

**Skills** | Python • C++ • Go • (Java|Type)Script • q • Java

## experience

### Citadel Securities

Chicago, Illinois

*Software Engineering Intern — Citadel Execution Services*

Feb 2021 - Apr 2021

- Built low footprint, performant latency monitoring and alerting system for order execution and trade reporting
- Heavily optimized order flow stats computation systems, reducing aggregate CPU usage by over 90%

### Google

Remote

*Software Engineering Intern — Cloud AI Platform*

Jun 2020 - Aug 2020

- Built Cloud AI extension for JupyterLab to manage datasets, create training pipelines, and deploy models
- Added framework agnostic model deployment, code generation, and Pandas DataFrame to dataset conversion

### Asana

San Francisco, California

*Software Engineering Intern — Security*

Sep 2019 - Dec 2019

- Built AWS Lambda deployment infrastructure and led org-wide transition to IAM based, permissioned jobs
- Designed proxy service for server configuration, leading to 75% fewer employees requiring prod ssh access

### Bloomberg LP

New York City, New York

*Software Engineering Intern — Fixed Income Data Platform*

Jan 2019 - Apr 2019

- Designed and built a real time, distributed data pipeline to ingest billions of fields per day with Cassandra + Kafka
- Built clustering based recommendation engine for finding comparable bonds on the Bloomberg Terminal
- Wrote Cassandra wrapper for Python w/ C++ extensions for 10x lower latency compared to official Py3 driver

### Hive AI

San Francisco, California

*Software Engineering Intern — Core ML Infrastructure*

May 2018 - Aug 2018

- Led development of offline C++ facial recognition pipeline for real-time concurrent video streams
- Implemented optimized vector kNN algorithm to search indices with 100k facial embeddings in under 50ms
- Added thread-safe GPU memory management to TensorFlow model server to handle 1000+ parallel RPC calls

### Waterloop Hyperloop Design Team

Waterloo, Ontario

*Co-Lead — Communications Software*

Sep 2017 - March 2018

- Spearheaded data pipeline design for three way communication between pod, relay servers, and pilot controls
- Built messaging library over QUIC in Go, increased data throughput by 50x and reduced latency by 90% vs. TCP

## projects

### Crypto Arbitrage Bot

2020

- Deployed arbitrage strategy to identify profitable cycles of trading pairs in exchanges, based on Bellman-Ford
- Implemented low-latency order book creation and trade execution engine that accounts for volume and fees

## education

### University of Waterloo

*Software Engineering Class of 2022*

- 3.9/4.0 cGPA

## achievements

2019 Global Finalist, Bloomberg Codecon

2017 HackerRank 97th Percentile Contest Rating

2017 USA Computing Olympiad Platinum Division