SOUFIANE JOUNAID

Backend Software Engineer
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Link Tree

EDUCATION

Khoury College of Computer Sciences, Northeastern University, Boston, MA — Jan 2021 – Aug 2023
Master of Science in Computer Science — GPA: 4.0/4.0

Vrije Universiteit Amsterdam, Amsterdam, The Netherlands — Sep 2017 – Jun 2020
Bachelor of Science in Computer Science, Minor in deep programming topics — GPA: 8.0/10.0

TECHNICAL KNOWLEDGE

Languages: C++, Java, Python, R, Kotlin, D, MatLab, Go, Ruby, Haskell
Tools and Technologies: Git**,** Linux**,** AWS, GCP, Azure, Kubernetes, Serverless, Docker, SQL, MongoDB, GitOps, Jira, TeamCity, Jupyter/R Notebook, Ansible, Grafana, Project Boards.

WORK EXPERIENCE

IBM Research, **Software Engineer Intern**, Yorktown Heights, NY — Jun 2022 – Aug 2022

- Designed and implemented a containerized distributed network micro-benchmark in C++ to profile network latency and bandwidth on over 1000s of public cloud nodes within a single cloud availability zone (AZ).
- Employed clustering algorithms to group low-latency nodes, forming a network topology that improves the runtime of network-sensitive molecular dynamics simulation GROMACS on Kubernetes by over 50%.

CarGurus, **Software Engineer Co-op**, Cambridge, MA — Jan 2022 – Jun 2022

- Collaborated with a team of developers in migrating CarGurus' entire Search Engine Optimization (SEO) codebase from Ruby to Kotlin and performed system health monitoring on weekends.
- Implemented a load balancing approach for the primary production SEO database that serves latency-insensitive requests from weakly consistent replicas, improving the average critical job runtimes by 2x during peak hours.

PROJECTS

Serverless Network File System, Northeastern University Systems Research Group — Sep 2022 – May 2023

- Designed and implemented a Serverless-powered distributed network file system (SLFS) in C++ to provide a more customizable, cost-efficient replacement to serverful distributed file systems, which SLFS outperforms by 50x.

Kube-Flux: HPC scheduling on Kubernetes, IBM / RedHat / LLNL — Sep 2021 – Dec 2021

- Designed and implemented a job cancellation controller for the Kubernetes scheduler enabling efficient reuse of compute resources allowing complex workloads such as GROMACS to run on Kubernetes. Released as with RedHat OpenShift 4.10.

Distributed File-Sharing Service, CS6650 Northeastern University — Feb 2021 – May 2021

- Designed and implemented a fault-tolerant distributed file sharing service in JAVA consisting of a sharded database managed by central metadata servers replicated using the PAXOS and 2PC distributed consensus algorithms.

OpenDC Serverless – Serverless Simulation Model, VU Amsterdam Systems Research — Feb 2020 – Aug 2020

- Designed and implemented the first serverless platform trace-simulator allowing for accurate and in-depth performance, resource, and cost simulation of platforms such as AWS Lambda and enabling advanced exploration and accurate preview of custom policies before implementation into production.
- **Published in IEEE CCGrid 2021 / Third place in the Amsterdam Data Science Thesis Awards 2020.**

PUBLICATIONS

- Fabian Mastenbroek, Georgios Andreadis**, Soufiane Jounaid,** Wenchen Lai, Jacob Burley, Jaro Bosch, Erwin van Eyk, Laurens Versluis, Vincent van Beek, and Alexandru Iosup, "OpenDC 2.0: Convenient Modeling and Simulation of Emerging Technologies in Cloud Datacenters," 2021 IEEE/ACM 21st International Symposium on Cluster, Cloud, and Internet Computing (CCGrid), 2021, pp. 455-464, DOI: 10.1109/CCGrid51090.2021.00055.
- Cheng Hao Ryan Yang, **Soufiane Jounaid**, Ji-Yong Shin "SLFS: a File System Design with Serverless Paradigms", under review at ACM Sigops EuroSys '24