

Alex Mayhew

Technology Specialist: Web, SEO/AEO, Automation & Applied AI

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Available for remote full-time, contract, or part-time work.

SUMMARY

Self-taught technologist who ran the entire technology operation for a solar company solo for nine years, and now builds production web, automation, and AI systems as an independent developer. I ship real, measurable things: a data-intelligence platform for a private investment firm (demo to production in six weeks, with a written engineering handoff), a 1.7M-record security knowledge graph, commercial products, and small-business sites that rank #1. Comfortable being the only technical person in the room, and explaining it to people who are not.

SELECTED WORK

Data-intelligence platform for a private investment firm. Contract, under NDA. Took over a demo-stage build and grew it to a production maritime-intelligence platform in about six weeks (Next.js 15 PWA + FastAPI, PostgreSQL/TimescaleDB, Redis, 100+ live data sources). Split it into two independently deployed products under a hard deadline, and closed the engagement with a 336-line engineering handoff and a staffing recommendation for the client's incoming team.

Security knowledge graph (1.7M+ records). Built a hybrid graph and full-text search system over 90+ public security datasets: a 1.77M-node Memgraph graph, a 3.1GB SQLite FTS5 mirror, and a local-first Python query CLI, fed by a custom ingestion, dedup, and export pipeline. Integrated into an AI-agent workflow.

LLM training dataset and pipeline. Built a 442K-example instruction-tuning dataset with an ~8,700-line Python synthetic-data pipeline (scenario generation, quality filtering, validation), and designed a two-stage LoRA fine-tuning setup for a 32B code model.

Ranked a solar company #1 and built its intake system. Built and ran the company WordPress site to #1 Google rankings for its core Martha's Vineyard solar searches, and coded its lead-capture and onboarding system solo (React/TypeScript, Node, PostgreSQL) with address autocomplete, satellite property confirmation, service-area validation, automated customer email, and two-way CRM sync, containerized and self-hosted.

Commercial products and client tools. Shipped a commercial FastAPI + Next.js SaaS starter kit (theunsexystack.com), an image-to-SVG conversion API, and web-scraping tooling for clients (proxy rotation, per-domain rate limiting, BullMQ/Redis queue, bot-detection handling). Formed and operate the LLC (Mayhew Technology LLC, Massachusetts, 2026) that bills this work.

EXPERIENCE

Self-Employed, Remote

Web, Automation & AI Services · August 2025 to Present

- Sole developer on a maritime data-intelligence platform for a private investment firm (engagement under NDA). Took over a demo-stage build and grew it into a production platform (Next.js + FastAPI + PostgreSQL/TimescaleDB, 100+ maritime data sources), split the codebase into two independently deployed products under a hard deadline, and closed out with a written engineering handoff plus a staffing recommendation for the client's incoming team.
- Provision, harden, and operate production Linux servers for my own products and client deployments, documented as reproducible install-and-verify runbooks: nginx, systemd, fail2ban/AppArmor/auditd, automated off-site backups (restic to Cloudflare R2), and Prometheus/Grafana monitoring.
- Built web apps for local small businesses, including an offline-first time-tracking and fleet app for a trucking and farm-services company (running in production on a server I manage) and an active e-commerce site for a bakery (Next.js, Stripe, CMS).
- Built data-extraction tools for freelance clients, including a county tax-auction scraper that cross-references a 2,400-property auction book (PDF) against a 1.5M-record ArcGIS tax-roll API into investment-ready spreadsheets, plus a scraping platform with headless-browser automation, proxy rotation, per-domain rate limiting, and queued job processing (Python, TypeScript, Puppeteer, Redis).
- Build and support my own products (WordPress, Next.js, Python), including an AI voice/audio platform and a commercial SaaS starter kit, plus automations and AI-assisted workflows (n8n, REST APIs, self-hosted LLMs). Publish a technical blog and newsletter (70+ articles).

