Vichara (Nim) **Wijetunga**

SOFTWARE ENGINEER

✉ vnwijetu@uwaterloo.ca | 🏠 nimwijetunga.github.io | ⬚ nimwijetunga | Ⓜ @nim.wijetunga | in vichara-w

Skills & Interests

Languages	Golang, Java, Python, C/C++, 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, Networking, Machine Learning

Experience

Zynga *Go | Java | Python*
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
- Contributed to Zynga's **open-source** framework (rl-bakery) for building batch **Deep Reinforcement Learning** applications

SnapTravel *Python*
SOFTWARE ENGINEERING INTERN - DATA & INFRASTRUCTURE *Sep. - Dec. 2019*

- Improved Data Ingestion Speeds by **85%+**, utilizing **AWS SQS** (Queue) to stream data between **distributed** Airflow workers
- Utilized **Terraform** for provisioning **NAT** Instances & **Nginx** Rev Proxy to access **Redis** clusters inside the **AWS Private Subnet**
- Migrated a CPU intensive Python ETL to **PySpark SQL**, using **Hive** Tables to store data, improving runtimes by **80%**

SnapTravel *Python*
SOFTWARE ENGINEERING INTERN - BACKEND *Jan. - Apr. 2019*

- Experimented with **Python** (Flask) **rate-limiting** to reduce the chance of a **TOTP** brute force attack by **92%**
- Added a **Redis** Caching Layer to backend **microservices**, providing a **200%** speed-up compared to direct **PostgreSQL** data access

The Weather Network *PHP | JavaScript*
SOFTWARE ENGINEERING INTERN - FULL STACK *May. - Aug. 2018*

- Introduced **data compression** for **PHP** endpoints, **reducing** API request time by **0.5s** (client side)
- Implemented **AMP** (Google's Accelerated Mobile Pages), reducing web page load times by **1.5s** (mobile)

Research Positions

University of Waterloo *Java*
UNDERGRADUATE RESEARCH ASSISTANT (PROF. KHUZAIMA DAUDJEE), SERVERLESS STREAMING *Sep. 2020 - Present*

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

University of Waterloo *Java | Scala*
UNDERGRADUATE RESEARCH ASSISTANT (PROF. SEYED ZAHEDI), DISTRIBUTED MOBILE COMPUTING *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'

Education

University of Waterloo *Waterloo, Ontario*
BACHELOR OF SOFTWARE ENGINEERING, B.SE *Sep. 2017 - Apr. 2022*

- **CGPA:** 3.7, Dean's Honours List 2018,2020
- **Relevant Courses:** SE350 (Operating Systems), CS343 (Concurrent Programming), CS348 (Database Systems)
- **Udemy Courses:** Distributed Systems, Multi-threading and Concurrency in Java, Apache Spark using Scala, Apache Kafka