

Nathan Timmis

LLM Infra & ZK Protocol Engineer | Real-Time ML & Web3 Systems

As a senior engineer with 10+ years in blockchain infrastructure, AI systems, and full-stack protocol engineering, I specialize in building secure, performant, and modular systems at the intersection of Web3 and large-scale ML. My recent focus is on deploying Transformer-native backends, ZK-powered smart contract frameworks, and low-latency inference infrastructure for DeFi, staking, and secure identity layers.

I bring hands-on experience across Substrate, Cosmos SDK, zkEVM, Solidity, and Rust-based blockchain runtimes, combined with real-time ML integrations using Kafka, TorchScript, HuggingFace, and Redis Streams. My architecture work spans crypto wallets, MEV-aware rollups, zero-knowledge bridges, and LLM-powered backend APIs that serve both custodial and self-custodial use cases.

With proven delivery across Ethereum, zkSync, Polygon, and Hyperledger environments, I've designed and deployed resilient, production-grade infrastructure using Docker, Kubernetes, Terraform, and Helm. I've contributed to open-source modules across the EVM and Substrate ecosystem, and implemented scalable CI/CD pipelines for formal verification, security attestation, and audit resilience.

I thrive in technology-driven, agile environments particularly remote-first and research-driven teams where privacy, self-sovereignty, and inference at the edge are core values. My work empowers next-gen crypto-native applications by blending ZK infrastructure with intelligent ML agents.

WORK EXPERIENCE

CONTRACT JOBS

Oct 2023-Present

LLM + Web3 Infrastructure Engineer (Contract Roles)

Raiffeisen Bank

Architected Kafka-native LLM microservices for on-chain risk scoring and trading intelligence. Deployed containerized ML pipelines using FastAPI, HuggingFace, and TorchScript in air-gapped banking environments. Integrated ArgoCD, Helm, and Terraform across Kubernetes clusters on Azure and AWS. Delivered CI/CD pipelines with GitHub, xRay, and GitHub Actions to support compliant DevSecOps for distributed systems implementing SNARK/STARK-based Ops.

Julius Baer (via Bosshard)

Built ZK-aligned wallet infrastructure and privacy-preserving data layers. Optimized Solidity-based smart contracts for gas efficiency and security using formal verification (Slither, MythX). Integrated WalletConnect and Ledger sync across multi-chain rollups, with a focus on modular staking and slippage-safe swaps.

AXPO (IT Divisions)

Delivered low-latency messaging infrastructure using Kafka + Redis for DeFi price feeds and validator monitoring. Deployed Rust-based smart contracts with ZK-snark-compatible hooks on Cosmos SDK. Built fault-tolerant ML backends to support asset forecasting and execution.

Viseca Payment Services (via Callista)

Developed zkRollup-compatible payment pipelines with real-time staking and event-based transaction rollups. Engineered ledger sync between custodial and self-custodial wallets, leveraging zero-knowledge proof generation for identity compliance and ML-based anomaly detection.

Atos (via Alium Consultancy)

Implemented transformer-based analytics for web3 blockchain observability dashboards. Integrated Substrate-based consensus telemetry with Kafka and trained small language models (QLoRA, GGUF) on validator logs for predictive scoring. Supported secure deployment of confidential messaging infrastructure using Triton + PyTorch with Rust-based messaging interfaces.

STHREE - CONTRACT INSELPITAL, UNIVERSITÄSPITAL BERN,

ZK Blockchain + DevSecOps Engineer

Feb 2023-Sep 2023

Led ZK blockchain web3 infrastructure for Swiss eID/ePD systems. Built Hyperledger Fabric integrations with on-chain PKI attestations, and designed a secure eHealth data layer with formal verification. Deployed Substrate-based identity systems with Kubernetes, integrated Ethereum smart contracts for credential issuance, and optimized validator telemetry using Kafka, Prometheus, and RLHF-aligned anomaly detection.



