

Shivansh Kuchchal

Senior Software Engineer | Website - shivansh.io

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Introduction

Software Engineer with **6 years** of experience in application development using **Go and Node.js**. Experienced as lead developer, managed a team of 3 people to deliver a blockchain-based solution along with detailed technical documentation. Excellent learner and passionate about **distributed systems**.

Experience

Red Hat Inc.

Senior Software Engineer

Pune, India
Oct 2021 - Present

- Designed and implemented Red Hat's **AWS Marketplace integration** system with **Go, PostgreSQL, Kafka** etc.
- Developed an automated **private offer generation** service for Red Hat customers via Salescloud and AWS.
- Engineered **REST APIs** and **sync jobs** to maintain consistent state between AWS and internal systems.
- Researched and implemented **Kafka transactions** to enable atomic state transitions in our services.

KNNX Corp.

Software Engineer

Hyderabad, India
Aug 2019 - Oct 2021

- Built a **Business Rules Engine** on the **Hyperledger Fabric** Blockchain for secure, and policy-driven transactions.
- Introduced **multi-tenancy** with abstractions like Tenants and Applications for system scalability.
- Integrated **REST APIs** with the **KNNX Corp SSO** system for seamless authorization.
- Implemented an extensible **WebSocket handler** in **Node.js** for low-latency rule evaluation.

Projects

Kevlar

A Novel Distributed Consensus Algorithm

2019 - Present

- Researched distributed systems extensively for 5 years to design an entirely new **consensus algorithm**.
- Authored a complete **mathematical proof** of the algorithm using the **TLA+ specification language**.
- Gained deep expertise in the **Paxos and Raft** algorithms, applying their principles to evaluate and refine Kevlar.

Rosenbridge

An Auto-scalable Distributed Websocket Hub

2021 - Present

- Designed a **peer-to-peer WebSocket hub** where every node acts as both server and router.
- Implemented various optimization techniques to **reduce database calls** and speed up message delivery.
- Developed a **CLI tool** for quick usage and demonstrations - github.com/shivanshkc/rosenbridge-cli

Authorizer

A PKCE-enabled OAuth Service

2022 - Present

- Developed a secure, extensible **OAuth 2.0 service** in Go, ready for self-hosting.
- Implemented **PKCE, CSRF protection**, and **cookie-based sessions** for strong application security.
- Designed for **production readiness** with **multi-stage Docker builds** and **CI/CD pipelines**.

International Tech Talks

DevConf 2024

Brno, Czech Republic

- Presentation title - "Building Leader Election with Zookeeper, Go and Docker"
- Presentation link - <https://tinyurl.com/leader-election>

NadoCon 2023

Vienna, Austria

- Presentation title - "Distributed Systems and the CAP Theorem"
- Presentation link - <https://tinyurl.com/dist-sys>

Skills

Programming Languages Go, Javascript, Typescript, Python, TLA+	Databases PostgreSQL, MongoDB, CouchDB, Redis, Elasticsearch
APIs and Protocols REST APIs, Websockets, gRPC and Protocol Buffers, OAuth, Model Context Protocol (MCP)	Other Technologies AWS, GCP, Apache Kafka, Apache Zookeeper, Docker, NGINX, Hyperledger Fabric Blockchain

Education

Bachelor of Technology KIET Group of Institutions	Ghaziabad, India 2015 - 2019
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My major was Mechanical Engineering. The rigorous training in **Engineering Mathematics** enhanced my problem-solving abilities and sparked my initial interest in programming.