Tobias Merkle

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Professional Summary

Fullstack generalist with 8 years of experience building AI-powered applications, distributed systems, and complex web interfaces. Deep expertise in LLM integration, RAG architectures, and agent systems. Proven ability to architect and ship products across AI, blockchain, and enterprise domains. Strong technical leadership with experience mentoring teams and driving R&D initiatives.

Technical Skills

AI & ML: LLM Integration (OpenAI, Anthropic, local models), RAG/Vector Databases (Chroma, Pinecone), Agent Architectures, Prompt Engineering, Embeddings, NLP
Frontend: React, TypeScript, Next.js, React Native, Zustand, Framer Motion, THREE.js, Phaser, Blazor
Backend: Node.js, Rust, Python, C#/.NET, REST APIs, gRPC, WebSockets, functional programming (fp), Elixir
Infrastructure: Docker, Linux/Unix, Nginx, Caddy, DigitalOcean, CI/CD, WASM, Selenium
Data: PostgreSQL, SQLite, Oracle, Vector DBs, Embeddings Caching
Web3: Ethereum, Urbit/Holochain, Smart Contracts, Hardware Wallet Integration
Game Dev: Godot, Unity, Phaser.js, Real-time Multiplayer, NPC AI Systems
Spoken Languages: Latin, Mandarin Chinese, Spanish, French, German, toki pona

Featured Projects

Replicating Stanford's "Generative Agents" — nuga.theologi.ca/posts/stanford
- autonomous NPCs with long-term memory, reflection, and emergent social behaviors
- perception→thought→action pipeline with vector similarity retrieval (Pinecone, Chroma)

JeevesPT: Conversational AI Assistant — nuga.theologi.ca/posts/jeeves
- Discord bot with voice transcription (Whisper), web browsing (Selenium), persona responses
- Custom voice synthesis via ElevenLabs; auto-translation between arbitrary language pairs
- Learning mode with spaced repetition quizzing; reminder system; multi-server configuration

Experience

Developer Lead | Hyperware (fka Kinode, Uqbar) (Remote) Aug 2021 – Nov 2025
- Led team of 5 developers building interfaces for decentralized applications on a novel distributed OS
- Architected RAG pipeline with Chroma for document retrieval, reducing user query latency by 40%
- Built AI-powered social media app with vector embeddings for content recommendations; shipped iOS/Android via React Native
- Implemented Stanford NPC village simulation—designed memory architecture, conversation systems, and durable actions
- Created web-based IDE for on-chain development; integrated hardware wallets (Ledger/Trezor) for 2FA
- Developed Ethereum block explorer and decentralized file-sharing system in Rust
- Mentored junior developers; collaborated with marketing on rapid design iterations

Lead QA Automation / Frontend Engineer | Envisage Technologies (Bloomington, IN) Mar 2019 – Aug 2021
- Achieved 100% pass rate on 5,000+ automated regression tests through systematic refactoring
- Reduced test runtime by 35% via framework optimization; improved reliability for CI/CD pipeline
- Built and maintained cross-browser UI components for enterprise SaaS application (C#/.NET)
- Supervised contractors; mentored junior developers; drove Agile process improvements

Full-stack Developer | Branch Messenger (Minneapolis, MN) Jun 2017 – Sep 2018
- Rebuilt enterprise shift-management platform serving thousands of users (Angular, Node.js)
- Integrated JWT authentication and gRPC for API modernization
- Managed contractors and improved code quality across distributed team

Education & Additional

University of Florida — B.A. Linguistics, Minor in Chinese Language & Culture (2011–2014)
Bloominglabs Makerspace: President (2022), Secretary (2020), Board Member (2019) • LambdaConf: Merit Scholar (2016), Volunteer (2017–2019) • Cattle Rancher, Duck Steward, & Goat Warden (2020–Present)