Brian Takita

Building **emergent software systems** through **agent loops** and **context engineering** — **spec-driven** development, **automated verification**, and **collaborative intelligence** tooling where **agents and humans work in parallel** with full context. **20+ years** full-stack experience.

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SUMMARY

Over 20 years building full-stack systems with deep expertise in **reactive programming**, event-driven architecture, and real-time pipelines. Most recently architected a real-time **multimodal** AI avatar pipeline — text, audio, and video lipsync — at Presence AI. Now building **spec-driven** agent tooling and **collaborative intelligence** workflows. A decade of **context engineering** — from a **domain ontology** system (2014) through reactive frameworks to modern agentic systems where humans and agents work in parallel with full context.

SKILLS

Context Engineering, **Spec-Driven Development**, **Agents**, **Rust**, **Python**, **TypeScript**, Zig, **React**, SvelteJS, **Docker**, **WebRTC**, REST, **GraphQL**, Node.js, Next.js, Django, FastAPI, Flask, Graphene, SQLAlchemy, Angular, Vue.js, Zod, Flutter, Go, Ruby on Rails, C#, **PostgreSQL**, Supabase, Firebase, **AWS**, Terraform, Google Cloud, Azure, CI/CD, Plesk, Heroku, Agentic Systems, Claude, Squarespace, WordPress, Wix

EXPERIENCE

PRESENCE AI — LEAD BACKEND ENGINEER, AI PIPELINE

April 2024 – February 2026 (1 year 10 months)

• Full-stack feature development: React ↔ GraphQL ↔ API Services ↔ **Multimodal Avatar Agents** + PostgreSQL
• Architected and shipped the entire **real-time video pipeline**: **facial landmark detection**, **LatentSync lip-sync** inference (VAE decode, denoising, restoration), idle video generation, and frame sequencing on **NVIDIA H100 GPUs** via **WebRTC** using **LiveKit**
• Architected a **multi-service AI monorepo** with **closed-loop agentic workflows** and **self-auditing development infrastructure** (Claude Code / Codex)
• Developed an iterative **agentic development methodology**: lightweight living specs refined through **closed-loop agent auditing** and continuous **human-in-the-loop feedback**, accelerating design velocity while staying in flow with the emerging design
• Built reusable async primitives for high-quality **agent-authored code** and human comprehension: task lifecycle management, scoped cancellation, lazily resolved dependencies that decouple initialization order and cascade invalidation through the context, runtime profile logging, and stable cross-stack naming to maintain conceptual coherence for both **human and agent reasoning**
• Improved lip-sync quality through **landmark temporal smoothing**, LatentSync model upgrades, and optimized **Whisper audio feature extraction** via improved audio stream batching

OPEN SOURCE — CREATOR / SOLO DEVELOPER

2024 – Present | Early contributor to **Behavior Driven Development** (BDD)

CORKY — GIT-BASED CORRESPONDENCE TOOLKIT (RUST) GITHUB.COM/BTAKITA/CORKY | DOCS

• Built a **git-native correspondence system** that syncs topics, contacts, and threads from email (IMAP), Telegram, and Slack into scoped markdown mailboxes, with **per-topic and per-contact agent context** that propagates across collaborators via **3-way merge**

• Designed multi-scope mailbox architecture where each collaborator receives only relevant threads and context, with bidirectional sync using content hashing (FNV-1a) and git-based conflict resolution for **offline-first collaboration**

• Implemented **crash-safe incremental IMAP sync** with **streaming merge**, bulk import for Slack and Telegram archives, and label-based routing rules that fan out threads to multiple mailboxes

• Dog-fooding daily for personal and professional correspondence across Gmail and Protonmail accounts

AGENT-DOC — DOCUMENT-AS-INTERFACE FOR INTERACTIVE SESSIONS WITH AI AGENTS (RUST) GITHUB.COM/BTAKITA/AGENT-DOC

• Created a **document-as-interface** model for **persistent AI conversations**: edit a markdown file offline, submit diffs, agent responds inline — all tracked through git commits for full session history and branch-based workflows

