ANDREW CHARNESKI

Software Consultant & Systems Architect

📍 Westerville, OH ✉ andrew@simiacryptus.com 🔗 GitHub

Executive Summary

Strategic technology consultant and systems architect with 20+ years of experience advising Fortune 500 clients (Expedia, Amazon, HBO) on complex technical challenges. Specializes in AI implementation strategy, enterprise architecture, and performance optimization, delivering transformative results including 90% efficiency improvements and successful cloud migrations. Bridges the gap between cutting-edge research and practical business solutions, helping organizations leverage technology for a competitive advantage.

Core Competencies

- **Strategic Technology Advisory**: Guiding stakeholders and technical teams on strategy, digital transformation, and large-scale system architecture.
- **Enterprise Solution Architecture**: Designing and delivering innovative, scalable solutions for big data, distributed systems, and AI, with a focus on business value and ROI.
- **Performance & Cost Optimization**: Proven track record of identifying and resolving critical performance bottlenecks, achieving up to 90% load reduction and significant cost savings for clients.
- **Innovation to Production**: Translating novel concepts from AI research and optimization theory into practical, production-ready enterprise systems.
- **JVM & Cloud Expertise**: Deep, hands-on expertise in JVM optimization, cloud migration (AWS), and building high-performance, resilient infrastructure.

Professional Experience

Senior Software Engineer
Grubhub

Oct 2018 – July 2025
Remote/Westerville, OH

- **AI Strategy & Implementation**: Prototyped various agentic AI systems to provide an operational intelligence platform, reducing manual intervention and support costs.
- **Solution Architecture**: Designed a full-stack solution using LLMs to diagnose complex build failures, establishing a new capability for developer self-service and reducing mean time to resolution.
- **Performance Optimization**: Conducted deep performance analysis of mission-critical JVM applications, delivering significant improvements and providing a framework for continuous optimization.
- **Open Source Strategy**: Guided the adoption and enhancement of key open-source technologies (Apache Ranger, Azkaban), ensuring alignment with enterprise security and workflow requirements.
- **DevOps Transformation**: Architected a modern deployment orchestration platform to de-risk complex releases, enabling safer and faster delivery cycles for multiple engineering teams.

Software Consultant
Technical Consulting

2012 – Oct 2018
Seattle, WA

- **Expedia Inc (Oct 2014 - Oct 2016; April 2017 - Oct 2018):** Led cloud migration of big data infrastructure to AWS/Qubole and architected a high-performance real-time ad targeting system (TP95 <5ms, ~10k tps).
- **Amazon.com (Nov 2016 - Feb 2017):** Led the productionalization of a prototype Java web service for decision support and automation.
- **HBO Code Labs (Dec 2013 - Sep 2014):** Reduced CPU/memory load by 90% on large-scale web services and developed sophisticated static code analysis tools.
- **Various (April 2011 - Nov 2013):** Created a cross-platform video conferencing app (Plugged-In Technologies) and an Android video game streaming client (Big Fish Games).

Various Engineering Roles
Earlier Career

1998 – 2011
Various

- **Distributed Energy Management (2010-2011):** As Team Lead and Architect, led a team of six, designed a high-performance data service and analytics platform for time series data.
- **Amazon.com (2007-2009):** As SDE II, created a distributed real-time data reporting service and developed Apache httpd C modules for routing and security.
- **Aristocrat Technologies, Inc (2005-2007):** As a Software Engineer, developed C# .NET commercial business applications for the gaming industry.
- **Early Consulting/Internships (1998-2004):** Roles at Texas Instruments, Lucent Technologies, and others, working with C++, Java, and web technologies.

Publications & Open Source

- **Quadratic Quasi-Newton and Recursive Subspace Optimization** *(Algorithm Research)* – Breakthrough optimization algorithms bridging first/second-order methods through quadratic interpolation. RSO treats per-layer learning rates as optimization problem with emergent regularization
- **MindsEye: Deterministic GPU Memory Management for Deep Learning** *(Open Source Framework)* – Comprehensive neural network library with reference counting for GPU resources, object pooling, and memory pressure response. Supports CuDNN, OpenCL, Spark clusters. Anticipated memory challenges still plaguing modern frameworks
- **Geometric Symmetry in Deep Texture Generation** *(Research Implementation)* – Breakthrough in neural art achieving perfect mathematical symmetry through kaleidoscopic preprocessing as part of the DeepArtist platform. Works across Euclidean, spherical, and hyperbolic geometries.
- **Cognotik: Cognitive Pluralism in AI Systems** *(SaaS Solution)* – AI platform implementing four distinct cognitive modes (TaskChat, PlanAhead, AutoPlan, GoalOriented) embodying different philosophical frameworks. Demonstrates measurable behavioral differences based on philosophical foundations
- **reSTM: Distributed Software Transactional Memory** *(Distributed Systems Research)* – REST-based transactional memory providing ACID guarantees across distributed clusters. Implements MVCC with fine-grained locking, actor-based architecture, and formal correctness proofs. Near-linear scaling properties

Technical Skills

Languages:	Java (20+ years, JVM expert) · Kotlin (5+ years) · Scala (8+ years) · C/C++ · Rust · TypeScript (7+ years) · JavaScript · SQL (15+ years)

Development Practices:	Agile Transformation (Led multiple enterprise transitions) · Test Driven Development (Extensive TDD infrastructure for neural networks) · Open Source Leadership (Multiple projects on Maven Central, Active GitHub presence) · CI/CD & DevOps (Git, Maven, Gradle, Jenkins, Docker, Performance profiling & tuning)

Education

University of Illinois at Urbana-Champaign
Bachelor of Engineering in Physics · Minor in Mathematics