ALAN WOODYARD

Principal AI Systems & Product Architect

Katy, TX (US Central) | Remote US (Up to 15% Travel) | US Citizen | alan@alanwoodyard.com | alanwoodyard.com | github.com/woodyardae

SUMMARY

Systems and product architect specializing in deterministic tool boundaries, lossless document parsers, and local-first applications. I define data schemas, security boundaries, failure modes, and automated test suites up front, directing coding agents to generate implementation syntax inside strict verification gates. Across an independent software practice and 6 Linux and Windows production nodes, I have architected, packaged, and shipped developer governance tools, native desktop suites, and browser-local runtimes in Rust, Python, TypeScript, and WebAssembly.

TECHNICAL CAPABILITIES

- **Agent Boundaries & Verification:** Model Context Protocol (MCP), JSON-RPC 2.0 stdio Interception, Fail-Closed Policy Gates, Scope Manifests, Automated Regression Suites, JSON Schema (2020-12)
- **Systems & Local-First Runtimes:** Rust (rowan CST, Slint GUI, WebAssembly), Python 3.10+ (Zero-Dependency Stdlib), TypeScript / Node.js, WebAssembly + OPFS, SQLite WAL, Offline Ed25519 Licensing
- **Infrastructure & Release Delivery:** Linux Administration (systemd, SSH, Tailscale Mesh), Cloudflare Pages & Workers, GitHub Actions CI/CD, Windows x64 Native Packaging, Tauri v2, Stripe Webhooks

EXPERIENCE & SHIPPED SYSTEMS

Principal Systems & Product Architect, Layline Digital & Independent Software Practice

Katy, TX (Remote US) | 2024 – Present

Agent Tool Boundaries & Developer Infrastructure

- **Outrigger Protocol (Public, v0.2.0):** Architected a zero-dependency Python 3.10+ CLI and GitHub Action that checks Git diffs against a task manifest before merge and blocks edits outside allowed paths (46 passing tests, 6 subtests).
- **Harbormaster MCP Control Plane (Private Core):** Designed a line-delimited JSON-RPC 2.0 interceptor on subprocess stdio that canonicalizes file paths on every tool call and rejects out-of-scope access with error -32602 across 719+ automated tests.
- **Marlinspike Document Engine (Private Core):** Specified a lossless parser and patcher on Rust's rowan concrete syntax tree so automated edits modify only the target node and preserve surrounding Markdown and YAML bytes intact (152/152 tests, 427.5 KB binary).

Shipped Local-First Software, Client Diagnostics & Fleet Operations

End-to-End Architecture, Packaging & Production Hosting | 2024 – Present

- **AP-Multitool Desktop Suite (Public, v1.0.0):** Built and packaged a self-contained 15.47 MiB Windows x64 desktop application for litigation teams covering PDF bundling, Bates stamping, and .dat/.opt e-discovery loadfiles with zero cloud uploads and offline Ed25519 seat licensing (236 passing tests).
- **Pennant Social Broadcasting Deck (Public, v0.3.0):** Engineered a local-first desktop console bridging Bluesky (ATProto), Mastodon (ActivityPub), Nostr, and Matrix behind a 127.0.0.1:7420 loopback daemon with a SQLite WAL outbox, SHA-256 media staging, and Tauri v2 packaging (16 passing test suites).
- **FreeMyData & Fix DIY AI (Live Production Endpoints):** Shipped freemydata.pages.dev, a browser app converting Evernote archives locally via WebAssembly and OPFS with zero server uploads. Launched fixdiyai.com for fixed-scope troubleshooting of brittle B2B webhooks and backend automations.
- **Air-Gapped Maritime Telemetry R&D (Meridian, Private Prototype):** Architected a Node.js and TypeScript vessel telemetry prototype separating a 10 Hz dead-reckoning loop from a 4 Hz broadcast loop, computing flat-Earth CPA/TCPA collision vectors in under 1.2 ms in internal tests (145/145 unit assertions).
- **Multi-Node Infrastructure Operations:** Provisioned and hardened 6 Linux and Windows production nodes managed via systemd, Tailscale mesh networking, and Cloudflare edge routing for product endpoints, mail infrastructure, and automated CI builds.

ARTIFACTS & EDUCATION

Public Code & Endpoints: github.com/woodyardae/outrigger-protocol | github.com/Layline-Digital/pennant-social | github.com/Access-Paralegal-Software/ap-multitool | freemydata.pages.dev

Education & Credentials: Continuous Systems Engineering & Technical Leadership (Formal academic and prior corporate records available upon request)