

# Eichi Arakaki

090-6879-2800 | justanunusualperson@gmail.com | [github.com/eichiarakaki](https://github.com/eichiarakaki)

## Projects

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**Local Cloud — Distributed Media Processing Platform** | *Go, MySQL, React, Tailwind, Docker* Dec 2024 — Mar 2025

- Built a LAN-first distributed media processing system using Go, coordinating background workers via REST APIs and custom TCP protocols.
- Designed a custom TCP message broker to serialize download jobs, track worker state, and prevent concurrent processing conflicts.
- Implemented a media pipeline with yt-dlp and ffmpeg to download, transcode, and generate browser-compatible MP4 content.
- Developed an API gateway to stream media over HTTP and persist metadata in MySQL with defensive cleanup on failures.
- Applied Go concurrency patterns (goroutines, connection lifecycle management) to safely coordinate communication between services.

**Genie — High-Performance Trading Infrastructure** | *Rust, Tokio, ZMQ, GraphQL, Docker* May 2025 — Present

- Architected a modular microservices trading system (data ingestion, strategy engine, portfolio manager, Risk Manager) using Rust and async Tokio runtime.
- Built a real-time market data pipeline using ZeroMQ pub/sub and GraphQL, supporting both backtesting and live trading modes.
- Implemented a trait-based strategy framework and actor-like concurrency model for parallel strategy execution.
- Designed portfolio and risk engine with Kelly-based position sizing and bounded capital allocation rules.
- Engineered fault-tolerant communication (reconnection logic, heartbeat monitoring, graceful shutdown).

**MagicStream — AI-Powered Streaming Platform** | *Go, React, MongoDB, JWT, GenAI, HTTPS* Dec 2025 — Jan 2026

- Built a secure full-stack streaming platform with Go (Gin) and React + TypeScript, supporting authenticated browsing, reviews, and personalized recommendations.
- Implemented JWT authentication with refresh tokens and HttpOnly cookies, enforcing role-based access control and secure session handling.
- Developed a recommendation pipeline using indexed MongoDB queries to rank content efficiently based on user preferences and genres.
- Integrated Google Gemini AI to analyze admin reviews and automatically classify content sentiment, directly influencing recommendation results.
- Designed a secure cross-origin architecture (HTTPS + strict CORS) and modeled MongoDB collections to support secure access and scalable query patterns.

## Skills

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**Programming Languages:** Go, TypeScript, JavaScript, Rust

**Backend:** Go (Gin, Mux, net/TCP), Rust (Rocket, Actix), REST APIs, WebSockets

**Frontend:** React, TypeScript, Vite, Tailwind, NextJS

**Databases:** MongoDB, MySQL, PostgreSQL, ClickHouse

**Systems & Tools:** Docker, ffmpeg, yt-dlp, Git, JWT Auth, HTTPS

**Languages:** Spanish (Native), Japanese (N3), English (B2)