

Ryan Smith — Software Engineer

✉ ryan@rsmith.ai • 🌐 rsmith.ai • 💬 rsmith-ai • 💡 TettoLabs
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

Oct–Nov 2025

Tetto

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](#)

2025

WarmAnswers

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
<i>DarkOps</i>	2025
Custom RAG system with 10-layer context assembly and domain-aware agent specialization.	
<ul style="list-style-type: none"> ○ 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
<i>DIOS2</i>	2025
Hierarchical AI organization for software development - used to build DarkOps with agent orchestration.	
<ul style="list-style-type: none"> ○ 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	
<i>Education & Early Career</i>	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, SQL	Blockchain: Solana, Web3.js, SPL Token, USDC payments
Frontend: Next.js, React 19, Tailwind CSS	Backend: Flask, FastAPI, Node.js, Supabase
Databases: PostgreSQL, Redis, SQL Server, Subparbase	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)