

# SHABAB AYUB

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## SUMMARY

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- Experience with Go, Python, JavaScript, Haskell, Kafka, Kubernetes, Helm, gRPC, and Avro
- Interested in distributed systems, data science, performance engineering, and back-end development

## EXPERIENCE

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**Facebook** May 2019 - August 2019  
*Software Engineering Intern - Machine Learning Infrastructure* Menlo Park, CA

- Building a framework to enable feature sharing and discovery on the model training platform in Haskell

**Datadog** September 2018 - December 2018  
*Software Engineering Intern - Distributed Systems* New York, NY

- Maintained large-scale services, written in Go, dedicated to relaying 9 trillion points daily to Kafka
- Streamlined the deployment of memcached on Kubernetes to eliminate outages caused by cache restarts
- Worked on an auto-sharding load balancer based on Google and Technion's research paper: **slicer**
- Designed a scalable rate limiter to detect spam data behavior and prevent DDoS attacks

**Shopify** January - April 2018  
*Data Engineering Intern - Analytics Infrastructure* Toronto, ON

- Developed instrumentation libraries in Ruby and Go for analytics events; highlights include enforced data contracts for Kafka production, and auto-generated Kafka topics and Hive tables based on schemas
- Reduced JSON parsing and introduced object caching to increase event throughput by 113%

**Shopify** May - August 2017  
*Software Engineering Intern - Fullstack* Waterloo, ON

- Developed an app in Rails and React to automate millions of tasks for merchants
- Instrumented the app and performed funnel analysis of usage patterns to measure product KPIs
- Optimized CI configuration for Jest React tests to reduce overall build time by ~14%

**Greenspace Mental Health** September - December 2016  
*Software Engineering Intern - Fullstack* Waterloo, ON

- Developed a dashboard for therapists to view data visualizations using Django and JavaScript
- Implemented a centralized logging system to track server requests and improve debugging processes

## PROJECTS

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**Tempo - in-memory time-series data structure** **code:** [git.io/vpJo4](https://github.com/s4ayub/vpJo4)

- Developed an in-memory data structure in Go for time series data; inspired by Facebook's GorillaDB
- Implemented delta-of-delta and XOR encoding for efficient compression of timestamps and values

**HuffleRaft - replicated key-value store** **code:** [git.io/v52eO](https://github.com/s4ayub/v52eO)

- Developed a replicated, fault tolerant, key-value store in Go driven by the raft consensus protocol
- Designed a network layer to redirect commands as HTTP requests to the leader node in a cluster

## EDUCATION

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**University of Waterloo - 3rd year** Graduating April 2020  
*Honours Bachelor of Applied Science in Mechatronics Engineering* Waterloo, ON

- Relevant Courses: Real-time Systems (C), Algorithms and Data Structures (C++), and Statistics