• Engineered write-safe **concurrent editing** via **3-way merge** (snapshot + user edits + agent response), preventing data loss when human and agent edit simultaneously

• Built **agent-agnostic core** with **pluggable LLM backends**, automatic pre-commit of user changes, and **snapshot-based diffing** so only changed content is sent to the agent

• Dog-fooding as the primary interface for planning and iterating on both corky and agent-doc development

OTHER CONTRIBUTIONS:

• *lazily-py* — Creator. Lazy evaluation with **context caching** in Python

• *lazily-zig* — Creator. Cross-platform & thread-safe lazy evaluation with **context caching** in Zig

• *ctx-core* — Creator. Explicit, scalable cross-platform, **reactive contexts** written in JavaScript

• *rmemo (Reactive Memo)*/*RelementJS* — Creator. Smallest & most composable **reactive isomorphic UI library** in JavaScript

• *rappstack* — Creator. Full-stack framework using BunJS & Elysia for extensible web app modules

• *rebuildjs* — Creator. Simple hackable alternative to Vite for Multi-Page Apps

• *relysjs* — Creator. **Reactive web app server** for MPAs with middleware and build APIs

• *hyopjs* — Creator. Tiny hydration library (starting at 61 B)

• *Generic Query Analyzer* — Creator. .NET WinForms query analyzer for OleDB data sources including MS Access

• *SvelteJS* — Contributor (**breadth-first queueing algorithm**)

• *Nano Stores* — Contributor (**breadth-first queueing algorithm**)

• *rr (double Ruby)* — Creator. Test double framework for Ruby. Pioneered proxy-based test doubles (mock.proxy, stub.proxy) — pattern now standard as `patch` in Python's pytest/unittest

• *RSpec* — Core contributor to the Ruby **Behavior Driven Development** (BDD) testing framework

• *backbone-signal* — Creator. **Signal & Slots reactive API** for Backbone Models

• *Screw Unit* — Co-creator. BDD testing framework for JavaScript

• *philosophy* — Creator. **Domain ontology** system (152 nodes) defining scope, context, resolution, and abstraction — structuring agent reasoning across domains (since 2014)

• *Desert* — Co-creator. Rails plugin framework with model/view/controller sharing

FREELANCE — FULL-STACK ENGINEER

January 2019 – February 2026 (7 years 1 month)

Managed, developed, & ensured success of short-term freelance software projects. Used subcontractors for development. Web and mobile Flutter apps across all industries.

• menu.com — Multi-tenant frontend for consumer web app, restaurant back-office, and Cordova mobile app (SvelteJS, Sapper, AWS)

CENSIBLE — LEAD PRODUCT DEVELOPER

January 2016 – February 2026 (10 years 1 month) | Greater New York City Area

Developed web solutions for Financial Services, centered around an Environment, Social, Governance (ESG) lens. These tools helped investors align their investments with their values & manage exposure to ESG topics.

• Built Martin Investments analyst portal with ESG rating algorithms, XLSX export handling **10,000+ rows**, and SVG/PDF report generation
• censible.co
• esg.censible.co
• esg.censible.co/rebalance

SOCIALCHORUS — SENIOR SOFTWARE ENGINEER

February 2018 – August 2018 (7 months) | Remote

• Product development on the Studio team
• Converted legacy Backbone frontend to Svelte & React
• ES5 to ES6/ES2017 migration
• Created best practices for front-end component development

NEO INNOVATION, INC. — SOFTWARE DEVELOPMENT CONSULTANT

September 2015 – December 2015 (4 months) | Greater New York City Area

Developed interactive document + email research pipeline application for a financial holdings company. Workflow involves actor (e.g. CEO or sales) emailing contacts & contextual notes, to be researched and processed by the analyst team. The application semantically matches text to companies & contacts in Salesforce to assist the analyst team with further refinements & analysis.

