

Vichara (Nim) Wijetunga

SOFTWARE ENGINEER

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Skills & Interests

Languages	C++, Go, Java, C, Python, Scala, JavaScript, PHP, SQL
Infrastructure	Spark, Airflow, Kafka, Hive, Hadoop, Kubernetes, Docker, Nginx, Terraform, PostgreSQL
AWS	EMR, DynamoDB, DataPipeline, NAT, Route53, CloudFront, SQS, SNS, S3, VPC, ElastiCache, RDS
Interests	Distributed Systems, Cloud Computing, Databases, Machine Learning

Experience

Snowflake

San Mateo, California

SOFTWARE ENGINEERING INTERN - CORE DATABASE ENGINE

Jan. - Apr. 2021

- Contributed to **FoundationDB (FDB)**, an open-source, **distributed**, transactional, key-value store, built using **C++**
- Reduced **memory overhead** in the storage server by **64%** for watches (change data capture), by eliminating key-value duplication
- Introduced a **client API** (including both C and Java bindings) to monitor **CPU saturation** of the FDB **network thread**
- Improved **range read** performance by **5%**, eliminating copying when merging results from an in-memory **Treap** and on-disk **B-tree**

Zynga

Toronto, Ontario

SOFTWARE ENGINEERING INTERN - CORE ML INFRASTRUCTURE

May - Aug. 2020

- Built a **horizontally scalable** hyperparameter tuner using **Hyperopt**, **Spark** and **MLFlow**; work featured at **Spark + AI Summit 2020**
- Used **Go** to build a feature cache for ML models, utilizing **mutexes** and **Goroutines** for handling **1000+ concurrent** requests/second
- Built an **Apache Flink** pipeline in **Java** to ingest and transform **1000+** game economy events/second from an **AWS Kinesis** stream

SnapTravel

Toronto, Ontario

SOFTWARE ENGINEERING INTERN - BACKEND

Jan. - Dec. 2019

- Migrated a CPU-intensive Python ETL to **PySpark SQL** using **Hive** Tables to store data, decreasing the runtime by **80%**
- Added a **Redis** Caching Layer to backend **microservices**, providing a **200%** speed-up compared to direct **PostgreSQL** data access
- Improved data ingestion speeds by **85%+**, utilizing **AWS SQS** (Queue) to stream data between **distributed** Airflow workers

Research Positions

Serverless Streaming

Java

UNDERGRADUATE RESEARCH ASSISTANT (PROF. KHUZAIMA DAUDJEE), UNIVERSITY OF WATERLOO

Sep. - Dec. 2020

- Researched methods which allow for **serverless** computing when performing stream processing with **Apache Flink**

Distributed Mobile Computing

Java | Scala

UNDERGRADUATE RESEARCH ASSISTANT (PROF. SEYED ZAHEDI), UNIVERSITY OF WATERLOO

Jan. - Apr. 2020

- Leveraging a network of mobile devices (as worker nodes) to perform **distributed computations** using **Apache Spark**
- Added AndroidOS **signal handling** (SIGQUIT) to worker threads & refactored native Spark threading to support Android process'

Extracurricular Activity

UWBlueprint - Developing Tech for Non-Profits

Go | TypeScript

PROJECT LEAD

Jan. - Apr. 2021

- Led a team of **7 developers** and **2 designers** to build an interactive map-based app to showcase the stories of immigrant women
- Helped define the overall **architecture** of the application, managed project deadlines and unblocked developers through weekly 1-1's
- Helped establish coding guidelines (linting, testing, CI/CD) and automated **Docker** deployments to **Heroku**

Education

University of Waterloo

Waterloo, Ontario

BACHELOR OF SOFTWARE ENGINEERING, B.SE

Sep. 2017 - Apr. 2022

- CGPA:** 3.8, Dean's Honours List 2018, 2020
- Relevant Courses:** Operating Systems, Concurrent Programming, Database Systems, Distributed Systems