Alfred Gutierrez

Software Architect & Principal Engineer · Cloud & Distributed Systems · AI
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SUMMARY

Software Architect and Principal Engineer with 15+ years of experience designing scalable, high-performance systems and leading cross-functional, multi-regional teams. Deep specialization in cloud architecture, video engineering, and AI-assisted development workflows. Extensive track record building end-to-end media processing pipelines serving millions of users. Currently based in Tokyo, actively collaborating with international engineering teams and integrating modern AI tooling (LLM-assisted architecture review, AI code generation pipelines, and autonomous agent workflows) into production development cycles.

TECHNICAL SKILLS

Languages & Frameworks: Go, Rust, TypeScript, Python, C, C#, Java; Next.js, React, Node.js, HTML/CSS
AI & LLM Tooling: Anthropic and OpenAI models, Cursor, GitHub Copilot; context engineering, prompt engineering, AI architectural review, autonomous agent workflows, AI debugging & hallucination detection
Architecture: Microservices, Event-Driven Architecture, REST/gRPC/GraphQL, Domain-Driven Design, Clean Architecture, Low-Level Systems
Video Engineering: FFmpeg, HLS/DASH, ABR, fMP4/ISO-BMFF, DRM (FairPlay/PlayReady/Widevine), Transcoding, Packaging
Cloud & Infra: AWS, GCP, Azure, Kubernetes, Docker, Terraform, Dolby Hybrik, AWS Elemental, Azure Media Services
Leadership: Technical Roadmapping, Team Mentorship, Cross-regional Collaboration, Stakeholder Communication, Agile/Scrum
Languages (spoken): English (Native), Japanese (Basic / actively learning, N4/N5 level)

EXPERIENCE

Founder & Engineer
2025 – Present

Video Commander · Tokyo, Japan (Independent)

- Built and launched a desktop media engineering application for video engineers and streaming platform developers
- Features include deep media inspection, VMAF quality analysis, FFmpeg pipeline management, and HLS/DASH packaging
- Available at video-commander.com

Stack: *Tauri, Rust, React, TypeScript, FFmpeg*

Software Architect / Principal Engineer, Video Engineering
Feb 2020 – Jul 2025

NBCUniversal · SkyUK · PeacockTV · Remote (Tokyo-based)

- Lead technical architecture and engineering standards for cloud-native media services in Go and TypeScript, supporting streaming delivery to tens of millions of users globally
- Integrated AI-assisted development workflows using Claude and GitHub Copilot into team processes, reducing code review cycles and accelerating architectural decision documentation
- Designed and implemented event-driven encoding and packaging pipelines on AWS and GCP, replacing legacy batch workflows and reducing processing latency by over 60%
- Built internal developer tooling for media services, including job orchestration systems and pipeline observability dashboards
- Mentored and provided technical guidance to distributed engineering teams across US, UK, and remote time zones
- Invented and co-authored a granted US Patent for a novel Video Streaming Ad Transcoding Platform (US 12,225,264 B2)

Stack: *Go, Python, TypeScript, Next.js, React, AWS, GCP, Kubernetes, Docker, FFmpeg, Claude API, GitHub Copilot*

Software Architect — Video Engineering
Dec 2015 – Jun 2020

Fandango (NBCUniversal) · Beverly Hills, CA · Hybrid

- Architected distributed on-demand encoding and packaging systems for large-scale content libraries, with cloud cost optimization through intelligent storage tiering and CDN strategy
- Implemented multi-DRM content protection (FairPlay, PlayReady, Widevine) and developed adaptive bitrate web players for cross-platform streaming
- Built load-testing frameworks to validate system resilience ahead of high-traffic events; received internal Tech Award for Innovation

Stack: *Go, Node.js, Next.js, React, FFmpeg, AWS, Bento4, ISO-BMFF, HLS, DASH, DRM, Docker, MP4Box*

Application Developer Consultant
Nov 2014 – Nov 2015

Precision Development · Hermosa Beach, CA

- Architected and delivered a full-stack media playback web application integrating the YouTube API
- Designed and deployed a serverless API infrastructure using AWS Lambda and API Gateway, an early adoption of the serverless paradigm
- Provided software consulting for booking platform modernization in the hospitality industry

Stack: *JavaScript, C#, ASP.NET, Node.js, AWS Lambda, API Gateway*

Web Developer
Nov 2012 – Nov 2014

Phenomenex Inc. · Torrance, CA

- Led all front-end development, owning UX/UI improvements that measurably reduced page load times
- Built and maintained ASP.NET / C# web applications on Microsoft Azure
- Developed JavaScript-embedded web tools, widgets, and a custom Content Management System

Frontend Developer / QA Engineer
Mar 2008 – Nov 2012

Pictage Inc. · Torrance, CA

- Delivered white-box, black-box, regression, and browser compatibility testing across major product releases
- Built Python-based test automation using Selenium and Mechanize frameworks
- Developed production monitoring tools and reporting dashboards using Python and PostgreSQL

PROJECTS & PUBLICATIONS

- **Open Source:** Creator of several widely-used open source multimedia libraries and CLIs with millions of combined downloads (github.com/alfg)
- **Video Commander:** Tauri-based desktop application for local and cloud media processing with an integrated job queue and FFmpeg pipeline orchestration
- **mp4box (Rust):** Low-level MP4/ISO-BMFF parsing crate for Rust, used in production multimedia toolchains
- **FFmpeg Commander:** Web-based FFmpeg command builder and reference tool
- **US Patent:** Ad Transcoding Platform (US 12,225,264 B2)
- **Blog:** Technical blog covering video engineering, multimedia tooling, and low-level systems development at alfg.dev

AI TOOLING & METHODOLOGY

Actively incorporate AI-assisted development into day-to-day workflows using Anthropic and OpenAI models, Cursor, and GitHub Copilot. Apply context engineering principles to structure codebases for effective LLM-assisted development. Identify and correct common AI failure patterns such as hallucinated APIs, logic errors, and flawed architectural proposals, then evaluate AI-generated designs against real-world constraints of latency, cost, and maintainability.