CRYSTALCOMMERCE — SENIOR SOFTWARE DEVELOPER

January 2015 – September 2015 (9 months)

Migrated production Rails app. Re-architected the front end using Node.js, Browserify, Gulp, and Backbone.

RUNDAVOO — PLATFORM ARCHITECT / LEAD FRONT END DEVELOPER

March 2013 – December 2014 (1 year 10 months) | Greater Los Angeles Area

Led front-end development for Rundavoo, a **Google top 75 app** in 2014. Created a responsive, multi-platform (desktop, tablet, mobile, server) application that integrated with several APIs via CORS and a proxy server.

Technologies: HTML5, CSS3, Node.js, Browserify, Jasmine, **reactive programming**, Cloudflare, PhoneGap

MILYONI, INC. — ARCHITECT / LEAD DEVELOPER

March 2012 – March 2013 (1 year 1 month) | Pleasanton, CA

Lead developer for **Social Entertainment Platform** including video, social marketing, gamification, **real-time social interaction**, and interactive engagements synced with video. Platform used by **Warner Brothers**, Lions Gate, Paramount Studios, Universal Music Group, Hearst Media, Starz, Ovation TV, Astro, Focus Features, Funimation, Sundance Now.

Mentored junior & mid-level developers. Proponent of flattening communication across the organization.

Technologies: Node.js, Backbone.js, Rails, Postgres, Redis, Heroku

TRUECAR, INC. — SENIOR SOFTWARE ENGINEER

August 2010 – February 2012 (1 year 7 months) | Santa Monica, CA

Senior member of advanced product team, which introduced new products, integrations with major partners (WSJ.com, USAA.com car reviews), and devops (Chef to automate EC2 architecture, workstations, and new datacenter servers). Rails 3 Upgrade. YUM packaging for deployment.

Led initiatives to share agile knowledge across the organization and integrate services.

HONK.COM — LEAD DEVELOPER

August 2009 – August 2010 (1 year)

Vehicle review site and embeddable white-label platform used by USAA and Wall Street Journal Autos. Honk had News Corp as an investor and was **acquired by TrueCar**. Led development and partnered on product vision for social car shopping that was key to the acquisition.

• Full-stack Ruby on Rails + Sinatra development with **Lucene search**
• High Availability deployment on EC2 and Engine Yard
• JavaScript client/server **event framework** (jelly)
• Erector HTML generation framework
• Chef scripts for server and workstation automation

PIVOTAL LABS — AGILE ENGINEER

January 2006 – August 2009 (3 years 7 months)

Agile Development in the XP tradition. TDD, Pair Programming, Daily Standups, Retrospectives. Mentored developers across **20+ startups**, bootstrapping their engineering process, team, and initial product. **Speaker at RailsConf 2008**. Leadership role in common code, practices, and open source.

Projects: Honk, Maven Link, KGB.com, Grockit, KDA Research, Real Girls Media, heavy.com, Bringo, CommunityWalk

Open source contributions:

• Erector — Ruby Builder and Widget framework for generating HTML
• JS Test Server — organized JavaScript TDD
• Unison — **event-driven relational algebra** library for Ruby

PEER TO PATENT PROJECT — CONSULTANT

2007

Key contributor to launching the **Peer to Patent** pilot application, led by New York Law School. A tool to allow the crowd to review and submit prior art for pending patents.

NASPP — IT ANALYST

February 2004 – January 2006 (1 year 11 months)

• SQL Server DB Admin
• Developed internal CRM with Rails, .NET & MS Access
• Website ASP development
• Reports for Sales Trends and forecasting

FLEXTRONICS — WEB APPLICATION DEVELOPER INTERN

May 2001 – February 2002 (9 months)

Developed corporate intranet using Microsoft technologies (ASP, SQL Server).

EDUCATION

University of the Pacific BS, **Engineering Physics** (1997 – 2002)

CERTIFICATIONS

• Advanced Permaculture Course in Teaching
• Permaculture Design Certificate

LANGUAGES

English: Native