Marcel **Roux**

Senior Software Engineer — High-Throughput Distributed Systems

Canada, marcel.roux.email@gmail.com https://www.linkedin.com/in/rouxmarcel

Senior software engineer with **8+ years of professional experience** building and operating **data-intensive, correctness-sensitive distributed systems with high concurrency and strict ordering guarantees**. Specialised in high-throughput ingestion pipelines, stream processing, and backend APIs where performance, ordering guarantees, and operational reliability matter.

Recent work focused on large-scale blockchain data ingestion and analytics platforms using **Rust, Python, Kafka, ClickHouse, and Postgres**, with full production ownership.

Experience

Data Engineering Team Lead, Vybe Network — Vancouver, BC, Canada 2025–2026

- Led a team of **3 engineers (4 including myself)** responsible for blockchain ingestion systems, analytics pipelines, and data APIs.
- Planned epics and technical priorities aligned with business OKRs, balancing feature delivery, reliability, and technical debt.
- Owned on-call operations and incident response for customer-facing systems, driving post-incident reviews and reliability improvements.
- Coordinated cross-team initiatives across data science, product, and platform engineering.
- Remained hands-on with system design while mentoring engineers and improving CI/CD and documentation standards.

Senior Software Engineer, Vybe Network — Vancouver, BC, Canada 2023–2025

- Designed and operated event-driven, streaming ingestion pipelines processing **thousands of transactions per second** with strict ordering and correctness guarantees.
- Built Python-based live transaction and account parsers backed by Kafka, Postgres, and Kubernetes in production.
- Contributed to a Rust- and ClickHouse-based ingestion architecture, implementing concurrent, fault-tolerant pipelines with explicit backpressure and correctness-preserving offset management.
- Developed extensible protocol parsing frameworks, scaling supported protocols from single digits to **50+ protocols**.
- Built production internal and public backend APIs using FastAPI and Actix Web, including caching, access control, and rate limiting.
- Improved observability and operational insight through Prometheus and Grafana adoption.

Senior Data Engineer, ExploreAI — Cape Town, South Africa 2021–2023

- Built highly parallelised model training and inference workflows using Spark, MLflow, and scikit-learn, reducing runtimes from days to minutes.
- Developed robust ETL pipelines with Azure Data Factory and PySpark for large-scale time-series datasets.
- Introduced data lineage, metadata capture, and governance patterns used across multiple production projects.

Data Engineer, ExploreAI — Cape Town, South Africa 2020–2021

- Performed extensive exploratory data analysis to inform downstream analytics and modelling.
- Developed time-series anomaly detection models identifying operational issues ahead of production baselines.
- Improved performance of strategic optimisation models, reducing execution time from weeks to hours.

Software Engineer, BridgIoT — Stellenbosch, South Africa 2017–2020

- Re-architected reporting systems to serverless AWS Lambda, reducing compute costs by **80%**.
- Designed and built containerised APIs and reporting engines using Python, Flask, Docker, ECS, and S3.
- Implemented ingestion layers for heterogeneous IoT protocols (LoRa, SIGFOX, GSM, NB-IoT) using MQTT-based architectures.
- Established CI/CD pipelines and optimised container builds, reducing deployment times by **90%**.

Education

Master of Engineering (MEng), Electrical and Electronic Engineering (*cum laude*), Stellenbosch University 2017

Dissertation: Optimisation of Electric Water Heater Demand-Side Management through Smart Grid and Predictive Scheduling.

Bachelor of Engineering (BEng), Electrical and Electronic Engineering, Stellenbosch University 2015

Technical Skills

Languages:	Rust, Python, SQL
Distributed Data Systems:	Kafka, ClickHouse, Postgres, Redis
Workflow & Data Pipelines:	Airflow
Backend & APIs:	Actix Web, FastAPI, Flask
Infrastructure & Operations:	Docker, Kubernetes, CI/CD, AWS, GCP, Azure

Languages

English (Fluent) Afrikaans (Fluent)