

Krithin Sitaram

Senior Software Engineer — Geospatial Systems, Routing & Map Data Pipelines

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SUMMARY

Senior engineer with 12+ years building geospatial systems at scale — from streaming join services at Google ($\sim 10^6$ log entries/sec) to continent-wide OpenStreetMap pipelines, a C++ isochrone routing engine, and H3-hex demand analytics at Remix/Via. Owns geospatial work end-to-end across PostGIS, OSM extraction, Valhalla routing, and React/Mapbox map UI.

EXPERIENCE

Remix / Via Transportation — Senior Software Engineer

2018 – Present

Mix of senior IC and tech-lead work over 7+ years on transit-planning software used by agencies worldwide. Tech-led an 8-engineer team through a major UI redesign (2021–2022). Reviewed $\sim 1,500$ PRs alongside ~ 850 authored, spanning the Rails backend, React client, C++ routing engine (Jane), and geo data pipelines.

Service Design Insights & H3-Based Recommendations (2025–2026)

- Co-owns (with data science) the production pipeline that turns raw Via rider ride-request data into per-city map layers transit planners use to understand demand: ~ 890 Airflow tasks producing fresh H3-hex aggregates each week, with the Rails-side ingestion and per-customer access provisioning automated end-to-end. Replaced a cross-team manual process that previously gated every new city onboarding.
- Drove the architectural pivot for Service Design Insights (a new user-facing recommendations feature) from a separately-scoped Snowflake ETL onto this pipeline's H3-cell aggregates; partnered with PM to scope the product to what the data could deliver. Shipped the recommendation backend: H3 hex clustering, recommendation API, PostGIS query optimization.
- Productionized data science's prototype city-scale POI extractor, building a reproducible, documented extraction process for continent-scale POI extraction from OpenStreetMap .pbf files, feeding the Insights product.

'Jane' Isochrone Analysis Engine & Valhalla Migration (2022–2025)

- Productionized Jane drive-to-transit accessibility analysis for RTA Chicago, one of Remix's largest contracts: added a driveshed analysis mode built on the in-house C++ isochrone engine and a shared Valhalla service, as well as accompanying visualization and control UI.
- Expanded Jane's reachability metrics: count and percent statistics quantifying what share of a metro's destinations an entire transit network reaches, plus OSM-based amenity counts for point-origin analyses. Co-inventor on pending U.S. Patent Application 2024/0220540 ("Systems and methods for reachability of different destinations"), covering these methods.

Geo Data Platform & OSM Pipelines (2018–2024)

- Along with a Remix co-founder, built a continent-wide OpenStreetMap extraction pipeline in Go, producing tiled pedestrian-accessibility road-network data for isochrone analysis across North America. Owned Dockerization, ECS deployment, and integration of pipeline output back into Remix.
- Built the data-ingestion layer of an Apache Airflow ETL for shared-mobility (MDS) feeds from ~ 15 scooter operators across the US. Wrote DAGs, designed PostGIS schema and indexes, drove data-quality investigations with external partners.
- Shipped self-serve geo dataset upload, replacing a manual ticket queue with end-user-facing tooling complete with sharing and privacy controls. This immediately increased the number of data layers used in Remix projects by 5x.
- Identified the need for and implemented an integration with ArcGIS raster image tile servers to visualize custom satellite and aerial imagery in Remix.

Google Inc. — Software Engineer

2013 – 2017

- Tools & Infrastructure (SETI):** Helped launch a near-real-time, log-based verification service checking 200+ business-logic rules across teams. Built a streaming-join cache layer scaling to $\sim 10^6$ log entries/sec, plus production monitoring and alerting.
- Site Reliability Engineer:** Simplified configuration management for Google's global load balancer, breaking a monolithic production push into smaller, more reliable steps with richer ACLs.

EDUCATION

Princeton University — B.S.E. Computer Science, *cum laude* (GPA 3.69/4.00)

2013

SKILLS

Geo & Routing: PostGIS, GDAL, OpenStreetMap data, H3 hexes, Mapbox GL JS, Valhalla, isochrone analysis, tileservers

Data & Pipelines: Apache Airflow, PostgreSQL/PostGIS, MLflow

Backend: Ruby on Rails, PostgreSQL/PostGIS, Python, Go, C++, OpenAPI

Frontend: React/Redux

Infra & Ops: AWS (S3, CloudWatch, RDS, ECS, SageMaker), Terraform, CircleCI, Docker