Harvest Sun Solar, Martha's Vineyard & Cape Cod, MA

Senior PV Systems Designer & Technology Specialist · March 2016 to December 2025

- Designed ~200 residential PV systems in Aurora Solar (module selection, stringing and component specification, fire-setback compliance, and production modeling), building custom 3D layouts from 2D blueprints, plus SketchUp models presented to historic-district and conservation-commission boards.
- Handled permitting end to end across Martha's Vineyard and Cape Cod (standard, historic-district, and conservation-commission review), and presented projects in person to town boards and building departments.
- Contributed design work on commercial projects of 2-3 MW, including two designed through proposal and permitting that are slated for construction.
- Built the company's lead-capture and customer-onboarding system solo (React/TypeScript, Node/Express, PostgreSQL): multi-step intake with address autocomplete and satellite-map property confirmation, service-area validation, automated customer emails, and two-way sync into the SolarNexus CRM. Containerized and deployed with Docker/Traefik.
- Built and ran the company WordPress site, reaching #1 Google rankings for the company's core Martha's Vineyard solar searches, and managed the full local-marketing presence (Google Business Profile, EnergySage, Angi, Yelp, BBB).
- Ran IT for the five-person office and field crews: Microsoft 365 administration, workstation setup and repair, network and ISP troubleshooting, vendor coordination, and first-line support; administered the SolarNexus CRM.

Town of Oak Bluffs, Massachusetts

IT Assistant (part-time) · June 2017 to November 2019

- Provided IT support across seven municipal departments (Town Hall, Library, EMS, Police, Harbor Master, Water Works, and Council on Aging) for both staff and public-access computers (Windows and macOS).
- Provisioned and set up new staff and public-library workstations, and handled day-to-day troubleshooting for town employees across all departments.
- Managed the town website on the CivicPlus municipal CMS: coordinated a complete redesign with the vendor and kept it current, posting agendas and minutes for every town committee.
- Built out network infrastructure, including installing public Wi-Fi at the town harbor; designed and established the town's inspector ID-card system.

The Federated Church, Edgartown, MA

Administrative Assistant (part-time) · October 2015 to August 2018

- Designed custom service bulletins, weekly programs, and funeral programs in Adobe InDesign, Illustrator, and Photoshop, and produced them end to end (printing and finishing).
- Built and maintained the church website, and handled front-office administration: fielding calls and email, managing office and pastoral supplies, and supporting the pastor day to day.

SKILLS

Web: WordPress, HTML/CSS/JavaScript, React/TypeScript, Next.js, PHP, hosting/DNS/domain and email administration, Docker

SEO & Local Marketing: technical and local SEO, answer-engine optimization (AEO/GEO), Google Search Console, GA4, keyword research, schema/structured data, Google Business Profile, listings management

Automation & Scripting: n8n (Zapier/Make-equivalent), Python scripting, web scraping and data extraction (Puppeteer/Playwright, proxy rotation, rate limiting), REST APIs, webhooks, JSON, LLM tools (Claude, ChatGPT), AI-assisted development (Claude Code), self-hosted LLMs (Ollama), vector/graph databases (Qdrant, Memgraph)

Design: Adobe InDesign, Illustrator, and Photoshop; print/layout and brand design

Support & IT: end-user and remote support, hardware and software troubleshooting, device setup, Windows/macOS/Linux, Microsoft 365 administration, networking and Wi-Fi, CRM administration (SolarNexus, GoHighLevel), technical documentation and runbooks, customer service

Servers & DevOps: Linux server administration (Ubuntu/Debian), nginx, systemd, Docker/Traefik, security hardening (fail2ban, AppArmor, auditd), CI/CD (GitHub Actions, GitLab CI), backups (restic, Cloudflare R2), monitoring (Prometheus, Grafana)

Office & Administration: front-office reception, phone and email handling, calendar and supply management, document production, customer service

Solar: Aurora Solar, Energy Toolbase, SketchUp, residential PV design, stringing and component specification, fire setbacks, permitting and AHJ processes, historic-district and conservation approvals

EDUCATION

Self-taught in programming, web design, and IT since age 14, and still how I pick up new tools. High school diploma.