

Nicole Bush

TECH LEAD · FULL STACK ENGINEER · AI-INTEGRATED DEVELOPMENT

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PROFESSIONAL SUMMARY

Full stack engineer and technical lead with 6+ years of experience building production-grade applications in fintech and government defense environments. Operates at an architectural level — defining API contracts, designing data schemas, leading cross-team integrations, and driving feature scope from requirements through deployment. Known for taking ownership of complex, ambiguous features end-to-end with minimal oversight. Integrates AI tooling (Claude, OpenAI) as a first-class part of the engineering workflow: using it to pressure-test architectural decisions, accelerate feature delivery, surface edge cases earlier, and generate structured output for complex classification and extraction tasks.

EXPERIENCE

Senior Software Engineer · Platform & Feature Lead | [Booz Allen Hamilton](#) *Aug 2022 – Present*

React/TypeScript enterprise application for U.S. military personnel management — global deployment across military installations

- Technical SME on major feature initiatives; owning scope definition, API contract design, database schema design, and end-to-end implementation with minimal oversight.
- Designed Splunk observability schema from scratch: defined event taxonomy across API responses, business logic events, and error states to enable full-flow request traceability across the application.
- Architected a standardized error messaging framework spanning backend to UI: structured API error payloads normalized and routed to a consistent user-facing notification system — adopted as a codebase-wide pattern.
- Technical voice in architectural design sessions, contributing to backend service design, API contracts, and data modeling for new systems including a complex staffing calculation rules engine.
- Built MUI theme library adopted across the entire frontend; increased unit test coverage from 50% to 75% and established team-wide testing patterns.
- Integrates Claude as a first-class engineering tool: pressure-tests architectural decisions, generates implementation options, and surfaces edge cases systematically, measurably reducing rework on complex features.

Tech Lead | [Booz Allen Hamilton](#) · VA National Call Center AI Initiative *Aug 2022 – Mar 2024*

AI-powered voicebot to triage veteran medical claims inquiries — integrated into Cisco call center infrastructure at the VA

- Technical lead on a two-person senior team with full architectural ownership; no engineering management layer; all system and integration decisions made jointly at the lead level.
- Designed distributed system architecture across three components: Vue.js CMS (internal), Google Dialogflow NLP, and Google Cloud Functions for serverless response logic; coordinated Cisco telephony integration with external infrastructure leads across regular cross-team technical sessions.
- Identified a gap in Dialogflow's native tooling, and built a custom analysis tool to flag training phrase overlap across intents, directly improving response accuracy for veteran claims inquiries.
- Managed deployments across AWS Elastic Beanstalk and Google Cloud Functions; mentored a junior developer on SDLC processes, architectural decision-making, and code review practices.

Software Engineer | [Autobooks](#) *Aug 2020 – Jun 2022*

Enterprise React/TypeScript fintech platform — embedded payment and invoicing features within online banking products

- Contributed to a large-scale fintech application integrating payment solutions into banking platforms; designed and implemented GraphQL schemas with TypeScript for API communication.
- Refactored 120+ legacy React class components to functional architecture, improving maintainability and performance across a large shared codebase.
- Scaled end-to-end Selenium Protractor test suite from 20 to 80+ tests; improved release confidence and regression coverage.
- Enhanced MUI theme library and standardized shared component patterns across the application.

Front End Engineer | Benzinga

Mar 2020 – Jul 2020

WordPress-based fintech content platform

- Built front-end content blocks in Laravel/PHP with Advanced Custom Fields; designed and wireframed components in Figma.

PROJECTS

Mineral Risk Data Platform | Solo Engineer · Technical Co-Founder

2024 – Present

EV battery supply chain risk intelligence platform — pre-launch, scoring engine functional

- Sole engineer on a risk scoring platform covering 39 critical minerals across 200+ countries.
- Built a two-tier AI ingestion pipeline: Tier 1 keyword filtering across 10+ nightly sources; Tier 2 routes candidates through Claude Haiku for structured classification — relevance confirmation, mineral/regulation attribution with confidence scoring, and ~40% false-positive reduction via threshold tuning.
- Designed a 5-pillar weighted scoring engine (0–100): Material Concentration, Geopolitical/Trade, Regulatory/Compliance, Operational, and Financial Pressure.
- Stack: Python / FastAPI / SQLAlchemy / PostgreSQL / Inngest / Next.js / Claude (Haiku + Sonnet). Full infrastructure managed solo — scheduled ingestion jobs, end-to-end deployment pipeline.

NJ/TX/GA Property Tax Calculator | Solo Engineer · Sole Operator

2025 – Present

Production SEO platform serving ~1,200 active users / 90 days — grown 12× over first 6 months

- Built and operate a live property tax reference and calculator across three states — sole engineer, designer, content author, and operator end-to-end.
- Data engineering: extract structured data from image-only PDF sources; multi-source ingestion from Census ACS, state tax authority feeds, and comptroller data.
- System design: each state's tax mechanics abstracted behind a single calculator interface with a generic jurisdiction architecture.
- Full infrastructure ownership: deployment, analytics, sitemap automation, JSON schema, and affiliate integration with per-surface conversion attribution.

TECHNICAL SKILLS

Languages & Frameworks: TypeScript, JavaScript, Python, React, Next.js, Vue.js, Node.js, FastAPI

Architecture & Systems: API design & contract definition, distributed systems, microservices, event-driven patterns, database schema design, system decomposition

AI & LLM Integration: Anthropic Claude (Haiku, Sonnet), prompt engineering, structured output extraction, AI-assisted architecture review, two-tier classification pipelines

Data & Storage: PostgreSQL, Elasticsearch, TypeORM, SQLAlchemy, Alembic, Neon serverless, caching patterns

Cloud & Infrastructure: AWS Elastic Beanstalk, Google Cloud Functions, Google Dialogflow, Vercel, Railway, Cloudflare, Docker, Inngest

Observability & Tooling: Splunk (schema design & structured logging), Azure DevOps, Git, Jest, React Testing Library, Selenium Protractor, Figma, Jira/Confluence

Practices: Technical leadership, architectural design, API contract design, cross-team coordination, code review, mentorship, Agile/Scrum, technical documentation

EDUCATION

B.S. Psychology & Biology | Eastern Michigan University

Completed Apr 2016

Front End Engineering Bootcamp | Grand Circus

Jan – Mar 2020