

# Vichara (Nim) Wijetunga

SOFTWARE ENGINEER

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## Skills

**Languages** C++, Go, Java, C, Python, Scala, JavaScript, TypeScript, PHP, SQL

**Tools** Spark, Airflow, AWS, GCP, Kafka, Hive, Hadoop, Kubernetes, Docker, Nginx, Terraform, PostgreSQL

## Experience

### Snowflake

San Mateo, California

SOFTWARE ENGINEERING INTERN - CORE DATABASE

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 **50%** for watches (change data capture), by eliminating key-value duplication
- Introduced a **client API** (including both C and Java bindings) to monitor **CPU utilization** 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

### The Weather Network

Toronto, Ontario

SOFTWARE ENGINEERING INTERN - FULLSTACK

May - Aug. 2018

- Introduced **data compression** for **PHP** endpoints, reducing API request time by upwards of **15%**

## 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, Networks