

Tom Betthauser

Full-Stack Software Engineer / AI Product Developer
Yale University, MFA 2012

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Professional Experience

Deloitte - Solution Specialist, AI & Data Engineering (GPS S&A)

Consultant | January 2023 – Present | Remote – Washington, DC

Full-stack engineer on large-scale VA and federal platforms, specializing in TypeScript-driven React frontends running on Java and Python backed services on the SEMOSS platform.

- Built and maintained complex React + TypeScript data interfaces within Deloitte's SEMOSS platform, supporting mission-critical VA systems used by thousands of enterprise users.
- Contributed to design and addition of backend workflows and data pipelines implemented in Python and Java, collaborating closely with platform and infrastructure teams.
- Delivered production features across multiple VA programs, including the National Contingency Response Tool (NCRT) and Clinical Product Tool (CPT), improving reliability, performance, and usability under tight client timelines.
- Played a key role in rebuilding CPT's Product List Management system, contributing to 12+ features that streamlined product creation, management, and validation workflows.
- Resolved high-priority issues across the User Management system, including implementing and validating new user roles for urgent demos and testing cycles.
- Regularly partnered with product owners, stakeholders, and engineers to translate ambiguous requirements into shippable, user-facing solutions.

AI & Platform Leadership

- Took on lead role in design, development and repeated demonstration of AI Conductor tool, an enterprise AI workflow orchestration tool built on SEMOSS.
- Defined technical direction, organized sprint work, and coordinated contributions from multiple developers to deliver a working, demonstrable product.
- Designed UX and frontend architecture enabling users to decompose complex questions into multi-step AI workflows, route tasks to approved models, manage inputs / outputs, and generate robust conclusions citing concrete evidence drawn from individual steps in AI workflow.
- Iteratively refined the tool through dozens of demos and feedback sessions.
- Acted as a technical assistance for AI-related challenges, pairing with developers on different AI-focused SEMOSS tools including the Playground and Blueprint teams.

Impact

- Supported CPT, serving ~2,000 enterprise users across 170+ VA hospitals and enabling management of a \$15B medical supply contract portfolio.
 - Contributed to a \$9.9M contract extension and programs receiving “Exceptional” CPAR ratings.
 - AI Conductor demonstrated substantial time savings on complex analytical workflows, validating Deloitte’s investment in reusable AI tooling.
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Recurse Center - Fall Cohort

September 2022 – December 2022 | Hybrid – Brooklyn, NY

Intensive, self-directed programming retreat focused on systems-level thinking and exploratory software projects.

- Implemented Stable Diffusion components from scratch using Python standard library and Rust, emphasizing fundamentals over frameworks.
 - Continued development of a React-based image processing tool for visual artists using Rust, WebAssembly, and Bash.
 - Built a proof-of-concept GPT-3 + Stable Diffusion application as a startup pitch for an OpenAI grant with a small team of other batch participants.
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App Academy - Lead Instructor / Full-Stack Developer

April 2020 – August 2022 | Hybrid – San Francisco, CA

Senior instructor and developer at a top-tier software engineering bootcamp.

- Developed and maintained internal tools using React, Node.js, Flask, PostgreSQL, and shell scripting.
 - Lead instructor for full-stack web application development, covering React, Flask, Express, SQL, and cloud deployment.
 - Managed and mentored a team of 4–6 full-stack instructors while teaching and supporting hundreds of students.
 - Known for translating complex technical concepts into clear mental models and production-ready patterns.
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Adjunct Professor / Visiting Lecturer

College of Marin / West Valley College / Cerro Coso College / UC San Diego / San José State University

January 2013 – May 2019

- Taught a wide range of subjects within art departments including frontend development for student portfolios alongside studio art and art history curricula.
 - Served as director and webmaster for on-campus galleries, managing staff and organizing 20+ exhibitions.
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Technical Skills

Frontend – TypeScript, JavaScript (ES6+), React, HTML, CSS

Backend / Data – Python, Java, Node.js, Flask, Express, PostgreSQL, MySQL, relational data modeling

AI / Systems – LLM integrations, AI workflow orchestration, model routing, prompt pipelines, SEMOSS platform, internal enterprise AI tooling

Other – Bash, Rust, WebAssembly, Git, Linux-based development environments

Personal Projects

Astronaut Horse - AI Artist Collaborations

<https://astronaut-horse.github.io/home/>

Stable Diffusion / Python / Hugging Face Spaces

- Proposed and led an ongoing series of volunteer collaborations and workshops introducing visual artists to custom built Stable Diffusion processes and accompanying python notebooks allowing them to fine tune models on custom visual inputs and create stand-alone generative tools.
- Applied for and received Hugging Face GPU Grant to host the application.
- Was invited to give presentation on project at the 2023 Strange Loop conference in St Louis, MO with attendance at capacity.

ThinkPad Club - K12 Computer & AI Literacy

<https://tombethauser.github.io/thinkpad-club> | <https://thinkpad.club/>

Python / Scratch / JavaScript / Bash / HTML + CSS

- An ongoing series of volunteer workshops introducing foundational coding skills and responsible AI tool use to k12 students.
- Working through MIT Scratch and Lego SPIKE Python robotics curriculum introducing block coding and Python as well as HTML and command line basics.
- Focused on responsible AI use with Claude and Cursor demonstrations, introduced computational thinking, and transition from block-based to text-based programming.

State of the Arts Survey - Data Visualization Platform

<https://tombethauser.github.io/stateofhearts/>

Python / Tkinter / JavaScript / D3

- Built 80+ dynamic D3.js visualizations from survey data collected from 100+ beta participant visual artists.
- Developed a custom Python-based desktop application for raw data exploration and cross-referencing using Tkinter.
- Designed dynamic interactive Frontend interfaces enabling complex exploratory analysis and custom data slicing exposing thousands of potentially significant correlations in the data set.

Five More Minutes - Full-Stack Time Tracking App for Parents

<https://fivemore.thinkpad.club/>

React 18 (Vite) / Python / Flask / SQLite / Raspberry Pi

- Created and fully deployed app in afternoon as live demonstration of optimized Cursor development workflow for building stable scalable applications addressing practical small-scale software needs.
- App allows users to create account to track healthy behaviors associated with increased life expectancy and add up extra theoretical minutes they have accumulated to spend with their child / dog / favorite activity etc.
- Implemented session-based authentication, profile management with image uploads, timezone-aware daily limits, and action repeatability controls.
- Deployed on a Raspberry Pi Zero using Cloudflare Tunnel, systemd services, and Gunicorn, demonstrating end-to-end ownership from development through production infrastructure.

Page Garden - Full-Stack Minimal Instagram Alternative

<https://pagegarden.herokuapp.com/>

React / Python / Flask / PostgreSQL / AWS

- Minimal Instagram alternative using React / Redux, Flask, and PostgreSQL, deployed on Heroku, with use auth and AWS S3-backed image uploads.
- Allows users to set up, customize and edit simple photosharing pages with custom urls.

Page Garden - Full-Stack Minimal Instagram Alternative

<https://mfahole.herokuapp.com/>

Node / Express / PostgreSQL / Pug

- Built as a templating engine demonstration in the style of Hacker News.
- A discussion forum for visual artists using Node.js, Express, PostgreSQL, and Pug, managing user accounts, content submission, and server-rendered views.