Philip Schlump

SENIOR SOFTWARE ARCHITECT | AI AGENTS & GO DISTRIBUTED SYSTEMS

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LinkedIn | GitHub | Portfolio & Resume

PROFESSIONAL SUMMARY

Senior software architect and hands-on engineer with 35+ years building distributed systems, data platforms, and secure enterprise software. Offers 12 years of Go experience and four years developing AI/LLM products, with current work in agentic workflows, real-time communications, compliance, and human-in-the-loop automation. Combines deep technical execution with founder, CTO, product, and university teaching experience.

CORE EXPERTISE

AI & Agentic Systems: LLM agents, RAG, prompt engineering, model evaluation/tuning, hallucination mitigation, human-in-the-loop workflows, AI-assisted engineering
Backend & Distributed Systems: Go, C/C++, Python, TypeScript; REST/OpenAPI, WebSockets, Protobuf, microservices, transactional outbox, idempotency, concurrent workers
Data & Web: PostgreSQL, Oracle, MySQL, Redis, MongoDB, Cassandra; SQL optimization, vector embeddings; React, JavaScript, Vue.js, Angular, PWAs, SQLite WASM
Cloud & Operations: AWS, Linode, Docker, Kubernetes, Helm, CI/CD, Prometheus, Grafana, structured logging, point-in-time recovery
Security & Integrations: JWT/JWKS, HMAC, encryption, privacy compliance; Twilio SMS/MMS/voice and A2P/10DLC, Stripe, Clerk, ElevenLabs, Backblaze B2, Amazon S3

PROFESSIONAL EXPERIENCE

Agentic Quartz Corp — Principal Developer, AI Systems & Backend Architecture

Laramie, Wyoming | Apr 2026–Present

- Lead architecture and hands-on development of Quartz, a multi-tenant AI-assistant platform for real-estate professionals, integrating SMS/MMS, group messaging, voice, contacts, deal tracking, and human-approved customer outreach.
- Built the Go/PostgreSQL backend and React 19/TypeScript PWA with contract-first OpenAPI APIs, Protobuf WebSockets, TanStack Query, SQLite WASM offline storage, and Web Push.
- Designed a transactional outbox with per-user HMAC signatures, idempotency keys, lease-fenced workers, retry/backoff, dead letters, and cursor-based catch-up to preserve assistant-event delivery across outages.
- Integrated Twilio messaging, group conversations, dedicated-number provisioning, and recorded click-to-call voice, with asynchronous ElevenLabs transcription and durable Backblaze B2 media storage.
- Engineered fail-closed consent controls: A2P/10DLC registration reconciliation, keyword and LLM natural-language opt-out detection, immutable audit events, durable STOP/START replies, and human-approved AI drafts subject to the same pre-send compliance checks.
- Implemented multi-tenant security with Clerk JWKS, scoped ES256 JWTs, single-use WebSocket tickets, credential rotation, signed webhooks, encrypted sensitive data, and account erasure with post-restore deletion replay.
- Added Stripe subscription entitlements, hosted Checkout/portal, signed durable webhooks, and reconciliation, validated through sandbox lifecycle and failure testing before production enablement.
- Operated the production platform with Prometheus/Grafana, structured logs, cost telemetry, deployment automation, and rehearsed PostgreSQL point-in-time recovery; built service simulators, Playwright tests, and network fault-injection tooling.
- Developed an 18-factor housing price estimator and LLM-assisted customer communications and sales-risk evaluation; Denver-area forecasts measured within 3.8% of actual sale prices.

Technologies: Go, React 19, TypeScript, PostgreSQL, SQLite WASM, OpenAPI, Protobuf, WebSockets, Twilio, ElevenLabs, Clerk, Stripe, Backblaze B2, Prometheus, Grafana, Playwright, LLM agents

MedMind — AI/RAG Developer, Independent Project

Laramie, Wyoming | Mar 2025–Sep 2025

- Built a pharmaceutical RAG system for natural-language drug queries grounded in structured source data and contextual AWS Knowledge Base retrieval.
- Developed Python ETL utilities to transform MySQL records into vector embeddings on Amazon S3 and deployed the retrieval API while preserving source-data integrity.

Technologies: Python, MySQL, Amazon S3, AWS Knowledge Base, vector embeddings, RAG

Write-it-Right, LLC — Founder & Principal Developer

Laramie, Wyoming | Jul 2023–Feb 2025

- Architected an AI job-search platform that tailored searches, generated customized resumes and cover letters, and tracked applications.
- Built a Python LLM microservice using the OpenAI API, prompt engineering, hallucination mitigation, and custom Llama model tuning and evaluation.
- Created PDF/data-extraction pipelines and dynamic Microsoft Word document generation; protected user data with end-to-end encryption.
- Implemented a Go REST/WebSocket backend and React/TailwindCSS/ShadCN frontend, with Redis pub/sub, PostgreSQL, and distributed Docker containers.

Technologies: Go, Python, React, PostgreSQL, Redis, Docker, WebSockets, OpenAI API, Llama, PDF/Word processing, encryption

TruckCoinSwap, LLC — Founder, Chief Commercial Officer & Principal Developer

Laramie, Wyoming | May 2022–Jul 2023

- Led a mobile document-digitization and payment platform combining custom OCR, real-time accuracy assessment, image correction, and GDPR/CCPA-capable document management.
- Engineered a high-availability Go REST service with Byzantine fault tolerance, PostgreSQL, and Vue.js/WebSocket user experiences.
- Integrated Ethereum/Solidity payments with fraud-detection and anti-money-laundering controls; established automated monitoring, CI/CD, and testing.

