Roland Sherwin X

Senior Blockchain Developer

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Senior Blockchain Developer with **3 years of experience** specializing in distributed systems and peer-to-peer networks. **Major contributor to Autonomi**, a highly decentralized storage network with perpetual data storage and a **network scaling to 100,000+ nodes**. Core expertise in building **highly concurrent and parallel systems**, **optimizing network performance**, and implementing **complex distributed algorithms in Rust**.

SKILLS

Core: Distributed Systems • P2P Networking • Concurrent Programming • Consensus Algorithm

Languages & Frameworks: Rust • Libp2p • Python • Typescript • C • Bash

Infrastructure: AWS • Terraform • Ansible • CI/CD • Github actions

Development: System Design • Performance Optimization • Security Engineering

WORK EXPERIENCE

Senior Rust Engineer

March 2022 – Present

Maidsafe (Remote)

Distributed Systems & Networking

- Implemented a comprehensive **NAT traversal solution** with **relay services** and **Direct Connection Upgrade through Relay (DCUtR), enabling 98% network connectivity** for nodes behind NAT by managing multiple relay connections and automatic failover.[1]
- Architected the **migration to libp2p networking library**, improving network reliability and eliminating the need for **strict ordering** and **consensus protocols**. Resulted in scaling the network from a few hundred nodes to **100,000+ nodes**.[1] [2]
- Developed an optimized **network discovery system** that replaced periodic polling with an adaptive approach, prioritizing XOR-space proximity which **reduced the node bandwidth** usage and **improved the routing table fullness**.[1]

System Architecture & Performance

- Identified and **fixed critical merge conflicts**[1] in cryptographically secure linked lists, leading to a complete **rewrite using CRDTs**[2] [3] to prevent future conflicts. Validated the solution through **fuzz-based testing** that verified list integrity across random merge orders.
- Built a **highly parallel batch uploader** using a **staged pipeline architecture**, supporting multiple data types, payment batching and repayments for failed data. Significantly reduced code duplication and improved the upload throughput.[1]
- Implemented **resumable file uploads** across multiple runs of the client binary, significantly **reducing startup time and the number of network queries**.[1]

Infrastructure & Testing

- Implemented an **automated NAT gateway infrastructure** using **Terraform** and **Ansible**, dramatically reducing manual testing effort and enabling **validation of DCUtR and relay capabilities** for each testnet deployment.[1]
- Worked on automating a **dynamic VM storage solution** that attaches multiple extensible volumes

per VM, reducing the need for high spec machines and resulting in **significant cost savings**.[1]
- Developed a **daemon service manager** for orchestrating multiple network nodes, including an **RPC server for remote command execution** and management.[1] [2]
- Created and implemented comprehensive spend simulation for **fuzz testing the payment system**[1] and verifying payment validation processes across all possible scenarios. The simulation uncovered and enabled fixes for several edge cases and **significant vulnerabilities**[2] in the payment process.

Other notable contributions

- Maintained an infrastructure library that used **Terraform** and **Ansible** for testnet creation and deployment.
- Implemented comprehensive application metrics in the **OpenMetrics** format for monitoring network health and performance.
- Developed and maintained various **GitHub Actions and CI workflows**.
- Developed an interactive **TUI using Ratatui** for managing multiple node services.[1]
- Created **nonce-based verification** for stored data to reduce bandwidth usage.[1]
- Implemented a mock TestNetwork environment for simplified testing.[1]
- Developed comprehensive fuzz testing for **Synchronous Distributed Key Generation**.[1]

Systems Engineer Trainee
Oct 2021 – Feb 2022

Infosys (India)

- Worked on a full-stack web application using MongoDB, ExpressJS, Angular, and NodeJS.

EDUCATION

GATE, Computer Science (2020)

- All India Ranking: 4774 — Score: 484 / 1000

Loyola-ICAM College of Engineering and Technology (2015 – 2019)

- Bachelor of Engineering (B.E), Electrical and Electronics Engineering — CGPA: 6.52 / 10

MINI PROJECTS

Computer Vision - Semantic Segmentation

- Implemented U-Net architecture in Keras for pixel-level image segmentation, enabling precise classification of road elements like vehicles, pedestrians, and infrastructure.

Attention-Based Date Format Converter

- Developed a neural machine translation system using attention mechanism in Keras to convert between human-readable and ISO-formatted dates.

ML-Based Heart Failure Prediction

- Conducted comprehensive model evaluation using various metrics such as Accuracy, Precision, Recall, F1-Score to determine the optimal classification algorithms on predicting the heat failure of a patient.