Allen Gao

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SUMMARY

Languages: Go, Python, C, C++, JavaScript, Java, SQL
Frameworks & Libraries: gRPC, Protobuf, NumPy, Pandas, NetworkX
Tools & Databases: Vespa, Dgraph, MongoDB, PostgreSQL, Docker, Kubernetes, GCP, AWS

EDUCATION

University of Waterloo   Waterloo, Ontario
Bachelor of Computer Science, Honours   Sept 2019 - Apr 2024
- **92%** Faculty Average, **2x** Dean's Honours List
- **Relevant Coursework:** Numerical Computation, Algorithms, Optimization, Operating Systems, Object-Oriented Programming, Data Structures and Data Management

WORK EXPERIENCE

Atolio – Software Engineer Intern   Sept 2021 - Dec 2021
- Building software to help tackle the enterprise search problem using **Go** and **Python**
- Implemented an ETL pipeline to process metadata from 25+ repositories into **Vespa** and **Dgraph** using **Go**; improved internal knowledge graph and reduced hours of onboarding overhead
- Introduced and developed a collaboration graph model based on time-varying networks; used to rank and visualize user collaboration over time and improve **Vespa** search

Acentury – Software Engineer Intern   Jan 2021 - Apr 2021
- Developed application to replace hardware synchronization of call-forwarding profiles between Nokia's and Ericsson's databases, used by 10,000+ users daily across 3 regions
- Built, tested, and deployed a distributed alarm monitoring system to monitor 10+ backend services, greatly improved incident response time, using **Java**, **Spring Boot**, **ElasticJob**, and **Mockito**
- Owned from end-to-end a lightweight system monitor to track system usage, enhanced accuracy by 25%+, built with **Go** and **PostgreSQL**

PROJECTS

Paperboy – News Aggregation Platform
- Built the backend for a web app that automatically aggregates, categorizes, and summarizes news articles using **Go**, deployed in **Kubernetes** on **DigitalOcean**
- Implemented a custom API pagination solution, and a public-facing fuzzy search engine that displays relevant news articles in response to search queries using **MongoDB**
- Reduced query latency by 80% leveraging **Redis** and server-side caching

Basically – PageRank-Based Summarization Library
- Implemented TextRank and Biased-TextRank algorithms in **Go** for efficient keyword extraction and focused text summarization

Snapshots – Image Repository Server and Client
- Developed a server and client for an image repository using **gRPC** and **Protobuf** in **Go**
- Achieved large batch file transfer over **gRPC** using unary streams and file chunking
- Implemented file storage using **MongoDB** as an image registry and **S3** buckets for blob storage

Crpyto – Crypto Backtesting Library
- Developed an event-driven back testing library in **Python** to test trading strategies
- Implemented trading strategies using **NumPy** and **Pandas**, visualized results using **Seaborn**

INTERESTS

Mechanical Keyboards (Sneakbox AVA)
Reading (Currently: Foundation)