

Kushal Kumar Saha

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WORK EXPERIENCE

Software Engineer

April 2024 – Present

Webdenso

Kolkata

- Engineered orders and payments system and schema, using **sharded PostgreSQL** in a **microservice** environment with **atomic transactions** – boosting online purchase **fault tolerance by 99%** with retry function.
- Architected **Mongoose aggregation** pipelines with **gzip** for product lists – reducing API size to **3kB from 15MB**.
- Optimized data search algorithm using **trie** and **redis cache** – upgrading filters and querying by **85% (600ms)**.
- Improved backend in **Nest** with **DFS flat map** and **heap** for caching – refining sort performance by **70% (90ms)**.
- Implemented **NGINX** load balancing and cluster module, improving horizontal scaling upto **30K users** per node.
- Automated **AWS** provisioning with **Terraform** and **CI/CD** build checks – boosting team productivity by **32%**.
- Designed **media asset system** with **S3 bucket** and **CloudFront**, reducing page blocking time by **1100ms**.
- Built homepage and blog **UI layouts personalization system** – enabling customization efficiency by **45%**.
- Developed using **Agile** methodologies and **git** versioning – achieving **35% spike** in client satisfaction rates.

Software Engineer

August 2023 – April 2024

MantraMugdh

Remote

- Proposed and performed project **migration** from JavaScript to **TypeScript** – resulting in **80% faster** debug time.
- Migrated and hosted databases from local MySQL into **Docker container on Azure** – data availability reaching **99% uptime**, remote developers work on updated data using **secure shell** – reducing security threats by **40%**.
- Optimized clients' SQL schemas via **normalization, indexing** and **caching** – benefiting query speeds by **17%**.
- Created **responsive frontend** in **Next.js** and **Tailwind CSS** – decreasing **render blocking time by 400ms**.

SKILLS

Languages	- C++, Java, TypeScript, Python, JavaScript (ES6), Golang.
DevOps	- AWS, Azure, Docker, Linux, Git, NGINX, Jenkins, Ansible, Terraform, Kafka, Grafana.
Website	- Nest.js, Node.js, Express, Golang, Django, Next.js, React, Angular, Tailwind CSS, HTML5.
Databases	- PostgreSQL, MySQL, Redis, MongoDB, SQL Server, Oracle DB, Prisma, Mongoose, Drizzle.
Soft skills	- Project management, Leadership, Teamwork, Decision making, Optimization, US accent.

PROJECTS

E-commerce: Balloondekor

[Contributions](#) | [Website](#)

Next.js, Tailwind, Nest.js, Docker, PostgreSQL, Redis, Prisma, NGINX, Terraform, AWS.

- Designed **distributed transactions** with **in-memory storage** – generating **13%** sales via failed payment retries.
- Launched **backup proxy endpoint** keeping software online at build, preventing **over 20** payments from failure.
- Improved **API latency** to **80ms** using **S3** media served over **CDN** – boosting page rank to top and visits by **73%**.

E-commerce: Giftlaya

[Contributions](#) | [Website](#)

Next.js, Tailwind, Docker, MongoDB, Redis, Mongoose, NGINX, Terraform, AWS, SMTP server.

- Implemented Mailcow **SMTP** server and Samba **SFTP** connection – minimizing file transfer times by **70%**.
- Developed and directed **role-based admin login** system with **partial resource access** logic using hashmap and cookies, trimming the API payload size by **25%**, enhancing speed by **8%** and super-user control by **33%**.

PyPI CD Automation: Pipme

[GitHub](#) | [Details](#) | [PyPI](#)

Python, GitHub Workflow, Docker, Ansible, Bash.

- Built distributions with **library and release conflict detection**, encrypting **40+ downloads** using access token.
- Deployed remote automation using **Docker images** – hosting **over 10** consumer libraries without requiring pip.

EDUCATION

MCA, Vellore Institute of Technology (August 2024 – May 2026): GPA 9.2/10

BSc Computer Science, St Xavier's College (August 2020 – May 2023): GPA 8.6/10