PERSONAL

INFORMATION

Birthday

28.06.1987

Nationality

Swiss, Scottish

CONTACT

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Zurich Switzerland

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EDUCATION

EDINBURGH NAPIER UNIVERSITY

*Master of Science in Advanced
Security and Digital Forensics
Minor in Mathematics
2016-2018*

STAFFORDSHIRE UNIVERSITY

*Computer Science M1
2011-2012*

KEELE UNIVERSITY DOCTORATE

*Law & International Relations
Juris Doctor of Law
2005-2011*

WORLDLINE

Senior Blockchain Developer

March 2022-March 2023

Led development of modular blockchain-based monitoring and security systems in Azure, leveraging smart contracts and decentralized ledgers to enhance system resilience. Integrated blockchain telemetry into enterprise dashboards using Kafka and Prometheus for real-time alerting and validator fault detection. Hardened DeFi infrastructure with automated contract audits, cryptographic proofs, and CI/CD-based policy enforcement. Supported Switzerland's Certificate Authority through decentralized PKI solutions using Ethereum, Hyperledger Fabric, Corda, IPFS, and Solidity. Modernized legacy wallet infrastructure and deployed secure infrastructure-as-code across multi-cloud clusters.

VALUELEAF UBS · CONTRACT

Senior Blockchain Engineer

Aug 2020-March 2022

- Built Ethereum and Hyperledger-based data workflows and decentralized smart contract systems to ensure AML-compliant financial transparency. Implemented smart contract fuzzing and blockchain-specific penetration testing for vulnerability analysis. Optimized node-level infrastructure for throughput and deterministic execution. Designed cross-chain ledger replication and consensus data warehousing using Solidity, IPFS, and Fabric for scalable, auditable analytics pipelines. Delivered enterprise-grade blockchain governance aligned with audit and compliance standards.

LKQ CORPORATION (IBM PARTNER)

Blockchain Project Manager (Comeback)

May 2017-July 2020

GLOBAL GROUP (AZURE PARTNER)

Senior Blockchain Engineer

Sept 2015-Apr 2017

- Collaborated on the development of a blockchain-integrated Security Operation Center (SOC) to proactively monitor and manage cybersecurity threats, leveraging decentralized technologies for enhanced transparency and resilience. Designed blockchain-based security frameworks within Oracle ecosystems, implementing smart contracts and distributed ledgers to strengthen data integrity and automate threat detection. Provided expert advice on blockchain-driven incident response mechanisms, cryptographic protocols, and immutable audit trails, ensuring robust information security measures.
- Developed blockchain-enhanced IT security policies, incorporating consensus algorithms and zero-knowledge proofs to meet stringent compliance standards. Worked closely with the CTO division to integrate decentralized identity management and blockchain-based access controls, exceeding regulatory requirements. Leveraged blockchain-powered data architectures to optimize performance and ensure secure data replication across environments.
- Utilized tools like Solidity, Hyperledger Fabric, Corda, IPFS, Ethereum, and smart contract frameworks, combined with SQL, PL/SQL, Kafka, Informatica PowerCenter, and Tableau for blockchain-enhanced data modeling, architecture, and visualization, creating a secure and transparent infrastructure.

LKQ CORPORATION (GOOGLE PARTNER)

Regional IT Project Manager

Sep 2013-July 2015

- Managed enterprise adoption of smart contract-based audit and access-control frameworks across auto part supply chains. Led migration to distributed ledger-based warranty tracking using Fabric and Ethereum. Oversaw technical teams integrating decentralized messaging, PKI cert handling, and Hyperledger for compliance reporting. Facilitated developer upskilling in Solidity and Fabric SDK for scalable multi-region deployments.

DATATRONIC GOOGLE DEVELOPERS GROUP

IT Project Manager and Developer

2011-2015

- A senior .NET developer specializing in Sitecore for a Global Press Release Distribution Management System. This system is highly SOA-based, with a multi-server, multi-process setup ensuring millisecond precision in delivering active server pages across the client's distribution network. Backend development relies on WCF services within an agile framework managed in Rally, with two-week iterations.

UNIVERSITY OF OXFORD

CATS Cyber Security & Advanced Networking (with Merits)
2007-2008

CERTIFICATIONS

- 15+ Certifications in LLM Engineering, Web3, and Cloud Infrastructure
- Red Hat Certified Specialist in OpenShift
- HuggingFace Transformers & LoRA Certification
- OpenAI Prompt Engineering
- zkEVM / Solidity Developer (Polygon / ZK Hack)
- Kafka + Streaming ML Pipelines
- Azure AI / GCP Vertex AI
- IBM Blockchain & Cloudfoundry Admin II

PERSONAL PROJECTS

Wrote an trading GPT to create infographics in the ai store, built a custom LLM to copy 6 writing sentiments mimicry deepfake to transpose the model, patented a metallurgical LLM based Rust sensor module, working on automating mixed reality modules.

