

Noah Vercillo

✉ noah.vercillo@gmail.com 📧 noahvercillo.com in noah-vercillo 🌐 nvercillo

🎓 Education

University of Waterloo, BAsC Computer Engineering, Varsity Soccer

Sep 2018 – May 2023

Programming for Performance (100%), Systems Programming & Concurrency (97%), Programming Fundamentals (95%)

Algorithms & Data Structures I/II, Distributed Computing, Computer Security, Database Sys Implementation, Operating Systems

🔧 Skills & Aptitudes

Languages: Java, C++, Python, Rust, C, SQL, GoLang, JavaScript, TypeScript, C#, Bash, PHP

Tools: Kubernetes (K8s), Kafka, Docker, Terraform, ArgoCD, Git CI/CD, AtlasDB, MySQL, AWS (EC2, Lambda, Dynamo, S3)

Libraries/Frameworks: Apache Flink, Hadoop, Spark, Spring, Django, Boost, Cuda, React, VueJS

📁 Professional Experience

Palantir, Software Engineer (only Fall NYC intern)

Sep 2022 – Dec 2022 | New York, NY

- Implemented adaptive scheduling production solution enabling workload repartitioning at pod failure from global snapshots, preserving redundancy while removing standby resources to reduce streaming compute costs by a min. of **25% (10M\$/yr)**
- Revamped the streaming archive storage system, achieving a **50x** increase in full-stream replay parallelism and maximizing resource utilization by employing a DP algorithm to optimally merge virtual file shards based on **Kafka** record key 'hotness'
- Created a feedback system for dynamic **Flink** scaling based on usage fluctuations, leveraging metrics such as Kafka lag, TCP back pressure, and CPU utilization to predict the ideal instance count and adjust the **Kubernetes** cluster conf accordingly
- Designed API-configurable profiles to control cluster reactivity, manage volatility, and set min/max scaling limits for clusters

Twitter, Software Engineer

May 2022 – Aug 2022 | San Francisco, CA

- Refined, packaged and deployed **booster**, an initramfs image generator, to **10k+** Twitter production machines
- Created **Go** based **RPM** package, working with **Koji** and an internal artifact registry to build the **RPM** in a virtualized chroot
- Used **Puppet CI/CD** to deploy and configure booster across hardware and OS configs, improving boot speed by **15%**
- Enabled full-encryption at rest using multiple device mappers, **Clevis TPM**, and network **Tang** bindings with booster
- Modularized integration tests which leveraged **QEMU** to make end-to-end testing more interoperable across Linux distros

Federato AI, Software Engineer

Dec 2021 – May 2022 | San Francisco, CA

- Refactored infrastructure mono-repo into logical modules deployed on **Terraform Cloud** with **Github Action** triggers, enabling mass scaling of infrastructure, clients, and engineering power through tight isolation and code versioning
- Recreated **CD pipeline** into declarative **GitOps** CD to trigger deployments with **ArgoCD** on a pull basis within the cluster
- Created distributed **ETL** streaming pipeline using **Kafka** for real-time workloads and an end-to-end mock fixture generator
- Using Terraform, implemented custom **Hashicorp Vault** secrets management solution with mutating webhook injector sidecars, audit logs and IAM controlled access management in separate isolated VPC / Kubernetes cluster per tenant

TradeLogiq Markets, Software Engineer

Jan 2021 – May 2021 | Toronto, ON

- Independently developed a **Python** post-processing server complementary to our large-scale feed handler processing real-time trading data, with multiple threads utilizing **UDP** and **TCP** protocols and **concurrent thread protection mechanisms**
- Optimized retransmission request algorithms for dropped UDP requests, speeding up feed handler latency by **200%**

Enso Connect, Software Engineer

Dec 2020 – May 2021 | Toronto, Ontario

- Managed from conception to production an automation test suite and **GitHub CI/CD** end-to-end dev-ops pipeline

TD Bank, Data Engineer

May 2020 – Sep 2020 | Toronto, ON

- Enhanced performance of new and existing **ETL** processes / stored **SQL procs** using **C#** to preprocess big data

Sky View Suites, Software Engineer

Sep 2019 – Jan 2020 | Toronto, ON

- Created over **50%** of **PHP Laravel** property management app, automating accounting, reporting, and lead generation

Ford Motor Company, Software Engineer

Jan 2019 – May 2019 | Waterloo, ON

- Offered diagnostic insights on car ECUs via **Java Spring Boot** app development, leveraging **Oracle DB** for data interfacing

📁 Projects

Database Systems Implementation, C++

- Created a relational query cost analyzer by evaluating materialization costs of temp tables, hash/tree index vs table scan selection costs, and considering byte reduction through projections and selection order using provided schema & statistics
- Developed a query tree visualizer and optimizer by intelligently exploring a subset of new indexes, rebalancing the query tree to prioritize pipelined joins, and maximizing byte reduction by strategically pushing selections and projections