

Ryan Smith — Software Engineer

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US/Ireland Dual Citizenship • Global Work Authorization

Professional Summary

Software engineer building production systems at enterprise and startup scale. Built Tetto payment infrastructure for AI agents - live on Solana mainnet with 16 agents, 600+ transactions, and published TypeScript SDK. 8 years at Charles Schwab architecting ML systems serving 30M+ clients.

Experience

Payment Infrastructure for AI Agents

Live on Mainnet

Tetto

Oct–Nov 2025

Built complete payment platform for autonomous AI agents with blockchain integration and published SDK.

- Platform live on Solana mainnet processing real USDC micropayments
- 16 agents deployed across 3 studios, 600+ verified on-chain transactions
- Published tetto-sdk to npm with HMAC-SHA256 webhook security (industry-standard)
- Created 3 agent studios: SubChain (11 agents, 2 coordinators proving AI-to-AI economy), MotherNode (agent creation), WarmContext (memory infrastructure)
- First platform with proven autonomous agent-to-agent payments and network effects
- Multi-environment deployment: www.tetto.io (mainnet), dev.tetto.io (devnet), staging.tetto.io
- Invented Verifiable Service Receipts - cryptographic on-chain proof of AI transactions
- Tech: Next.js 15, React 19, TypeScript, Solana, Supabase, PostgreSQL, Vercel
- Testing: 178/179 tests passing (99.4% pass rate)

Charles Schwab

Software Engineering Manager

2017–2025

Led technical initiatives across ML engineering, cloud migration, and data automation. Production systems serving 10,000+ financial consultants and 30M+ clients.

- ML Engineering: Productionalized attrition & upselling models in Salesforce ecosystem
- Cloud Migration: Built automated frameworks for on-premises to GCP migration
- Data Automation: Created BI frameworks for data warehouse operations
- Team Leadership: Mentored engineers and coordinated cross-functional projects
- Tech: Python, Pandas, PyTorch, PySpark, Docker, Salesforce, GCP, SQL Server, PostgreSQL, Tableau, Bamboo, JFrog

Consumer SaaS Application

Live at warmanswers.com

WarmAnswers

2025

Personal AI knowledge management platform with subscription billing and agent-powered backend.

- Complete Next.js SaaS with Supabase authentication and Stripe billing integration
- Intent analyzer using Claude Haiku (temperature=0) for deterministic classification
- Undo manager with 1-hour expiry tokens for complete state restoration
- Pattern caching, auto-tagging, trial management, personalized dashboards
- Built on WarmContext agents via Tetto marketplace (vertical integration proof)
- Tech: Next.js, React, TypeScript, Supabase, Stripe, Claude API, Vercel

AI Governance Platform

Production Architecture

DarkOps

2025

Custom RAG system with 10-layer context assembly and domain-aware agent specialization.

- Custom RAG implementation with domain-aware filtering (solves context bleeding problem)
- Agent tool execution with calibrated permissions (5 invasiveness × 5 caution levels)
- Dual-file validation workflow preventing LLM content truncation
- Self-improving agents with effectiveness scoring and adaptive learning thresholds
- Production patterns: Circuit breaker, 3-tier caching (Redis/Memory/DB), transaction-aware invalidation
- Multi-layer security: Template validation, sandboxed execution, HMAC signatures, audit logging
- Built using DIOS2 multi-agent orchestration (5 major implementations completed)
- Tech: Python, Flask, SQLAlchemy, PostgreSQL, Redis, Jinja2

Multi-Agent Development System

Production Development Tool

DIOS2

2025

Hierarchical AI organization for software development - used to build DarkOps with agent orchestration.

- 7-layer AI hierarchy: Executives → Technical Lead → Intel Agent → Analyst Handler → Field Agents
- 7 specialized Field Agents: CIPHER (init/complete), PLANNER, CODER, UX_WIZARD, TESTER, DEEPVERIFY, COMMITTER
- Standardized command interfaces: AMA, DO, CXT, HELP, EXPLAIN, CALL
- File-based state management with transaction-aware handoffs and rollback capabilities
- Human-in-loop coordination with explicit integration points
- Used to build DarkOps (database schemas, containerization, repository layers, context architecture, intelligence systems)
- Documentation: 27,000+ lines of comprehensive framework specifications

University of Colorado Boulder

Education & Early Career

2012–2017

BS Computer Science, BA Economics. Applied advanced analytics to NBA shot data during research collaboration with Oklahoma City Thunder, developing predictive models for player performance optimization.

Technical Expertise

Languages: Python, TypeScript, JavaScript, **Blockchain:** Solana, Web3.js, SPL Token, USDC SQL payments

Frontend: Next.js, React 19, Tailwind CSS **Backend:** Flask, FastAPI, Node.js, Supabase

Databases: PostgreSQL, Redis, SQL Server, Supabase **ML/AI:** PyTorch, PySpark, Pandas, Claude API

Cloud & DevOps: GCP, Docker, Vercel, Bamboo, JFrog **Payments & Auth:** Stripe, HMAC-SHA256, Web3 wallets

Enterprise: Salesforce, Tableau, OR-Tools **Patterns:** RAG, Circuit Breakers, Multi-Agent Systems

Key Achievements

- Built payment infrastructure live on Solana mainnet with 600+ verified transactions
- First proven autonomous agent-to-agent payments (coordinators calling sub-agents)
- Invented Verifiable Service Receipts for cryptographic AI transaction proof
- Built custom RAG with 10-layer context assembly before RAG was mainstream
- Created multi-agent development system used for production software
- 8 years delivering ML systems at enterprise scale (30M+ users)