Technologies: Go, Vue.js, PostgreSQL, WebSockets, Ethereum, Solidity, machine learning/OCR, Docker, CI/CD

University of Wyoming, Department of Computer Science — Professor of Practice

Laramie, Wyoming | Aug 2018–May 2022

- Taught graduate-level computer science and led research in machine learning, blockchain security, cryptography, and large-scale visualization.
- Created an interactive architecture teaching system covering compilation, assembly, linking/loading, hardware and microcode emulation, SVG visualization, and FPGA/VHDL implementation.
- Built a SQL learning platform with progressive exercises and Docker/Helm student environments.
- Developed biometric livestock tracking and cryptocurrency money-laundering detection models; implemented an economic modeling/GIS system using 2+ GB of BLS and Census data.

Technologies: Go, Python, React, Angular, TypeScript, SVG, PostgreSQL, Cassandra, MongoDB, CockroachDB, Oracle, Redis, Docker, Helm, FPGA, VHDL

Thesis — Lead Developer

Atlanta, Georgia | Aug 2017–Aug 2019

- Developed secure Ethereum storage for encrypted secrets, implementing Paillier homomorphic encryption and other cryptographic systems in Solidity.
- Built a Go management platform that integrated these protocols within smart-contract constraints.

Technologies: Go, Solidity, Ethereum, homomorphic encryption

Blackjewel Mining — Senior Software Engineer, Explosives Tracking

Laramie, Wyoming | Aug 2015–Jul 2016

- Architected real-time explosives tracking over unreliable wireless links with fault-tolerant synchronization and double-entry bookkeeping for inventory integrity and auditability.
- Built a Go REST service with Redis/PostgreSQL and a JavaScript mapping interface, improving site safety, compliance, and operational visibility.

Allan Systems Group, Inc. — Product Manager & Lead Engineer

Venice, Florida | Jul 2004–Aug 2008

- Led AutoDBA's international expansion, establishing teams supporting the U.S. Department of Defense, Boeing, GE Medical Devices, and agencies in Japan, Korea, and Sweden.
- Built issue tracking across 183 products, an RSA licensing system for seven architectures and 12 languages, and customer/internal training programs.

SenWare, Inc. — Founder & Chief Technology Officer

Boulder, Colorado | Jan 1999–Jul 2004

- Founded SenWare, raised $2.7 million, and led AutoDBA from concept to profitable acquisition by Allan Systems Group in 2004.
- Applied machine learning to Oracle growth prediction, anomaly detection, and query tuning; directed engineering, product, technical sales, and support.

ADDITIONAL LEADERSHIP & ENGINEERING EXPERIENCE

URS Griner Woodward Clyde — Contractor Project Lead | Denver, Colorado | Jul 1998–Dec 1999
Led CFMS-to-Oracle Financials conversion, administered nine databases, and built backup/recovery and engineering-modeling systems in C/C++.

Newmont Gold, Inc. — Lead Contractor | Denver, Colorado | Sep 1997–Jul 1998
Led a 12-person Oracle Financials deployment, integrated Lawson/MIMS3, and delivered multi-currency balancing across nine international systems.

Time Warner, Inc. — Lead Contractor | Denver, Colorado | Mar 1997–Sep 1997
Led 21-person Oracle Financials testing/deployment and built a LoadRunner-tested reporting/search system for 1,200 concurrent users.

Cypress-Amax Mining, Inc. — Software Engineering Contractor | Denver, Colorado | Mar 1997–Apr 1997
Built a real-time MIMS3–Oracle Financials accounting interface using C++ and Designer 2000.

Saxe Marketing, Inc. — Database Administrator Contractor | Denver, Colorado | Apr 1997
Improved a 50+ GB Oracle STAR schema's reporting response by 27%; cut a critical report from three hours to under five minutes.

CommNet Cellular, Inc. — Team Lead & Principal Developer | Denver, Colorado | Sep 1996–Apr 1997
Led Pro*C/PL/SQL development for an Oracle data warehouse and built data-quality, reporting, and intranet systems.

Information Handling Services, Inc. — Product Development Manager | Denver, Colorado | Aug 1994–May 1997
Led 22 engineers building an object-relational search engine, custom query language, CI/testing, SQL optimization, and C/C++ memory-verification tools.

Dale Carnegie Training, Inc. — Sales & Communication Skills Instructor | Denver, Colorado | Mar 1996–Aug 1996
Trained business professionals in communication, sales, leadership, goal setting, and collaboration.

US West, Inc. — Technical Team Lead Contractor | Denver, Colorado | Aug 1993–Aug 1994
Led DB/2/COBOL-to-Oracle migration and built C/Pro*C code generation that produced over half of project code.

IBM, Inc. — Technical Lead Architect Contractor | Kingston, New York | Aug 1990–Apr 1992
Led seven of 12 server components for a 100+ person GIS program; designed a SQL superset, rule-based optimizer, and compiler generating 300,000+ lines of C/SQL.

CompuSystems Corp — Technical Director & Principal Software Engineer | Laramie, Wyoming | Aug 1988–May 1990
Built a fault-tolerant multiprocessor protocol, embedded RTOS, distributed database, and report-writing language in C/C++.

University of Wyoming — Systems Programmer | Laramie, Wyoming | Aug 1986–May 1988
Built TCP/IP/BSD device drivers, an MC6809 C compiler/toolchain, LISP networking software, and a fault-tolerant OS.

EDUCATION

University of Wyoming — Master of Science, Computer Science

Laramie, Wyoming | May 1991

Research: high-performance compiler for complex lexicographic systems, sold to NCR for grocery-store systems; improved overall performance by 14.2% under average load.

University of Wyoming — Bachelor of Science, Computer Science

Laramie, Wyoming | Dec 1989