

Jay Fallon

Full-Stack Software Engineer · UX Designer · Product Strategist

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Summary

Full-stack architect specializing in domain-specific platform development. I design and implement complex, multi-tenant systems that solve real industry problems. My background combines enterprise experience (Form Health, Dassault Systèmes, Bose, Cengage) with interdisciplinary education—B.S. in Business Administration (International Business, Finance) from Northeastern University and ALM in Digital Media Design from Harvard University.

Technical Skills

Architecture & Backend: Multi-tenant systems, database-driven routing, PostgreSQL, Prisma ORM, Redis, pgvector, BullMQ, Node.js/Express, Python, FastAPI, GraphQL, REST APIs, microservices, WebSockets, Supabase, PayloadCMS

Frontend & Frameworks: Next.js, React 19, TypeScript, Tailwind CSS, HeroUI, Framer Motion, responsive design, semantic HTML, WCAG compliance

AI & Machine Learning: Anthropic Claude API, OpenAI API, vector search, graph algorithms (Node2Vec, Louvain), semantic search, scikit-learn, Pandas

Data & Automation: Selenium, BeautifulSoup, web scraping, asyncio, data validation pipelines, Puppeteer

Testing & Performance: Vitest, Playwright, Testing Library, Testcontainers, Supertest, Memlab, Happy-DOM, Core Web Vitals

DevOps & Infrastructure: Railway, AWS (S3, Lambda, CloudFront), Vercel, Docker Compose, CI/CD pipelines, Sentry, Winston

Additional: Clerk authentication, Zod validation, MongoDB, MySQL, Firebase, Storybook, Prismic, Agile methodologies, Cassandra

Fluent in English and Spanish

Education

Master of Liberal Arts (ALM) in Digital Media Design - Harvard University

2017 – 2019

Completed Master of Liberal Arts degree in Digital Media Design through Harvard Extension School, focusing on user experience design, interaction design, and digital media production. Developed comprehensive understanding of design principles, user research methodologies, and digital product development.

Bachelor of Science (B.S.) in Business Administration - Northeastern University

1993 – 1998

Completed Bachelor of Science degree in Business Administration with majors in International Business and Finance, focusing on global operations and marketing. Participated in Northeastern's renowned cooperative education program, completing assignments at Boston's Better Snacks, FMRC, and PictureTel, gaining hands-on experience in operations, marketing, technical documentation, and internationalization.

Experience

Founder, Designer & Principal Engineer

[Knokr Media](#)

2024 – Present

Architecting a platform ecosystem addressing data fragmentation in the music industry. The system manages 50,000+ artists and 1,400+ festivals through a shared PostgreSQL infrastructure with pgvector extensions, powering multiple interconnected applications from a single data model. Features include AI-powered lineup extraction from festival posters, graph-based artist discovery using Node2Vec and Louvain scene detection, semantic vector search,

a background worker architecture (BullMQ) for heavy data processing, and 2,649 tests across 125 test files using Vitest, Playwright, and Testcontainers.

Platform Components:

Knokr: Festival discovery and social platform across 1,400+ festivals and 50,000+ artists with AI-powered lineup extraction and recommendations

Knokr Base: Multi-tenant back office with database-driven routing, graph-based discovery, vector search, and six-tier permissions

Knokr Predictor: Festival lineup prediction engine — Python/FastAPI service querying 3.3M co-occurrence edges with Louvain scene detection and weighted scoring

Mojo Boston: White-label festival website on PayloadCMS with 24 custom blocks, live Knokr data integration, and custom S3 media system

KnokrFetch: Python-based event scraping system pulling data from Bandsintown, Songkick, Seated, and custom site parsers for Wix, WordPress, and Squarespace

Orchestra: Standalone experiment for mapping artist relationships through community-driven data contribution

Nuncio: Standalone experiment for AI-powered event curation with embeddable widgets and structured data exports

Tech Stack: Next.js 16, React 19, TypeScript, PostgreSQL/Prisma, pgvector, Redis, BullMQ, PayloadCMS, Python, FastAPI, asyncpg, scikit-learn, Pandas, NumPy, Selenium, BeautifulSoup, Claude AI API, OpenAI API, Clerk, AWS S3/CloudFront, Railway

Consulting Engineer

Form Health

2022 – 2024

Collaborated with the marketing team on redesign and development of the customer-facing website for this leading medical weight loss platform. Implemented modern web development practices and a comprehensive design system to ensure consistency across the platform. Improved user experience through responsive design and optimized performance.

Tech Stack: Next.js, TypeScript, Tailwind CSS, Prismic, Storybook

Senior Software Engineering Manager

Dassault Systèmes SE · Waltham, MA

2019 – 2023

Led development teams across multiple products within The 3DEXPERIENCE platform, including SOLIDWORKS and educational products Apps for Kids and Apps for Kids Classroom.

SOLIDWORKS Cloud Platform

2021–2023

Implemented comprehensive design system technology and documentation systems across multiple SolidWorks products. Managed shared component libraries and design tokens across product teams. Coordinated feature rollouts and integration work spanning Apps for Kids, xDesign, and 3DEXPERIENCE tools.

SOLIDWORKS Apps for Kids

2019–2021

Rebuilt front-end and back-office systems for educational platform introducing children ages 4-14 to 3D design. Redesigned user interface balancing child-friendly accessibility with educational depth. Developed admin tools for educators and content management features while maintaining COPPA compliance.

Tech Stack: Angular.js, JavaScript, Node.js, Express.js, CSS, Cassandra, Docker

Additional Experience (2000–2019)

Worked as a UX engineer with the following companies as either an employee or consultant: Syrinx Consulting/Bose Corporation, State Street Global Advisors, Cengage Learning, Boston Technologies, netNumina Solutions (Fidelity, State Street, Johnson & Johnson, Pfizer, ADQSR), and Style Me Pretty.