

THILAK RAJ MURUGAN, MS (DATA INFRA)

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Summary

Software Engineer with **5+ years** of experience building **backend platforms** & **AI Infrastructure** at scale.

Technical Skills

Languages: C++, Go, Python, JavaScript, TypeScript, PHP, SQL
Infrastructure: GCP, Terraform, Docker, Kubernetes, Gitlab CI/CD, DataDog, Grafana, Prometheus
Data/AI Infra: Kafka, PySpark, HTAP (TiDB), Cassandra, HDFS, PyTorch, LLMs, BigQuery, OLAP
Backend: MySQL, Redis, RabbitMQ, Microservices, NoSQL, APIs, gRPC
Coursework: ML Infrastructure, Distributed Systems, Big Data, Advanced Databases, OS

Experience

American Family Insurance

May 2025 – August 2025

ML Ops Intern - ML Infrastructure Team

Madison, United States

- Engineered a **AI Inference platform** on **GCP** that autoscales inference across **1M+** BigQuery rows, eliminating infrastructure provisioning friction for AI engineers.
- Developed **Infrastructure as Code (IaC)** with **Terraform**, **GitLab CI/CD**, **Protobuf**, **Docker** and **Python** to provision GCP resources, thus automating the end-to-end deployment pipeline and reducing deployment time by **80%**.

Vimeo

June 2023 – August 2024

Software Engineer 3 - IAM Platform, User Growth Team

Bengaluru, India

- Owned a high-throughput **user recommendation service** serving **10M+** users by designing backend APIs using PHP, MySQL, Memcached, Docker, **GCP** and **Datadog**, thus increasing free-to-paid user conversion by **20%**.
- Optimized **RBAC** based **authorization systems** by improving MySQL query performance and data access patterns.
- Ideated and built a **video recommendation service** using **Hugging Face's** Sentence transformer based **AI** model, **Python** and **Go** for the Vimeo Jam hackathon.

PropertyGuru Group

July 2021 – May 2023

Software Engineer - Fullstack

Bengaluru, India

- Built and scaled multiple **backend microservices** using **Nest.js**, **Node.js**, and **Symfony (PHP)**, serving **11M+** users across the property-tech industry in South-East Asia.
- Reduced config API latency by **25%** with Redis cache and automated customer cache invalidation, thereby increasing the efficiency of non-engineering teams.
- Built frontend webpages/micro-frontends with TypeScript, React.js, Redux and Material UI. Improved code maintainability by writing **unit tests** via Jest.

Hiver

May 2019 – June 2021

Software Engineer

Bengaluru, India

- Led the **payment platform** overhaul, driving **3× ARR growth** for the Gmail-based shared inbox product.
- Automated & optimized payment processing using the **Stripe SDK** across **Python** and **PHP** services, leveraging Fast API, webhooks, **GCP** and **RabbitMQ**, and implementing multi-factor authentication for EU transactions.

Projects

Distributed KV Store: [Code](#)

- Built** a distributed, fault-tolerant **key-value store** in **Go** with horizontal scalability via sharding, **Raft** based **replication** for strong consistency, and durable storage using **bbolt**; achieved throughput of **23K ops/sec**.

Scalable Data Infrastructure for Analytics:

- Designed and implemented a scalable **data pipeline** for batch (BigQuery, Dataproc, Python) and stream (**Kafka**, **Spark Streaming**) processing on the NYC Taxi dataset, scanned **80GiB** in **<10s** using BigQuery's Dremel Engine.

Scaling Distributed Databases:

- Benchmarked **TiDB** using **Go**, scaled data size to **190 GiB** and analyzed system metrics (90 ms OLTP latency). Load-tested **Cassandra** via NoSQLBench, driving **200M** read/write operations with sub-millisecond latency.

Education

University of Wisconsin - Madison

September 2024 – May 2026

Master's in Data Engineering (Computer Sciences Dept.) - GPA: 3.9

Wisconsin, United States

Indian Institute of Technology Kharagpur

July 2014 – April 2019

Bachelor of Technology (Honors) in Electronics and Electrical Communication Engineering

Kharagpur, India