Stefan Vercillo

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EDUCATION

University of Waterloo   Waterloo, Ontario
Bachelor's of Applied Science, Honours Computer Engineering   2018–Present

– Achieved a grade of **97%** (22 above average) in **Concurrency & Systems Programming**

EXPERIENCE

Federato.AI   Palo Alto, California
Software Engineer   Dec 2021–(May 2022)
– Enabled the scaling of **microservices** implementing a middleware **GraphQL** federation layer at the edge of our network with **Apollo**, and infrastructure allowing for diagonal scalability across functional aggregation and pod availability
– Using **Terraform,** implemented custom **Hashicorp Vault** secrets management solution with mutating webhook injector sidecars, advanced audit log, access management and more on a separate isolated **VPC / Kubernetes** cluster for each client
– Refactored infrastructure mono-repo into micro-service like modules deployed on **Terraform Cloud** with **Git** driven build triggers, enabling mass scaling of infrastructure, clients, and engineers through tight isolation and code versioning
– Increased security transitioning **K8s** cluster to being private, automatically configuring a **VPN** for each client through **TF**
– Redesigned CD pipeline with newly private cluster to deploy on a push basis from within the cluster itself in a **GitOps** driven way with **ArgoCD**, converting some application deployments from **TF** into Helm repositories referenced by **Argo**

Enso Connect   Toronto, Ontario
Lead QA Architect / Backend Engineer   Nov 2020–May 2021
– Managed from conception to production an automation test suite and **GitHub CI/CD end-to-end dev-ops pipeline**, testing complicated **AWS Lambda** microservice logic in isolation, with randomized fixtures and conditional fixture triggers
– Created comprehensive randomization engine simulating API behavior from Airbnb, VRBO, and several other PMSs
– Optimized **Elasticsearch** indexes and queries on **DynamoDB** to speed up **API** performance significantly
– Facilitated transition into **Serverless**, **NoSQL microservice** based auto-scaling **AWS** stack, keeping up with volatile demand
– Helped lead integration of 2000+ VRBO properties into Enso Connect property management / communications platforms

TradeLogiq   Toronto, Ontario
Software Engineer   Jan 2021–May 2021
– Independently developed a **Python** testing 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 algorithm for missing data sequences, speeding up feed handler latency exponentially
– Conceptualized and implemented on-prem cloud hardware monitoring full stack application with **Flask / Vue.js**

TD Bank   Toronto, Ontario
Data Engineer   May 2020–Sep 2020
– Designed entire DB and relational schemas optimized for **atomicity**, **error prevention**, and total **redundancy mitigation**
– Analyzed complex functional dependencies with **3NF** decomposition to optimally select **primary** and **foreign keys**
– Enhanced performance of new and existing **ETL** processes / stored **SQL** procs using **C#** to preprocess big data
– Decoupled system dependencies and complicated integrations of source to target systems using **Apache Kafka** in **microservice** architecture, streaming big data into **Hadoop** and our traditional **SQL Server RDBMS**

Sky View Suites   Toronto, Ontario
Lead Software Developer   Sep 2019–January 2020
– Created over **50%** of **PHP Laravel** web app resulting in the automation of numerous business processes such as accounting, statistical reporting, and client management, in addition to working on **Vue.js PWA** and **Python** project

Ford Motor Co.   Waterloo, Ontario
Full-Stack Developer   Jan 2019–May 2019
– Developed web-application in **Java**; interfaced **REST APIs** in **Spring/MVC** framework to provide diagnostic insights
– Experienced with **cherry-picks**, **rebases**, **branching**, and other complicated features of **Git** version control

LANGUAGES

- **Python:** 5 years of experience
- **C/C++:** 4 years of experience
- **Java:** 3-4 years of experience
- **SQL:** 3-4 years of experience
- **Terraform:** 1-2 years of experience
- **NoSQL:** 1-2 years of experience
- **JavaScript:** 2-3 years of experience
- **PHP:** 1-2 years of experience

FRAMEWORKS

- **Flask/Django:** 4 years of experience
- **Laravel:** 2 years of experience
- **Spring Boot:** 1 year of experience
- **Vue.js:** 1 year of experience
- **React:** 2 year of experience
- **Angular**: 1 year of experience
- **.NET:** 1 year of experience
- **ArgoCD:** 1 year of experience

PROJECTS

- **AI Real Estate Evaluation:** Python / TensorFlow / Puppeteer / Google Cloud
  - Developed **Puppeteer** web scraper to collect over **1 million** rows of real estate and geolocational data into **Postgres DB**
  - Created optimized backend location queries, and **cluster-dedensification** algorithms using geometric analysis
  - Developed inhouse enterprise **image storage solution**, **LRU cache**, and **thread-safe heap** to reducing server latency
  - Creatively constructed a complex **SOM neural network** using **3D-clustering** with **Keras** and **TensorFlow** to predict prices
  - Coordinated with frontend engineers to dynamically display and serve prediction pricing model for any property in Toronto
- **Path Finding Visualization:** JavaScript / Flask / Python
  - Utilized a **heuristic** guided modified Dijkstra's algorithm to find shortest airplane route from any airport in the world
  - Creatively visualized resource intensive **JavaScript** animations to optimize performance with concurrent programming on **React** portfolio website hosted on **EC2** using **NGINX**
- **Real Time Operating System Testing Framework:** C / Concurrency / Systems Programming (ECE-350)
  - Devised testing framework for lowest level operating system. Writing over 4000 lines of modular **C**, tackled the task of testing the nondeterministic nature of the real time EDF scheduler we implemented, in addition to testing thread creation, mutually exclusive resource protection, inter-thread communication and signaling
- **API Performance Evaluation CLI:** C / Socket Programming
  - Using multithreaded socket programming, this tool provides statistics about API performance including average response time, and min/max bytes per packet (used for **load testing** Elastic Search implementation at Enso Connect)

EXTRACURRICULAR ACTIVITIES

- Varsity / Semi-Professional Soccer   January 2020-COVID
  *Leadership, mental toughness and commitment developed over years of meticulous practice playing for the University and with North Mississauga League One, training **5-8 times** a week playing against the best in the province*
- Piano Performance   January 2020–Current
  *Creativity and expressiveness developed through piano performance at the **highest level** achieving the RCM level 10 certification.*
- Math / Programming Tutor / Swim Instructor   January 2018–Current

  *Developed strong language skills, mentorship and patience being able to communicate technically complex problems in a collaborative setting managing a client base of **40+ people***

RECOMMENDATIONS

Luke McKim   Senior Engineer| TradeLogiq

"Stefan's understanding of **concurrency** and **socket-programming** was impressive over the term. Above all his ability to continuously think in terms of optimizing resource **utilization** and **algorithmic latency** helped him strive in this position."

Francois Gouelo   CEO / Founder| Enso Connect

"Stefan's **interpersonal skills** created a **collaborative** environment of sharing of ideas" … "His strong understanding of software fundamentals, convention, and **modern infrastructure** was demonstrated during his time at Enso."