

SUMMARY

Software engineer building production data, backend and web systems. Spent five years owning the reporting platform for a 16-program homeless-services agency, replacing days of manual report assembly with version-controlled Python that stood up to audit. Now building applied AI where calculations, citations and model decisions can be checked.

EXPERIENCE

Mar 2021 - Mar 2026	Data & IT Manager · Friendship Shelter Data platform engineering, reporting infrastructure and team leadership · Laguna Woods, CA - Cut federal, state and local funder reports from two to three days of manual assembly to on demand by moving the calculations into version-controlled Python, so a rerun reproduces the same number. - Built and ran the agency's reporting platform, with scheduled pipelines that alert the team on failure. Designed the base class that defines each HUD metric once for every program type. - Wrote an independent implementation of the HUD Annual Performance Report and used it to audit the vendor HMIS, surfacing defects in its Looker reports for the agency and partner agencies. - Automated Orange County's Coordinated Entry housing prioritization list as a pipeline that reconciles several HMIS sources and applies the same eligibility rules every run. - Built a self-service reporting portal that sharply cut daily report requests to the data team, and a CalOptima/CalAIM connector for audit-ready HIPAA client data the vendor portal could not export. - Used BigQuery for historical client data. Managed PostgreSQL on AWS EC2 and wrote the SQL behind the By-Name List before the move to GCP. - Hired and managed the data team for five years, up to four direct reports, training CS graduates into analysts who ran their own pipelines.
2014 - 2021	Owner and Web Developer · Jellyfish Development jellyfishdevelopment.com Ran a one-person web shop for local businesses and a youth-golf nonprofit (PHP, JavaScript, three.js).

SELECTED ENGINEERING PROJECTS

2026	HMIS-NL, AI analytics over homeless-services data Staff ask outcome questions in plain English. The model only picks what to compute. Two engines calculate each number, and a HUD rule check withholds any answer that fails. A deadline agent prepares funder report packets every morning. Python, FastAPI, React, MCP. alanj.dev/work/hmis-nl
2017 - present	C++23 Trading System One C++23 engine runs replay and the live Kraken feed through the same interfaces, with restart-safe state and order recovery reconciled against the exchange. It replays four hours of live exchange data in 15 seconds, decides on market data in about a microsecond, ingests 70 million events a second and redraws a million-candle Vulkan chart at 18,000 FPS. Live orders go through a gated Python REST executor. Tested under sanitizers on gcc and clang in CI. alanj.dev/work/trading-system
2026	guru, reading app with source-locked quotations The model cites sentence ids and the exact wording is spliced from the source, so a misquote cannot be expressed. TypeScript, SQLite. alanj.dev/work/guru

SKILLS

Languages	Python, TypeScript, SQL, C++23, Rust	Applied AI	LLM agents, RAG, structured outputs, MCP servers, evaluation harnesses
Backend and data	FastAPI, PostgreSQL, SQLAlchemy, pandas, ETL pipelines, Parquet, Excel automation, Tableau, Looker, Power BI	Systems	React, Next.js, Linux, Docker, Git, AWS EC2, GCP, BigQuery, CMake, sanitizers (ASan, TSan, UBSan)
Domain	HMIS, HUD APR, Coordinated Entry, CalAIM/HIPAA, funder reporting	Certificate	Agentic AI, Harvard Data Science Review, 2026