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GURBAJ SINGH

INTRO

I am a senior software engineer with experience of working in various product based companies of about 7+ years specialising in Backend, Data and Devops with intermediate level of frontend. Machine learning and blockchain enthusiast. My expertise extends to leading solutions and system architecture, establishing efficient work processes within teams, mentoring engineers, and actively participating in the hiring process.

SKILLS

- Programming Languages: **Go, Typescript/Javascript, Rust, Python, C++, C**
- Platforms/Frameworks: **NodeJS (nestJS, expressJS, apollo/graphql), Go (Gin), Python (fastAPI, flask), Rust (Poem)**
- ML/AI: **OpenAI(gpt-4/3.5, whisper), LLaMA, langchain, tensorflow**
- Databases: **PostgreSQL, MongoDB, MySQL, Cassandra, DynamoDB, Neo4J**
- Caching Stores: **Redis Standalone/Clustered, Apache Ignite**
- Search Engines: **Elasticsearch, Apache Solr**
- Data Warehouses: **AWS Redshift**
- Real Time Application Technologies: **MQTT, TCP/WS, RTMP, gRPC, OMQ**
- Message Brokers: **Apache Kafka, RabbitMQ**
- Containerisation and Orchestration: **Docker, Docker Compose, Kubernetes**

EXPERIENCE

Range.org - Switzerland/Remote – *Senior Backend Engineer*

Aug 2023 – PRESENT

A Monitoring, Threat Prevention, Forensics and Compliance Platform for Blockchains specialising in Cosmos and Solana ecosystem.

- Designed and developed a **Monitoring System** pipeline that executes user-created alert rules via a dashboard or SDK, providing **real-time notifications** using **Go, Postgres, Kafka, NodeJS, Typescript(for SDK)**.
- The system **scales horizontally** to accommodate a growing number of users, alert rules and blockchains, ensuring **resilience and fault tolerance**, with an end-to-end execution time averaging **800 milliseconds** per block.
- Integrated multiple chains into the platform like Solana, Cosmohub, Osmosis, Celestia, dYdX, Noble, Stride, Provenance etc.
- Designed and developed a **Forensics product** that enables security auditors to **track and visualise transaction** flows from funding source to destination using **Neo4j** graph database.

- Worked on a **Sybil Detection Data Science project** using heuristics such as Direct Address Reuse (DAR) to group Externally Owned Addresses by identifying centralised exchange addresses from large blockchain datasets, aiding in the **successful execution of confidential chain airdrop**. Published the white paper on the heuristics used and learnings.
- Built and actively maintained an **open-source SDK** that enables users to host their own alert rules on their systems, integrating seamlessly with our platform while ensuring complete security.

Rumi (formerly Waitroom) – USA/Remote – Senior Software Engineer

Sep 2020 – Aug 2023

An AI enhanced video meeting platform for smart and streamlined meetings.

- Designed and built **Recording service** to record live meetings in both landscape and portrait format, **transcoded** in various formats using **ffmpeg**
- Extended recording pipeline to **generate clips using computer vision** image detection
- Designed and built catchup feature which **summarises meetings in real time** from real time translations using **LLM (gpt-4)**
- Designed and built users and meetings service using **NodeJS (Typescript/NestJS)**, PostgreSQL, DynamoDB and Redis
- Designed and built **Authentication and Authorisation** (Policy based RBAC) service using **GO (Gin)** and Casbin
- Designed and built **search and recommendation engine** using **elasticsearch, langchain** and **Large Language Model (gpt-4)**.
- Designed and build **real time streaming data pipelines** using **Apache Kafka** to collect engagement metrics for real time analytics
- Designed and built **data warehouse** using **AWS Redshift** to ingest heavy real time streams of data and processed into different tables for faster reads
- Lead **hiring process** for backend engineers from interviewing technical rounds to grading technical assignments

Accelerator App – Canada/Remote – Software Engineer

Sep 2019 – Aug 2020

A platform for incubators to manage their startups with tools/features like applications, coaching, metrics etc.

- Suggested and helped in migrating from REST to GraphQL (ApolloJS)
- Suggested and helped in migrating from Javascript to Typescript
- Implemented Elasticsearch to provide scalable search and filtering of applications which incubators receive in huge numbers.
- Built Real Time chat based on web sockets to provide group discussions.
- Calendar integrations like google calendar and microsoft calendar

Dextra, New Delhi – Backend and Devops Engineer

Aug 2018 – Aug 2019

A social media platform for different types of artists to find and collaborate with each other

- Converted The monolithic to microservices architecture to have higher availability and horizontal scalability.
- Built Real Time Chat supporting direct and group conversations using MQTT(realtime lightweight protocol for IoT) and Cassandra DB (Highly available and Partition tolerant with tunable consistency).

- Implemented the social/graph aware semantic search engine using Elasticsearch with creating the highly scalable architecture having multiple shards for multiple indexes with multiple nodes and replicas.
- Build cached feeds for users to consume artists content using Redis.
- Transitioned the whole server architecture's domain from Dextra.art to Dextra.com.
- Wrote Mails automation platform for marketing team which could send bulk emails from their personal gmail account or mailgun with unsubscribe functionality.

Jungleworks, Chandigarh – *Backend Developer*

July 2017 – July 2018

Service based company, worked with clients from all over the world like usa, japan etc

- Responsible for the backend of the projects (scratch and retainers) implemented on nodeJS with databases like mongoDB/mysql/postgreSQL.
- Worked on the base project for the company following the microservices architecture which was later used by other members of the company to use it as base with standards to implement projects faster.
- Worked on very tight deadline projects with penalty clauses.
- Have experience in working with oversea clients over calls.

Jungleworks, Chandigarh – *Backend Intern*

Jan 2017 – June 2017

- As an intern with no mentor started working on live projects with full responsibility on backend of the project
- Worked in parallel on two projects one with full backend responsibility and another with tech lead.
- Build base by learning javascript/nodeJS and databases like mongoDB

EDUCATION

Chitkara University, India – *Bachelors of Engineering in ECE*

June 2013 – June 2017, Baddi, HP

KV Public School, India – *12th Standard*

KV Public School, India – *10th Standard*