote design documents in open source and GKE for CSI Proxy v2, noting security recommendations, version skew strategy, HostProcess Container caveats, migration guide, as well as drafting a release blogpost.

> Built resource monitoring system in conformance test suite and evaluated CPU and memory usage for multiple Software-Defined Storage (SDS) solutions in various **GCP** and **baremetal clusters** similar to customer specs.

Software Engineering Intern *June 2022 - August 2022*

Bloomberg L.P., Data Science Runtime

> Built **Kubernetes**-native toolings to easily define end-to-end pipelines on **Argo** workflows capable of building, training, and serving ML models straight from source code to production, deployed to clusters with **1000+** tenants.

> Coordinated across the org to design cross-cluster RBAC authentication with token exchange, cross-cluster IO with **GraphQL**, and cloud-native containerization with **Buildpacks**, implemented using **Go**, **Python**, and **Docker**.

> Improved **Jenkins** integration to support **semvar**-compliant CI/CD of Argo workflow templates.

> Packaged cluster resources as **Helm** charts and orchestrated seamless migrations with **0** cluster downtime.

> Ran workshops and published internal tutorials to promote adoption of new toolings, reaching **100+** engineers.

Projects Director *June 2021 - Present*

Full Stack at Brown

> Coordinated **30+** project teams and directly managed several high impact projects, including Hours, Brown CS's TA hours queue management platform built in **Go** and **TypeScript** used by **1000+ students/month**, and The Critical Review, Brown's course review website used by **5000+ students/month**.

Projects

*Complete projects available on my **website**[1]*

Surrealist Cloth

> Custom **C++** graphics engine capable of rendering complex 3D scenes into images via ray tracing, implementing the Phong illumination model, texture mapping, as well as path tracing to support glass and metallic surfaces.

SAT Solver

> Blazing fast solver for NP-complete boolean satisfiability problems powered by watched literals, conflict driven clause learning, custom variable decision heuristics, and random restarts, built in **Julia**.

Skills

Languages: Go, Python, TypeScript, JavaScript, Java, C, C++, Rust, Julia, Lisp.

Technologies: MapReduce, Kafka, SQL, GraphQL, Kubernetes, GCP, Docker, Jenkins, Git, Jira, Bash.

[1] I also did a ton of deep learning research and full stack development in my past, which you can read more about on my website.