

Nikhil Ranjan

Software Architect | Rust | Polkadot | Distributed Systems

📍 Berlin, Germany ✉️ nikhil@polkasembly.io 🌐 niklabh.github.io
🐙 github.com/niklabh 🌐 linkedin.com/in/niklabh 🐦 x.com/niklabh

Summary

Software architect with 12+ years building scalable, decentralized systems — from founding-engineer roles at Paytm and Tokopedia to core Polkadot/Kusama infrastructure at Parity. Currently CTO and co-founder of **Polkasembly**, the flagship governance platform for Polkadot & Kusama. Deep expertise in Rust, Substrate, and WebAssembly runtimes. Creator of **Oxide** and **VelociDB**.

Experience

Polkasembly

CTO & Co-founder

Berlin

Aug 2021 – Present

- Founded and architected Polkadot's flagship governance platform: 1,700+ referenda tracked, \$300M+ in treasury decisions facilitated, 250K+ participants.
- Built Rust + Substrate backends for real-time proposal analysis, validator coordination and delegated voting; integrated AI-assisted analysis and autonomous voting agents.
- Shipped full-stack governance flows in Next.js, TypeScript and Polkadot.js.
- Pioneered inscription tokens (Blobscriptions) and EVM contract deployments on Kusama.
- Grew the open-source organization from 1 to 20 engineers; led architecture, hiring and code review.

DFINITY Foundation

Senior Developer Relations Engineer

Berlin

Feb 2022 – Nov 2022

- Supported Rust and Motoko developers building DeFi primitives and secure canister deployments on the Internet Computer.
- Ran the Developer Partner & Grants program; evaluated and funded Rust-based protocol enhancements.
- Authored governance proposals that expanded staking participation in a \$6B+ ecosystem.

Parity Technologies

Principal Engineer

Berlin

Dec 2019 – Jul 2021

- Core contributor to the launch of Polkadot and Kusama: shipped runtime/ledger code in Rust + Substrate.
- Implemented validator lifecycle, subnet coordination logic, and staking flows hardened for adversarial environments.
- Collaborated with parachain teams (e.g., Astar Network) on Substrate runtime work.

Frontier Car Group

Senior Software Engineer

Berlin

Oct 2017 – Nov 2019

- Built used-car marketplaces serving emerging markets across LATAM, Africa and Asia.

Tokopedia

Senior Software Engineer

Delhi

Jan 2016 – Sep 2017

- Created *m.tokopedia.com* (Tokopedia Lite) — winner of Google's Best PWA award.

Paytm

Software Engineer

Delhi

Jun 2013 – Dec 2015

- Founding engineer on India's leading P2P payments platform (300M+ users); scaled microservices to 100M+ users.

Selected Open-Source Projects

Oxide

A reimagining of the web where pages are WebAssembly modules, not HTML/JS. Capability-based sandbox built on Wasmtime, Tokio and egui.

A binary-native browser in Rust.

VelociDB

SQLite-inspired storage engine optimized for modern hardware: MVCC, async I/O on io_uring, and SIMD vectorization.

A modern embedded database engine in Rust.

Education

Polkadot Blockchain Academy

2023

UC Berkeley, California

Cryptography, Substrate, FRAME, Polkadot SDK, WebAssembly, decentralized networks.

Bachelor of Technology

2009 – 2013

GGSIPU, Delhi

GPA: 7.5/10

Applied Mathematics, Data Structures, Algorithms, Distributed Computing, Cryptography.

Skills

- **Languages:** Rust (expert), TypeScript, JavaScript, Go, Motoko, Solidity.
- **Blockchain & Distributed:** Substrate, FRAME, Polkadot SDK, WASM, ICP, EVM, Staking Design, Cryptography.
- **Systems:** MVCC, io_uring, Lock-free data structures, SIMD, NVMe, Sandboxing, Performance Engineering.
- **Web & Data:** Next.js, React, PostgreSQL, Redis, Elasticsearch, AWS, Docker, CI/CD.
- **AI:** OpenAI/GPT-4 Agents, Local LLM inference, ComfyUI, Stable Diffusion.