

Alexander Ahern

Senior Full Stack Engineer

Web • Mobile • Distributed Systems • Cloud • AI-Enabled Applications

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PROFESSIONAL SUMMARY

Senior/Staff-level Full Stack Engineer with 11 years of experience designing, building, modernizing, and operating production software across logistics, commerce, construction, enterprise systems, and SaaS.

Deep experience with React, TypeScript, Node.js, React Native, PostgreSQL, AWS, APIs, and distributed application architecture, backed by production engineering experience at Amazon, Flexport, Shopify, Procore Technologies, and Work & Co.

Experienced across the full software lifecycle - from architecture, data modeling, APIs, and frontend systems through testing, CI/CD, observability, performance optimization, incident response, and production operations. Particularly effective in greenfield development and rescue engagements where rapidly growing or inherited systems require stronger architecture, reliability, and engineering discipline.

More recently expanded this foundation into AI-enabled application architecture, including RAG, vector search, LLM routing, agent infrastructure, and workflow automation.

PROFESSIONAL EXPERIENCE

Senior Full Stack & AI Engineer | Independent Consultant

September 2024 – Present

Lead architecture and delivery for web, mobile, SaaS, platform, and AI-enabled software engagements spanning greenfield development, modernization, performance optimization, and legacy-system recovery.

- Architected and delivered a B2B logistics platform using React, Node.js, PostgreSQL, and AWS processing approximately **40,000 shipment events per day**, replacing a spreadsheet-driven workflow previously managed manually by three dispatchers.
- Rebuilt the storefront for a Shopify merchant generating approximately **\$2M annually**, reducing mobile checkout load time from **6.2 seconds to 1.4 seconds**; the client subsequently reported a **17% increase in completed checkouts** over the following quarter.
- Designed and shipped an offline-first React Native field-inspection application to both iOS and Android within **nine weeks**, enabling field operations at construction sites with unreliable connectivity.
- Took ownership of an abandoned Laravel/Vue platform with no automated tests and an unreliable deployment process; introduced testing and CI/CD improvements that achieved **70% test coverage** and consistently successful builds.
- Architect and operate containerized application infrastructure spanning **20+ services** across application runtimes, databases, automation, AI processing, monitoring, networking, and administration.
- Built semantic retrieval and AI application capabilities using PostgreSQL/pgvector, Qdrant, LiteLLM, Ollama, OpenRouter, MCP servers, and automated workflows.
- Own technical discovery, architecture, implementation, testing strategy, production readiness, observability, documentation, and engineering handoff.

Staff Software Engineer, Mobile | Procore Technologies

January 2023 – August 2024

- Built and evolved React Native applications supporting construction professionals across production iOS and Android environments.
- Designed offline-first synchronization architecture incorporating conflict resolution, persistent queues, retries, and resilient photo uploads for unreliable field connectivity.
- Owned mobile release quality, production crash analysis, observability, and incident triage using Sentry.
- Worked across product, design, backend, and mobile engineering boundaries to translate complex field workflows into maintainable application architecture.
- Contributed to engineering decisions involving reliability, application state, synchronization behavior, and production readiness.

Stack: React Native, TypeScript, Zustand, offline-first architecture, Sentry, iOS, Android

Senior Developer, Storefronts | Shopify

November 2021 – December 2022

- Worked on high-scale commerce and storefront systems with direct responsibility for rendering performance and Core Web Vitals.
- Diagnosed and resolved storefront and checkout performance bottlenecks through JavaScript bundle optimization, image-pipeline improvements, third-party script analysis, and edge caching.
- Developed across Shopify's large-scale Ruby ecosystem alongside modern JavaScript storefront architectures.
- Investigated application performance across browser execution, network delivery, frontend rendering, and backend behavior.

