

EDUCATION

Case Western Reserve University, GPA: 3.92 Graduated Spring 2023
Bachelor of Science in Computer Science *Depth in Software Engineering*, Minor in German

SKILLS

AI/ML & Agentic Systems	Pydantic AI, Model Context Protocol (MCP), FastMCP, LiteLLM, Vector Embeddings, Semantic Search, Agent Orchestration, Langfuse, YOLO, NVIDIA Isaac Sim, Ultralytics
Data Engineering	Apache Airflow 3.1.3, KubernetesExecutor, Neo4j 5.15.0, Cypher, ETL Pipelines, Graph Databases, Vector Indexes, PostgreSQL, MySQL, MongoDB
Cloud & DevOps	Kubernetes, Helm, Fleet/Rancher, GitOps, Docker, AWS (ECR, EKS), Istio Service Mesh, NetworkPolicies, RBAC, CI/CD
Programming Languages	Python, Go, Rust, JavaScript, TypeScript, Java, C++, C#, Node.js, PHP, HTML, CSS
Networking & Systems	FD.io VPP, DPDK, GoVPP, IPsec (IKEv2), Multi-Hop Routing, libp2p, CRDTs, DAGs, gRPC, WebSockets, Protocol Buffers
Backend Frameworks	FastAPI, Flask, Spring Boot, Express.js, SQLAlchemy, Knex.js, JEST
Frontend Technologies	React.js, React Query, Redux.js, D3.js, MUI, Bootstrap, React-Hook-Form, Vite
Security & Identity	Zero Trust Architecture, mTLS, JWT, RBAC, PKI, SSO, Okta, KeyCloak, PingFederate, Hashicorp Vault, DIDs, MLS Encryption
Blockchain & Decentralized	EVRmore, RPC APIs, Cryptographic Assets, P2P Networking, DHTs, Gossip Protocols
Tools & Platforms	Git, Bash, YAML, JSON, VSCode, IntelliJ, Docker, Harbor Registry, Apache Superset, Draw.io, Unity 3D, Blender
Industry Knowledge	Agile Development, Jira, Scrum, Sprints, Bitbucket, Ansible, F5 BIG-IP, Rke2, Axiomatics, SailPoint, RadiantOne

TECHNICAL EXPERIENCE

Software Engineer **July 2023 — Present**
Leidos Inc. *Reston, VA*

Agentic AI Systems (Current Focus)

- Architected enterprise-scale intelligent analytics platform using Pydantic AI and Model Context Protocol (MCP), enabling natural language queries across large-scale internal datasets with semantic search and graph analytics
- Designed dual MCP server architecture (Neo4j MCP + custom FastMCP) with advanced sampling patterns for self-improving tools and elicitation framework for human-in-the-loop disambiguation
- Implemented semantic search using LiteLLM embeddings (768-dimensional vectors) with cosine similarity on Neo4j knowledge graph, achieving sub-5-second query latency for complex graph traversals
- Built comprehensive zero-trust security architecture: Kubernetes NetworkPolicies, Istio mTLS, API authentication, RBAC, data protection, and audit logging
- Created production ETL pipeline using Apache Airflow 3.1.3 with KubernetesExecutor, processing millions of records with batch processing, error handling, and idempotent bulk loading
- Solved critical Airflow 3.1.3 SDK DAG serialization bug via custom wrapper class and plugin system, enabling production deployment
- Architected GitOps-based Kubernetes platform using Fleet/Rancher for GenAI workloads, achieving 99.5%+ uptime with automated zero-downtime deployments
- Deployed highly-available infrastructure: Neo4j StatefulSets (200Gi persistent storage), Airflow with KubernetesExecutor, Istio service mesh

Cyber Resiliency Network — Project Lead

- Architected high-performance decentralized VPN mesh using FD.io VPP, DPDK, and IPsec (IKEv2), enabling multi-hop encrypted routing across OpenStack and bare-metal with Intel QAT acceleration
- Built Go-based gRPC control plane for distributed tunnel orchestration using GoVPP Binary API bindings and BoltDB state management, eliminating single points of failure

- Developed full-stack network visualization platform (Synoptics): D3.js SVG interactivity layer, React state management, Python monitoring service with JMESPath validation, and Draw.io Embed API integration
- Designed LLM observability platform using Langfuse and Apache Superset: normalized MySQL ETL pipeline with batch processing, idempotent upserts, and executive-ready BI dashboards
- Optimized C++ inference acceleration on ResNet50 using Intel AMX/IPEX Libraries; accelerated PYG GCN Node Classification across ISAs (AMX, VNNI, AVX512)
- Deployed split-learning Flower framework on distributed network using de-VPP VPN Mesh architecture

Zero Trust Software — Project Lead

- Architected Zero-Trust Document Management System: multi-container Java Spring Boot microservices, React application, AWS EKS deployment, integrated Okta and F5 BIG-IP VPC for real-time capability validation

ICAM System — Developer

- Supported complex identity federation system: Rke2, Axiomatics, KeyCloak, PingFederate, RadiantOne, SailPoint, Hashicorp Vault, Gitlab, LDAP, and custom APIs

Sensor C2 Software System — Software Engineer Intern (May 2021 — Aug 2022)

- Developed comprehensive sensor command and control interface with custom layouts, workflows, and data visualizations using React Query and MUI
- Built reusable server API functionality using Node.js, Swagger API Specifications, Knex.js, PostgreSQL, and JEST Mock APIs

AI Palooza 2025 — Innovative Internal Collaboration

- Collaborated in company-wide AI innovation challenge: trained YOLOv11 models using synthetic datasets from NVIDIA Isaac Sim and Omniverse Replicator, evaluated using mAP@[.50:.95] and IoU metrics, ranked 12th of 27 teams

Founder & CTO

Feb 2024 — Present

Manticore Technologies, LLC

Remote

PeerWeave — Lead Systems Engineer

- Architected decentralized, local-first, peer-to-peer development platform: libp2p networking (DHT, pubsub, NAT traversal), CRDT + DAG sync engine, agent-native runtime with WASM sandboxing, and semantic knowledge graphs
- Designed P2P service hosting ("Ports") enabling developers to expose APIs, AI models, and tools directly from local machines without centralized infrastructure
- Implemented identity and security primitives: DIDs, capability tokens, MLS group encryption, and end-to-end encrypted messaging
- peerweave.com

Manticore Technologies — Blockchain Infrastructure

- Founded open-source engineering collective focused on decentralized infrastructure, blockchain tooling, and developer platforms built on EVRmore
- Created and published **evrmore-rpc** Python package on PyPI, enabling programmatic access to EVRmore nodes for automation, analytics, and application development
- Integrated blockchain primitives with P2P systems, service meshes, and AI-driven workflows
- manticore.technology | github.com/ManticoreTechnologies | pypi.org/project/evrmore-rpc/

3D ISS Tracker

2022 — Present

NASA Space Challenge 2022, 3rd Place

Cleveland, OH

- Developed 3D web application tracking ISS location using NASA's Web WorldWind engine, TLE.js and Satellite.js
- Implemented orbit trajectories, live positions of ISS and other satellites, and ISS location history search
- youtube.com/watch/demo