

Zhalok Rahman

Software Engineer 2 at Datatree Technology

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Video Introduction: <https://www.loom.com/share/c5ab46a4737244edafd9f052555767a1>

Experience

Kinetik Healthcare

Software Engineer 2

2025-04-01 – Present

- Worked with Kinetik Healthcare's 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, Nginx 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

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

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.banglalp-1.25/>

Certifications

Fundamentals of Operating Systems

Udemy

<https://www.udemy.com/certificate/UC-ff0d44a3-8917-40cd-ae9-a01e258aee49/>

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

Shahjalal University of Science and Technology

Bachelors of Science in Computer Science

2019-01-01 – 2024-04-01