

Kevin Saylor Ruschman

AI Systems Architect · Local-First AI Infrastructure, Bare-Metal GPU Clusters & Sovereign Systems

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EXECUTIVE SUMMARY

AI Systems Architect and Open-Source Maintainer specializing in local-first AI infrastructure, bare-metal multi-GPU clusters, PostgreSQL-backed agent state planes, and transactional execution harnesses. Creator of the **3-Tier Coding Agent MCP Ecosystem** (**krusch-context-mcp** 71★ working memory, **krusch-git** AST symbol graphs, **krusch-fs-mcp** multi-node OS filesystem page memory), **krusch-cascade-router** (<15µs CPU routing gate), **KruschLaw** (0.00% False Support Rate legal RAG & statutory precedence engine), **KruschBiz** (relational contract graph & statutory compliance join), **KruschNexus** (span-true citation spine), and **krusch-companion** (sovereign local-first personal AI assistant). Proven record of replacing probabilistic prompt chains with hard ACID invariants, isolated Bubblewrap sandboxes, and atomic two-phase commit disk updates. Eagle Scout.

CORE TECHNICAL CAPABILITIES

- Local-First AI & Agent Infrastructure:** Model Context Protocol (3-Tier MCP Ecosystem), Autonomous Agent Harnesses (2PC Apply Journals), Multi-GPU Local Inference (vLLM Tensor/Pipeline Parallelism, Ollama), <15µs CPU Cascade Routing, Bubblewrap (bwrap) Sandboxing.
- Relational State & Data Engineering:** PostgreSQL 16 State Planes, pgvector (HNSW), Hybrid RRF + Cover-Density Search (ts_rank_cd), DBOS Durable Execution, SQLite WAL, ACID Invariants, Row-Level Security (RLS), ZFS Tiered Snapshots.
- Bare-Metal Clusters & Linux Systems:** Multi-Node Bare-Metal Linux Orchestration (Dual Xeon 40T, 57GB+ Pooled VRAM), 10GbE Direct Storage/Compute Interconnects (10.10.10.0/24), Tailscale Mesh, Systemd, Docker, NVENC/VAAPI, Thermal & Power Budgeting.
- Sovereign Document & Legal Intelligence:** Layout-Aware OCR (Docling, TrOCR, 7 Parser Families), Page-and-Line Coordinate Spines, Statutory Precedence DAGs, Contract-vs-Statute Compliance Joins, Cryptographic Tombstone Purge.

ENGINEERING EXPERIENCE & SYSTEMS ARCHITECTURE

Lead AI Infrastructure Architect · krusch Systems Lab

2024 – Present · Los Angeles, CA

- Transactional Coding Harness (krusch & kd-Code):** Engineered a PostgreSQL-backed coding harness and AI IDE bridge that replaces unconstrained LLM disk writes with hard ACID invariants. Model edits are staged as SHA-256 diffs, verified inside isolated Bubblewrap (`bwrap`) user namespaces, and committed to physical disk strictly via write-ahead 2PC journals.
- 3-Tier Coding Agent MCP Ecosystem (krusch-context-mcp, krusch-git, krusch-fs-mcp):** Authored and maintain a modular open-source MCP suite: `krusch-context-mcp` (71★ on GitHub, 5-verb working memory with $e^{-0.01t}$ temporal decay), `krusch-git` (Git DAG objects + recursive AST caller/callee symbol graphs in PostgreSQL 16), and `krusch-fs-mcp` (cross-node OS filesystem page trees with SHA-256 drift verification and secret-redacted `.env` indexing).
- Sub-15µs CPU Cascade Routing & Sovereign Companion (krusch-cascade-router, krusch-companion):** Architected syntactic CPU routing gates with cosine neural centroid escalation and speculative hedging (0.7883 score, 80.72% accuracy at \$0.21/1K queries on RouteWorks RouterArena), alongside a 100% local-first voice-and-priority AI assistant (`krusch-companion` , 46/46 passing tests).

