

# Zhalok Rahman

Software Engineer 2 at Datatree Technology

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Video Introduction: <https://www.loom.com/share/c5ab46a4737244edafdf0f052555767a1>

## Experience

### Kinetik Healthcare

*Software Engineer 2*

2025-04-01 – Present

- Worked with Kinetik Healthcares Trip Assistant team as a contractor from Datatree Technology.
- Fixed SQS and Lambda based bulk dispatch workflow to ensure only corrupted trips are not dispatched in the batch.
- Implemented realtime notification system using MongoDB CDC, Redis Streams, and WebSocket.
- Designed RBAC mechanism with Access Control Matrix and ensured realtime revocation with CDC streams.
- Migrated trip dashboard to AG Grid for smoother and cleaner implementation.
- Conducted load testing on APIs and monitored resource usage under stress from CloudWatch.

### PropertyFinder

*Software Engineer*

2024-10-01 – 2025-10-31

- Worked in their listing b2b engineering backend as contractor from All Generation Tech
- Built API endpoints with API Gateway, Lambda (go), DynamoDB and Opensearch
- Performed load testing experiment with go script and created a dashboard with necessary metrics to observe the changes in high load
- Implemented asynchronous business logics with SQS, Lambda (go) and Kinesis streams
- Fixed and investigated production incidents,
- Collaborated with data engineering team for fixing data migration issues
- Deployed application with serverless framework and github actions
- Written go scripts for resolving incident and migration of data

### Learnyx AI

*Fullstack Engineer*

2023-10-01 – 2025-02-01

- Built RESTful API endpoints with Nest JS and Built front-end components with React JS, fetched data with TanStack Query.
- Built AI generation pipeline with Python, FastAPI, and Langchain and used websocket for realtime AI generation streaming
- Offloaded time consuming operations like image generation asynchronously with RabbitMQ
- Implemented usage based rate limiting and locked the user for a certain period with redis TTL
- Prepared a home server as a staging server with NGINX, Ngrok and docker for UAT
- Participated in business decisions from technical point of view with business stakeholders
- Designed architectures and solution diagrams
- Guided a small team of 2-3 people on different architectures and best practices
- Decoupled heavy operations as async jobs with RabbitMQ
- Built search efficient functionality with elasticsearch
- Implemented payment feature with stripe, synced stripe data across the system with webhook
- Deployed and managed application infrastructure with containerization into self hosted environment with coolify

### Innovext IT

*Fullstack Developer*

2022-12-01 – 2023-10-01

- Built REST apis with Nest JS, Express JS and FastAPI (for deploying fine-tuned model)
- Implemented payment and monetary transaction features by integrating third party payment gateways (stripe and paypal)
- Built client side application with Next JS, used Redux for efficient data fetching and dataflow
- Built an internal monetization system with credits, ensured smooth credit transfer with mongodb sessions
- Built server with FastAPI for inferencing fine-tuned object detection model in onnx format

## Skills

React , Node JS (Nest JS, Express JS), Next JS, Microservices, PostgreSQL, Python (Fastapi, asyncio), Docker, MongoDB, NLP, LLM, Computer Vision, Pytorch

## Projects

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### Data Stores Python

A simple TCP based datastore implementation in python, using single-thread, multi-thread and single-threaded-*epoll*

Repo: <https://github.com/zhalok/data-stores-python>

### Remote Browser Control

A remote browser control automation application made with playwright and python.

Repo: <https://github.com/zhalok/remote-browser-control>

Demo: <https://www.loom.com/share/04b79ed90e344c94a2c50a5b790cda73?sid=e7bb2668-1421-4e39-980b-0257d8fb66ff>

Tech: Playwright, Python, FastAPI, WebSocket

### Go Http From Scratch System Calls

A simple go server from complete scratch

Repo: <https://github.com/zhalok/go-http-from-scratch-system-calls>

Tech: Golang, Syscalls, OSSignals, Sockets

### AI Product Search

A system for searching products based on their description and keywords with embeddings and vector search

Repo: <https://github.com/zhalok/ai-product-search>

Tech: FastAPI, VectorDB (Qdrant), RabbitMQ, SBERT

### Ecommerce GraphQL Backend

A simple backend for buying and selling product build with graphql, nest js, prisma and postgresql

Repo: <https://github.com/zhalok/ecommerce-graphql-backend>

Demo: <https://www.loom.com/share/467b33c9742845a2bb78b84d633fb3cf>

Tech: Nest JS, GraphQL, Prisma, Postgresql

## Publications

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### Optical Mark Recognizer using Object Detection and Clustering

IEEE

<https://ieeexplore.ieee.org/document/10534561>

Demo: <https://youtu.be/BiEybE5qQqw?si=prtzmefEqwJgmuIR>

### Detecting Communal Violence in Texts: An Exploration of MLM and Weighted Ensemble Techniques

Association for Computational Linguistics

<https://aclanthology.org/2023.banglap-1.25/>

## Certifications

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### Fundamentals of Operating Systems

Udemy

<https://www.udemy.com/certificate/UC-ff0d44a3-8917-40cd-aef9-a01e258aeee49/>

Learned about Process structure, Memory management, CPU cycles, I/O management

### NodeJS Internals and Architecture

Udemy

<https://www.udemy.com/certificate/UC-2068cbe0-b17c-47ca-b298-d8acb94b30e2/>

Learned about internal architecture of node js, event loop, asyncio, node js child process, node js worker threads, efficient usage of node js for building scalable backend applications

### Supervised Machine Learning: Regression and Classification

Coursera

<https://www.coursera.org/account/accomplishments/certificate/SZT92254XUUY>

Learned about foundational fundamental of regression and classification machine learning algorithms

### Computer Vision

Kaggle

<https://www.kaggle.com/learn/certification/zhalokrahman/computer-vision>

Learned about convolutional neural network, finetuning a CNN with pretrained base with a head and training the head, implementation with python and tensorflow etc

## Education

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### Shahjalal University of Science and Technology

Bachelors of Science in Computer Science

2019-01-01 – 2024-04-01