Stack: Ruby, Rails, React, JavaScript, Next.js, Remix, Vite, Hydrogen

Senior Software Engineer | Flexport

July 2019 – October 2021

- Built logistics applications supporting shipment visibility, freight operations, and dispatcher workflows using React, TypeScript, Node.js, PostgreSQL, and GraphQL.
- Developed high-volume shipment-event pipelines powering customer tracking experiences and internal operational tooling.
- Led the rewrite of a customer-facing shipment tracking application.
- Established the team's first substantial automated testing strategy, improving regression protection and release confidence.
- Tuned PostgreSQL-backed workflows and investigated performance across APIs, database queries, and frontend data-access patterns.
- Owned application instrumentation and production monitoring using Datadog.

Stack: React, TypeScript, Node.js, PostgreSQL, GraphQL, Redux Toolkit, TanStack Query, Playwright, Datadog

Senior Software Engineer | Work & Co

March 2017 – June 2019

Promoted from Software Engineer to Senior Software Engineer

- Delivered production software across four-to-six-month client engagements spanning frontend, backend, commerce, CMS, and infrastructure concerns.
- Built applications across React and Vue ecosystems and inherited and stabilized Angular applications.
- Delivered WordPress and Drupal migrations and a Magento-to-Shopify replatform, including checkout redevelopment.
- Established repeatable documentation, testing, environment setup, and developer-onboarding practices across approximately **20 client transitions**.
- Collaborated directly with client stakeholders, product teams, designers, and engineers through delivery and handoff.

Stack: React, Vue, Angular, JavaScript, PHP, Laravel, Shopify, Magento, WordPress, Drupal, Storybook

Software Development Engineer I | Amazon

August 2015 – February 2017

- Developed backend services for Amazon Fulfillment Technologies supporting operationally critical inventory-reconciliation workflows.
- Built production services using Java, Spring, DynamoDB, and AWS.
- Joined production on-call within four months and diagnosed operational incidents through CloudWatch and Splunk.
- Developed foundational experience in distributed systems, observability, incident response, service reliability, and operational ownership.

Stack: Java, Spring, DynamoDB, AWS, CloudWatch, Splunk

SELECTED AI & PLATFORM ENGINEERING

Archive20 — AI Patent Intelligence SaaS

- Architected an AI-enabled SaaS integrating patent search, semantic retrieval, AI analysis, authentication, payments, reporting, notifications, and **28 automated workflows**.
- Implemented semantic retrieval using **PostgreSQL/pgvector and Qdrant** with RAG-based analysis.
- Integrated EPO OPS, Stripe, Google OAuth, Slack, and Discord into automated application workflows.

MODD-E — Real-Time AI Moderation Platform

- Designed a real-time AI moderation architecture targeting six communication platforms.
- Built isolated pgvector-backed RAG environments supporting channel-specific knowledge, contextual memory, personalities, and moderation policies.
- Developed MCP-based integrations and local speech-to-text capabilities using Whisper.cpp.
- Designed usage-based billing infrastructure with Stripe, Lago, and Redis, including circuit breakers for controlling external AI/API expenditure.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Python, Java, PHP, Ruby, SQL, Bash, HTML/CSS

Frontend & Mobile: React, Next.js, React Native, Vue, Angular, Remix, Gatsby, Storybook

Backend & APIs: Node.js, Express, NestJS, Spring Boot, Django, Flask, Laravel, Ruby on Rails, REST, GraphQL/Apollo, WebSockets, OpenAPI

State & Data: Redux Toolkit, Zustand, TanStack Query, PostgreSQL, MySQL, DynamoDB, MongoDB, Redis, Elasticsearch, pgvector, Qdrant

Cloud & Infrastructure: AWS, Docker, Kubernetes, Terraform, Linux, Cloudflare, Nginx, Azure, GCP, Vercel

Testing & Delivery: Jest, Vitest, React Testing Library, Playwright, Cypress, GitHub Actions, GitLab CI, Jenkins, CircleCI

Observability: Datadog, Grafana, Prometheus, Alertmanager, Sentry, New Relic, CloudWatch, Splunk

AI & Automation: RAG, LangChain, Ollama, OpenRouter, LiteLLM, MCP Servers, AI Agents, n8n, Flowise, Whisper.cpp

EDUCATION

Carnegie Mellon University

Bachelor of Science, Computer Science
2011 – 2015