Tran Manh Duy

096 326 9684 • tmd.iid2004@gmail.com • linkedin.com/in/tran-duy-uet • github.com/Tranduy1dol

Summary

Passionate Rust Backend Developer with a strong foundation in Computer Science and Cryptography. Proven experience in building high-performance web applications and RESTful APIs using Axum and Actix Web. Proficient in designing scalable backend architectures integrated with Kafka, RabbitMQ, Redis, and SeaOrm. Eager to leverage deep expertise in Rust and distributed systems to deliver secure and optimized blockchain solutions.

Education

University of Engineering and Technology, VNU — Hanoi, Vietnam
BS in Information Technology, CPA: 3.0/4.0 — Sept 2022 – Sept 2026
Available for Full-time employment

Skills

Programming Languages: Rust (Advanced), Golang, Typescript, Java
Frameworks: Axum, Actix, Tokio
Database & Caching: PostgreSQL, MySQL, MongoDB, Redis, SeaOrm, DieselOrm
System & Infrastructure: Docker, Kubernetes, Kafka, RabbitMQ, Git/GitHub, Linux
Cryptography & Blockchain: ZKP (zk-SNARKs, zk-STARKs), Smart Contracts (Solidity/Rust), Layer 2 Protocols
Language: English, Japanese
Other: Document writing, Researching, Self-learning, Communication, Teamwork

Experience

Sotatek ., JSC — Hanoi, Vietnam | Jan 2024 – Present

Rust Developer

- Designed and implemented high-performance **RESTful APIs** (using Axum/Actix) and **gRPC services** (using Tonic, Prost) to power CEX/DEX platforms, serving both web and mobile interfaces with low latency.
- Engineered scalable asynchronous messaging systems using **Kafka** and **RabbitMQ** to handle high-frequency trading data and real-time blockchain event processing.
- Optimized database performance and data reliability by integrating **Redis** for caching and **SeaOrm** for type-safe interactions with PostgreSQL.

Blockchain Developer

- Developed and deployed a Starknet Layer 2 solution integrated with Aptos Layer 1, including data availability on Move, Madara chain configuration, and a Rust-based prover for on-chain verification.

Research Assistant

- Researched, documented, and implemented algorithms related to Zero-Knowledge Proofs (ZKPs), including zk-SNARKs and zk-STARKs.

Personal Projects

High-Performance E-commerce Microservice

- **Stack**: Rust (Axum, Tokio), PostgreSQL (SeaOrm), Redis, Docker, GitHub Actions, k6.
- Architected a scalable backend system using **Clean Architecture** and **Workspace** pattern, decoupling business logic (`core`) from infrastructure (`infra`) for maintainability.
- Solved critical **race conditions** in inventory management ensuring data integrity under high concurrency (verified via rigorous integration tests).
- Optimized API latency by implementing **Redis caching** strategies and conducting **load testing** (`k6`) to ensure system stability under heavy traffic.
- Established a complete **CI/CD pipeline** using GitHub Actions for automated testing and Docker containerization.

Advanced Cryptography & Zero-Knowledge Suite

- **Stack**: Rust, Monorepo, Finite Fields (NTT), Elliptic Curves (BN254), STARKs.
- Architected a **modular monorepo** to implement cryptographic primitives from the ground up, separating core logic (mathlib, curvelib) from protocol implementations.
- Developed `mathlib`: A high-performance library featuring BigInt arithmetic, Finite Fields (Montgomery reduction), and **Number Theoretic Transforms (NTT)** for fast polynomial operations.
- Built `curvelib`: Implemented Elliptic Curve operations (focusing on **BN254**) and Bilinear Pairings required for modern ZK-SNARK protocols.
- Implementing **ZK-STARK** systems, specifically constructing **FRI commitment schemes** and Algebraic Intermediate Representation (AIR).