

Prakhar Pandey

Backend & Protocol Engineer

✉ prkpandey942@gmail.com 📞 +91 95590 87761 🌐 github.com/prkpndy 🔗 linkedin.com/in/prkpandey 🌐 prkpandey.xyz

SUMMARY

Backend & protocol engineer with nearly three years of experience, the last two building production blockchain infrastructure in Rust and Go. I work across the full Madara stack, an open-source Starknet appchain framework that powers Paradex, a perpetuals DEX with \$250B+ in cumulative volume. Interested in backend, protocol, low-level systems, and infra/DevOps roles.

EXPERIENCE

Karnot Technologies

Jun 2024 – Present

Backend & Protocol Engineer

Gurugram, India

- Contribute across the entire **Madara** stack (sequencer, orchestrator, SNOS, bootstrapper, bridge, and E2E tests), an open-source Rust framework for Starknet appchains; **84 PRs merged** to main, and a core contributor to SNOS as well. Designed and built the one-click deployment system and pricing service.
- Madara powers **4 production chains** across mainnet, testnet, and devnet, including **Paradex** (Starknet's first appchain: **\$250B+ cumulative volume**, 70k+ users) and Privily; it has sustained **5,000+ TPS for a day** on an L3 (Gridy.fun), well beyond current production load.
- Built a **one-click deployment system** (Go + Kubernetes) that provisions a full appchain and its supporting services (databases, explorer, monitoring) from a **parameterized Helm chart**, continuously delivered via **Argo CD** (GitOps with automated sync and self-healing), bringing a new chain online in **~10 minutes** versus 1–3 days of manual setup that tied up 2–3 engineers; the stack runs for **under \$2.5k/month**.
- Built the **validation & observability tooling** that keeps the sequencer correct in production: a transaction-replay harness that re-runs upstream-chain traffic against Madara, a differential checker comparing execution against the reference sequencer, and an alerting service that surfaces bugs before mainnet.
- Built and own the **cross-chain token bridge** and faucet, plus a chain **indexer** (Deno + Apibara), to move and track assets between the appchain and Ethereum.
- Keep live chains reliable: **on-call**, Prometheus/Grafana alerting, and orchestrator hardening (distributed locking, priority job scheduling); also built client-facing backend services in Go (Fiber, GORM, PostgreSQL).

LettFaktura

Dec 2023 – Jun 2025

Backend Developer

Remote (Ireland)

- Primary developer (team of 4) building the cloud version of an invoicing product with a **~50k-user** install base; built the REST API in Node.js (Fastify, Sequelize, Redis) on a **multi-tenant PostgreSQL** schema.
- Implemented a **Redis-backed rate limiter from scratch** to protect the API against abuse and basic DoS.

PROJECTS

Paralend: Parallel Lending Protocol

ETHOnline 2025

1st Prize, Arcology Track (Solidity)

- Parallel DeFi lending protocol hitting **~1,000–5,000 TPS** (vs ~10–20 for sequential protocols) via batching plus a netting optimization that cut global state writes by **99%**.

hop6: Peer-to-Peer Encrypted Messenger

2026

Rust (Tor, Networking)

- Serverless P2P terminal messenger over the **Tor network** (v3 onion services): no central server, persistent onion identity, NDJSON wire protocol; built in Rust with tokio and ratatui.

Deep Reinforcement Learning: CS698R, IIT Kanpur

2021

Python (DQN)

- Implemented Deep Q-Networks with multiple reward strategies for a constrained foraging task; research-driven, synthesizing peer-reviewed literature.

TECHNICAL SKILLS

Languages	Rust, Go, Python, TypeScript/JavaScript, Solidity, SQL
Backend	REST & GraphQL APIs, Fastify, Fiber, GORM, async workers & queues, auth, rate limiting
Infra / DevOps	Kubernetes, Helm, Argo CD, Docker, AWS, CI/CD, Prometheus, Grafana, on-call
Data	PostgreSQL, MongoDB, Redis
Protocol	Starknet, Ethereum, Solana
Learning	Operating systems, Networking, Cryptography, Security, Database internals, Consensus (BFT, Raft)

EDUCATION & ACHIEVEMENTS

Indian Institute of Technology Kanpur

2018 – 2022

B.Tech, Mechanical Engineering, 8.3/10

- 1st Prize**, Arcology Track, ETHOnline 2025 (Paralend).
- Academic Excellence Award**, IIT Kanpur (2018–19); **All India Rank 942** in JEE Advanced (~0.2M candidates).