Lead Systems Architect & Creator · KruschBiz Contract Intelligence

2025 – Present · Los Angeles, CA

- Confirmed-Edge Precedence Graph & Draft Isolation:** Engineered a transitive DAG resolver with cycle detection and unexecuted draft isolation (`execution_status='draft'`), guaranteeing proposed relations remain advisory and unexecuted drafts cannot defeat executed agreements.
- The Join (Contract vs. Statute Compliance):** Architected cross-domain compliance evaluation (`POST /conflicts/contract-vs-statute`) testing controlling contract clause slots directly against statutory floors and ceilings (e.g. California AB 12 deposit limits, Civ. Code § 1954 notice floors).
- Sovereign Gateway MCP Router:** Deployed a 5-verb Gateway MCP router (`ask_law` , `ask_biz` , `check_compliance` , `ingest` , `purge`) strictly under <450 prompt tokens for local 7B/14B inference, persisting immutable `ResolutionTraceRecord` audits.

Principal Architect & Founder · KruschLaw & KruschNexus Platforms

2025 – Present · Los Angeles, CA

- Local-First Legal RAG & Span-True Document Ingestion:** Architected an air-gapped legal research engine (`KruschLaw`) and 7-parser layout-aware ingestion pipeline (`KruschNexus` , 100% citation accuracy & 96.2% span precision) powered by open-weight models (`qwen2.5:14b` , `bge-large`) with zero third-party cloud egress.
- 0.00% False Support Rate on Labeled Grounding Benchmark:** Engineered a two-pass assertion grounding scanner with quote spans, entailment scoring, and strict generation constraints that strip unretrieved bare citations, achieving 0.00% False Support Rate to eliminate CCP § 128.7 hallucination risks.
- Versioned Statutory Graph & Cryptographic Purge:** Built multi-hop statutory precedence graph resolvers with first-class `as_of_date` temporal traversal, programmatic `explain_why_not_controlling` diagnostics, and verifiable cryptographic purge protocols (`execute_verifiable_purge`) computing SHA-256 tombstones.

Bare-Metal AI Cluster & Infrastructure Architect · Krusch Sovereign Fleet Operations

2023 – Present · Los Angeles, CA

- 8-Node Bare-Metal GPU & Storage Cluster:** Designed, built, and operate an 8-node Linux bare-metal cluster combining Dual Xeon 40-thread servers (144GB+ ECC/DDR4 RAM) and 57GB+ pooled NVIDIA VRAM (Dual RTX 3060 24GB on `kruschserv` , Dual RTX 2080 Ti 22GB on `kruschdev` , RTX 2080 Ti 11GB on `krusch`) interconnected over a dedicated 10GbE (`10.10.10.0/24`) compute/storage fabric and Tailscale mesh.
- Production State Plane & Multi-GPU Inference:** Host high-throughput vLLM tensor/pipeline parallel batch inference, dynamic Ollama VRAM pools, PostgreSQL 16 + pgvector HNSW databases, DBOS durable execution queues, and strict OS-drive protection policies with 99.9% uptime.

Technical Operations, Management & Applied Systems · Prior Experience

2014 – 2023

- Applied Electrical & Mechanical Construction (Southern Vermont):** Executed electrical panel modifications, conduit installation, and structural carpentry. Acquired foundational hands-on mastery of electrical loads, physical grounding, and structural constraints that inform enterprise bare-metal datacenter and server deployments.
- Operations Supervisor (Wisconsin Bicycle Federation):** Directed mobile repair crews in community outreach; managed multi-person teams, field logistics, mechanical diagnostics, and safety protocols.
- Cafe Operations Manager & Partner (Aspen, CO):** Built guest operations, POS systems, inventory supply chains, and staff training programs from inception to first-year profitability.

EDUCATION & DISTINCTIONS

Fullerton College — Associate of Arts (AA)

Graduated 2012 · Fullerton, CA

Eagle Scout & Senior Patrol Leader — Boy Scouts of America (Troop 883)

Earned 2010 · La Habra, CA

*Earned highest rank in scouting after 11 years of scouting leadership. Planned and executed a 100+ hour community service initiative directing a 9-person crew.