

Thomas Hughes

AI-First Full-Stack Engineer

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PROFILE

Solo developer who shipped a production SaaS platform, a daily-use nutrition PWA (12+ table PostgreSQL schema, 90+ days of continuous use), and a multi-dashboard tourism platform, all through a structured AI-first workflow. Claude is embedded in every stage: architecture, implementation, testing, deployment. Each feature runs through engineering, product, design, QA, and operations perspectives as verification gates before code ships. TypeScript, React, Node.js, PostgreSQL, Docker, self-managed Linux infrastructure.

AI DEVELOPMENT WORKFLOW

Multi-Perspective Methodology: Each feature passes through five Claude-driven perspectives (engineering, product, design, QA, operations) as verification stages with defined outputs. Context managed through session boundaries and structured briefs. This process caught a silent 260-line component wipe, a stale-state propagation bug, and a JSON truncation error before any reached users.

Production AI Integration: BriefCraft runs Claude API as its core product function: structured prompt chains generate multi-section creative briefs with per-section regeneration controls. The Macro Tracker uses Claude Sonnet to parse natural language food descriptions into structured nutritional data at runtime, with verified food item overrides for accuracy.

Agentic Automation: End-to-end pipelines for SEO research, content generation, and scheduled deployment. Production systems with error handling, retry logic, and output validation.

SKILLS

AI-Assisted Development: Claude (daily, primary workflow), structured prompt engineering, context window management, agentic pipeline design, LLM API integration, output validation and guardrail design

Frontend: React, Next.js, TypeScript, JavaScript, HTML/CSS, Tailwind CSS, Three.js, WebGL/GLSL, responsive UX/UI, component architecture, performance optimisation

Backend & APIs: Node.js, Express, Python (FastAPI), REST API design, PostgreSQL, MySQL, Prisma ORM, WebSockets, data pipelines

Infrastructure: Self-hosted Linux (Ubuntu), Docker/Docker Compose, Nginx, Apache, DNS, SSL, Git, GitHub Actions CI/CD, AWS S3, Vercel

EXPERIENCE

Founder & Full-Stack Engineer // TAGart

2023 to Present

- Architected and shipped a nutrition tracking PWA used daily for 90+ consecutive days, with a 12-table PostgreSQL schema spanning meal logging, batch cooking, pantry management, receipt scanning, and micronutrient tracking. Directed Claude as an engineering pair (writes code, deploys via SSH to VPS) while acting as product owner, architect, and QA. React, Node/Express, Docker Compose.
- Caught and recovered from three categories of AI-introduced failure: a unicode encoding error in an AI-written Python script that silently zeroed a 260-line React component; a stale-state bug where optimistic UI updates never propagated to the parent component; and Claude API response truncation at 2,000 tokens breaking downstream JSON parsing. Each identified through manual testing, not automated tooling.
- Delivered BriefCraft, a multi-tenant SaaS platform with Claude API as the core engine, by designing structured prompt chains for consistent multi-section brief generation. Diagnosed and fixed a tenant architecture flaw where new users created independent orgs instead of joining the correct team. Resolved a missing database table, incorrect credentials, and token truncation across a single debugging session. Node/Express, Prisma ORM, MySQL, React.
- Engineered Visit Lichfield, a tourism coordination platform with 3 role-based dashboards (tourist, driver, admin), custom REST API, real-time GPS tracking, interactive maps, and QR code integration as sole developer from concept through deployment. React/Next.js, Three.js, Node.js, MySQL.
- Created Aurora, a real-time WebGL visualisation consuming live NOAA space weather APIs: 40,000 GLSL shader particles, 6-voice Tone.js generative audio, post-processed bloom via ping-pong render targets, 5 camera presets. Deployed through GitHub Actions CI/CD. Built entirely through the AI-assisted workflow.
- Operate 10+ production websites across self-hosted Linux infrastructure, maintaining Nginx/Apache configuration, DNS, SSL, CI/CD pipelines, and Docker Compose deployments with consistent uptime.
- Automated content and deployment workflows through agentic AI pipelines for SEO research, content generation, and scheduled publishing: production systems with error handling, retry logic, and structured output validation.

KEY PROJECTS

Macro Tracker (PWA) apps.tag-art.co.uk/macros

NLP food parsing via Claude API, batch cook system with pantry deduction and portion tracking, receipt OCR, AI meal suggestions, micronutrient tracking against NHS RDAs. React, Node/Express, PostgreSQL, Docker Compose, VPS.

BriefCraft briefcraft.tag-art.co.uk

Multi-tenant AI brief generator: Claude API prompt chains, per-section regeneration, token-based invites, tenant isolation. Node/Express, Prisma, MySQL, React.

Visit Lichfield apps.tag-art.co.uk/visitlichfield

3 role-based dashboards, real-time GPS, custom REST API, QR integration, interactive maps. React/Next.js, Three.js, Node.js, MySQL.

Aurora apps.tag-art.co.uk/aurora

40,000 GLSL particles, 6-voice Tone.js engine, live NOAA API, bloom post-processing. GitHub Actions CI/CD.

Memories memories.tag-art.co.uk

Family photo archive: cross-family linking, deterministic colour system, timeline view. Next.js, FastAPI (Python), PostgreSQL, Docker.

Body-Reactive Visualiser apps.tag-art.co.uk/body-reactive

MediaPipe pose tracking driving a WebGL particle system in real-time with gesture-based mode switching.

London Historical Research Map apps.tag-art.co.uk/magnetfishing

Leaflet.js with algorithmic hotspot scoring (17 locations), NLS/MapTiler historic map overlays, foreshore access mapping.

EDUCATION

Goldsmiths, University of London

2020 to 2024

Digital Art

TOOLS & TECHNOLOGIES

Claude (daily) · React · Next.js · TypeScript · Node.js · Express · Python · FastAPI · PostgreSQL · MySQL · Prisma · REST APIs · WebSockets · Docker/Docker Compose · AWS S3 · Linux · Nginx · Git · GitHub Actions · CI/CD · Three.js · WebGL · GLSL · Leaflet.js · Tone.js · Tailwind CSS · Vite · WordPress · Vercel · Figma

Live portfolio and project demos: portfolio.tag-art.co.uk