Caleb Carmichael

Senior Backend & Blockchain Engineer

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Senior engineer building backend systems, financial infrastructure, and AI developer tools. Founding engineer at Fei Labs and Votre, with experience taking products from architecture through production, testing, monitoring, and incident response.

TECHNICAL SKILLS

Core: TypeScript, JavaScript, Node.js, Solidity, Python, SQL
Applications: FastAPI, React, Kotlin, Jetpack Compose, Go, REST APIs, distributed workers
Data and AI: SQLite, FTS5, Alembic, LanceDB, HNSW, RAG, LLM evaluation, test and grader design
Delivery: Docker, Linux, CI/CD, Vitest, Playwright, WebdriverIO, Datadog, PagerDuty

EXPERIENCE

Handshake AI Fellowship
May 2026 - Present

Software Engineer, LLM Evaluation | Contract, Remote

- Design adversarial coding tasks, evaluation criteria, test suites, graders, and reference solutions across TypeScript, Python, systems programming, and software architecture.
- Review generated code for correctness, security, performance, and maintainability; document recurring failure modes and actionable technical feedback.

Segfault Security
Mar 2023 - Present

Independent Software Engineer | Self-employed, Remote

- Build independent software and deliver engineering contracts covering backend architecture, automation, security, and production reliability.
- Built and operated Tarkin, a TypeScript/Node.js trading system that simulated approximately 5,000 transaction variants per second and sent 410,000+ transactions on BNB Chain and Polygon. Now retired.
- Implemented parallel simulation workers, signing controls, guarded execution, Dockerized nodes, and monitoring and alerts.

Votre / Collar Networks
Apr 2023 - May 2024

Founding Engineer | Remote / a16z CSX London

- Sole engineer for a blockchain lending platform, owning architecture, Solidity contracts, TypeScript integrations, risk logic, automated tests, and technical delivery.
- Built the product through a16z CSX Spring 2024; the company announced a $1.1M pre-seed round.

Fei Labs
Jun 2021 - Oct 2022

Founding Engineer, Solidity Developer & Security Lead | San Francisco

- First Solidity engineer. Built and reviewed 20+ production contracts and supporting TypeScript tools for a protocol with $3.5B in controlled assets at peak; contributed 83 merged pull requests.
- Implemented access controls, governance and treasury operations, redemption workflows, deployment automation, and automated tests.
- Built monitoring and incident response with OpenZeppelin Defender and PagerDuty; ran the bug-bounty program, coordinated critical-severity triage, and mentored engineers.

EARLIER EXPERIENCE

Hypernet Labs May 2020 - May 2021
Software Engineer, Blockchain | Redwood City / Remote

- Built Solidity contracts and TypeScript/Node.js middleware for usage-based and subscription compute payments using Connext payment channels.

Arboreum Sep 2019 - Mar 2020
Project Lead & Software Engineer | Remote

- Led development of a carbon-credit verification and marketplace prototype, including smart contracts, exchange logic, and data flows.

Nead Werx May 2017 - Jul 2019
Quality Assurance Automation Engineer | Atlanta

- Built Node.js/WebdriverIO automation with BrowserStack and CI for enterprise warehousing software supporting Home Depot; added scheduled smoke tests, dashboards, and release checks.

Rising Line Labs / Zethr Nov 2017 - Oct 2018
Founder, CTO & Lead Engineer | Remote

- Led nine engineers building a transaction platform with 20+ interoperable components and a Vue.js frontend; implemented security tests, monitoring, and exploit alerts.

SELECTED PROJECTS

Meta Archive Explorer | Python, FastAPI, SQLite, React, LanceDB
Turned fragmented Facebook exports into a local dashboard used with 1.3M+ messages and 40+ GiB of data. Built resumable ingestion, source provenance, keyword and semantic search, local transcription, and reversible quarantine.

Spotify Dash | TypeScript, React, Kotlin, Jetpack Compose
Built web and native Android apps for Spotify listening-history analysis. Added local import, deduplication, interactive charts, CSV export, and shared fixtures to verify calculations across platforms.

Hexagons Bestagons | TypeScript, Pixi.js, Vitest, Playwright
Built a deterministic 60 Hz simulation with queued commands, read-only snapshots, hex-grid pathfinding, map editing, and a 20-level campaign; verified rules and browser workflows with automated tests.

Spearbot | TypeScript, LangChain, HNSW
Built a Solidity audit-assistant pipeline that summarizes source and documentation, indexes context locally, and answers questions through retrieval-augmented generation.

EDUCATION AND AWARD

Georgia Institute of Technology | B.S. Computer Science, 2017
Focus: Networking and Systems & Architecture

2018 Atlanta DappHack - First place. Built MineableGemToken, a proof-of-work digital collectibles system with a miner and marketplace prototype in 24 hours.