

Alex Headlam

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AI Systems Architect & Forward-Deployed Technologist

AI systems architect and technical builder with extensive experience engineering production multi-agent systems, tool-execution loops, and multimodal retrieval pipelines. Specializes in translating complex engineering capabilities into high-leverage, self-serve internal dashboards and rapid prototypes for cross-functional marketing, product, and studio teams.

EXPERIENCE

Founder & Lead AI Systems Architect

2023 – Present

[ANKLE OS](#) / [aleqth.com](#) • New York, NY

Distributed Agent Infrastructure

- **Production Multi-Agent Systems:** Architected distributed agentic systems executing autonomous tool-calling loops, persistent vector memory, automated retry policies, and strict state invariants in cloud Linux environments.
- **Multimodal Semantic Protocol (/dada):** Engineered an autonomous indexing and enrichment pipeline processing 400,000+ visual assets using multimodal vision models, dense vector embeddings, and hybrid retrieval backends.
- **Deterministic State Verification:** Implemented automated ledger verification gates requiring cryptographic and tool-execution proofs (SHA-256 hashes, verified endpoints) for all inter-agent state mutations, eliminating hallucinated side-effects.
- **Internal Tooling & Rapid Enablement:** Authored custom command-line interfaces, background daemons, and browser automation tools that transformed multi-step data pipelines into autonomous sub-second operations.

Creative Operations & Systems Consultant

2024 – 2025 (6-Mo Contract)

[HelloFresh EP Studio Operations](#) • New York, NY

Enterprise Production Pipeline

- **Studio Pipeline Automation:** Integrated Creative Force and Kelvin APIs to automate commercial photoshoot shot lists, asset tracking, and stage scheduling across daily enterprise productions.
- **Self-Serve Operations Dashboards:** Engineered browser-native internal dashboards connecting studio teams directly to production data, cutting manual cross-department coordination overhead.
- **Workflow Modernization:** Embedded with studio photographers, digital techs, and art directors to establish standardized metadata workflows and automated ingestion protocols.

EXPERIENCE (CONTINUED)

Generative Systems & QA Engineer2023 – 2024Node-Based Model Architectures

Eden (eden.art) • New York, NY

- **Generative Pipeline Testing:** Executed automated stress-testing, latency benchmarking, and UI/UX optimization for node-based generative systems founded by early RunwayML engineering leadership.
- **Model Drift Benchmarking:** Audited multi-generator node architectures across 19,000+ model runs, pinpointing inference latency bottlenecks, prompt drift, and usability friction.

AI Systems & UX Technologist2021 – 2023Interactive Systems & Production

Independent Systems & Digital Technologist • New York, NY

- **Workflow Automation Pipelines:** Built custom Python and Node automation pipelines for commercial studios (SuperRare, TITLES, Warner Records), streamlining media ingestion, batch asset transformation, and publishing.
- **Rapid Prototyping & Live POCs:** Partnered with non-technical stakeholders to translate ambiguous briefs into functioning web software, interactive canvas surfaces, and production pipelines with same-day turnaround.

CORE ARCHITECTURES & PRODUCTION SYSTEMS

- **Model Context Protocol (MCP) Multi-Agent Network:** Built production coordination server orchestrating specialist LLMs via MCP, automating code inspection, telemetry synthesis, and distributed execution.
- **Self-Serve Creator Canvas Engine:** Engineered browser-based visual studio combining vector typography, dynamic asset transformations, and instant zero-config web deployment.

TECHNICAL COMPETENCIES

AI Systems & Orchestration:	Multi-agent architectures, MCP, tool-calling loops, RAG, vector embeddings, prompt engineering, structured evaluation
Languages & Frameworks:	Python (FastAPI, asyncio, urllib), JavaScript/TypeScript (React, Node.js), Linux/Bash, HTML5 Canvas
Data & Infrastructure:	PostgreSQL, SQLite, REST APIs, WebSockets, Docker, AWS EC2, Git, Nginx reverse proxies, CDP browser automation
Forward Deployment:	Rapid prototyping, workflow discovery, cross-functional enablement, proof-of-concept sprint delivery