LANGUAGE

English (C2 Native)

German (C1)

French (B1)

INTERESTS

Travelling

E-bikes

Dogs

Rowing

Campervans

Blockchain Engineering

Machine Learning

INFRASTRUCTURE

- LLM Model Lifecycle Oversight (Pretraining, Finetuning, Inference) ● ● ●
- Blockchain Governance & On-chain Coordination ● ● ●
- Decentralized Infra Strategy (LLM ↔ Smart Contract ↔ User) ● ● ●
- zk-Infrastructure Architecture (SNARK/STARK-based Ops) ● ● ●
- Cross-team Protocol Engineering (EVM, Cosmos SDK, Substrate) ● ● ●
- Tokenomics Strategy, Staking, and Liquidity Design ● ● ●
- Foundation Model Safety (Alignment, Prompt Injection Mitigation) ● ● ●
- Technical Leadership in AI/Web3 Startups ● ● ●
- Modular dApp and RAG Agent Design ● ● ●
- Open-Source Contributor (LLM agents + zk toolkits) ● ● ●
- Strategic Bridge Deployment (Multi-chain Ops, Cross-chain Indexers) ● ● ●
- AI Smart Contract Orchestration @Scale ● ● ●
- Prometheus, Grafana, Vault, Secrets Management ● ● ●

LLM QUANT

- Deployed LLM Inference APIs on Azure/GCP/AWS with GPU autoscaling ● ● ●
- Built chain indexers and RPC nodes for EVM & Cosmos-based networks ● ● ○
- Launched RAG agents on Kubernetes with Vault/Secrets/GitOps ● ● ○
- Real-time ML inference served via Kafka, Redis, FastAPI ● ● ●
- zk-Rollup deployment with IPFS + Ceramic integration ● ● ●
- Event-driven pipelines Apache Airflow ● ● ●
- Serverless Blockchain Architectures ● ● ●
- Blockchain-Integrated ICO ● ● ●

MLOPS

- Tokenized microservice deployment across full-node Kubernetes clusters ● ● ○
- Smart Contract CI/CD (Hardhat, Foundry, GitHub Actions) ● ● ●
- GGUF + Quantized LLM Serving on GPU-backed cloud infra ● ○ ○

USER INTERFACE / USER EXPERIENCE

- Prototyping, Wireframing ● ● ●
- User Flows, Usability Testing ● ● ●
- Design Software (PS, AI, Figma) ● ● ●

DEVOPS ENGINEERING

- Full-node orchestration for EVM, zkEVM, Cosmos SDK chains ● ● ●
- Terraform + Helm + ArgoCD automation for LLM & zk stacks ● ● ●
- Kubernetes/Ansible/Splunk/Kafka/ArgoCD ● ● ●
- Kafka-based ML + Web3 observability (LLM eval logs + validator health) ● ● ●
- Secure enclave integration (TEE, on-chain attestations, verifiable compute) ● ● ●
- Formal Verification (MythX, Slither) for Solidity + zk circuits ● ● ●
- GPU cluster autoscaling for distributed LLM training (DeepSpeed, FSDP) ● ● ●

PROGRAMMING LANGUAGES

- Rust (zkSync, Substrate, Cosmos SDK, Solana Anchor) ● ● ●
- Solidity (DeFi Protocols, Gas Optimization, Slippage Protection) ● ● ●
- Ruby on Rails CUDA, Triton (FlashAttention, Quantization Tooling) ● ● ●
- Python (LoRA, HuggingFace, PEFT, RLHF, TorchScript) ● ● ○
- C++ (inference kernels, Triton ops, low-latency LLM APIs) ● ● ○
- C# JAX, PyTorch, Megatron-LM (pretraining, sharded GPU scaling) ● ● ○
- PLSQL PostgreSQL, Parquet, DeltaLake (Ledger Analytics, Feature Store) ● ● ○
- Golang (p2p infra, Vault SDKs, crypto-native ops) ● ● ●
- JavaScript TypeScript (WalletConnect, DApp Frontends, Hardhat) ● ● ●
- NodeJS ● ● ●
- React (Multi-chain UIs, Token Bridge Dashboards) ● ● ○

MACHINE LEARNING / ARTIFICIAL INTELLIGENCE

- AWS Textract & Comprehend ● ● ○
- OpenAI, AWS Sagemaker ● ● ○
- Training/Fine Tuning ● ● ○
- Large Language Models ● ● ○

LEGEND

- Very experienced ● ● ●
- Deeper knowledge and more experience ● ● ○
- Knowledge/some experience ● ○ ○

