

Vinuka Kodituwakku

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SUMMARY

I'm a **Backend Developer** who is at my best when I'm handed a problem that doesn't have an obvious answer. I gravitate toward **Go** and **Rust** because they're the best tools for the work I actually enjoy: **low-level optimizations**, **distributed systems**, and **math-heavy logic**. I'd much rather solve a complex architectural puzzle than build another standard CRUD app. My projects, ranging from tracking **20+ drivers live with Kafka** to implementing **precise volume algorithms** for 3D mesh processing, reflect that.

SKILLS

Languages : Go, Rust, Typescript, PHP, Java

Systems & Messaging : Kafka, gRPC (Tonic), Redis (Pub/Sub & Caching), RabbitMQ

Web & Frameworks : Axum, Fiber, CHI, Express

Databases: PostgreSQL, MySQL, SQLite, Redis

Infrastructure & Cloud: AWS (ECS, S3, Lambda, EC2), GCP (Cloud Run), Docker, GitHub Actions

Technical Interests: Algorithms, Linux/Unix

PROJECTS

3D Mesh Engine & Slicer | *Rust, gRPC, Algorithms*

Repo : github.com/VinukaThejana/slicer_rs, github.com/VinukaThejana/mesh_rs

- Built a **gRPC service for 3D printing** cost estimation using precise **geometric volume computation** rather than bounding box approximations.
- Implemented **signed volume summation** and stable **triangulation** to correctly process complex and concave meshes.
- Reduced floating point drift in high vertex models using **Kahan summation** techniques.
- Developed and published **mesh_rs** as a **Rust crate**, providing a CLI toolkit for mesh inspection and file format processing.

IAM Server | *Go, PostgreSQL, Redis*

Repo : github.com/VinukaThejana/auth-server

- Built a centralized **IAM service** supporting **OAuth2**, **TOTP based MFA and Passkeys** via WebAuthn.
- Implemented **JWT rotation** with short lived access tokens and secure HTTP only cookies.
- Designed a **Redis backed session layer** to reduce authentication related database load.

Distributed Content Engine | *Rust, Redis, S3*

Repo : github.com/VinukaThejana/web

- Developed a **type safe** server side rendering system using **Axum and Askama** for Markdown content delivery.
- Built the system to automatically **handle image uploads and metadata**, making the workflow between Markdown and **S3** seamless.
- Improved **Time to First Byte by caching** rendered content and database reads in Redis.

Real-Time Driver Tracking System | *Go, Kafka, Redis, S3*

Repo : github.com/VinukaThejana/driver_tracker

- Designed a **realtime tracking platform** supporting live updates for **20+ drivers** using **WebSockets and SSE**.
- Built a Kafka based **stream processing pipeline** to ingest and archive telemetry data to **S3**.
- Used Go channels and mutexes to keep **driver locations in sync** across different WebSocket connections without losing data.
- Implemented session lifecycle management and **automated cleanup** of inactive connections.

EDUCATION

BSc (Hons) Computer Science (In Progress)

NSBM Green University, Colombo

Expected Graduation: September 2027