

Kunal Mahato

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EDUCATION

Virginia Tech

Master Of Engineering in Computer Science & Applications - GPA: 3.93/4

Virginia, USA

August 2023 - May 2025

Motilal Nehru National Institute Of Technology Allahabad (NIT Allahabad)

Bachelor Of Technology in Computer Science & Engineering - GPA: 3.53/4

Prayagraj, UP, India

July 2014 - May 2018

WORK EXPERIENCE

Turvo Inc., India | Software Engineer

May 2021 - June 2023

- Enhanced global search and filter efficiency by 10% through advanced Elasticsearch indexing and GraphQL API implementation, improving data retrieval speed and accuracy for supply-chain operations.
- Led the development and integration of a new Intermodal mode, migrating 216k+ shipments via Python scripting, ensuring robust data consistency across MySQL and MongoDB databases.
- Managed reorganization of the Rules Framework with a Business Rule Management System built as Spring Boot microservices to support role-specific shipment locks and mode-based status sequences, enhancing reliability for 10+ clients.
- Automated secrets management via HashiCorp Vault for 10 clients, enabling API-key rotation & credential injection.
- Elevated customer satisfaction and system performance by optimizing 5 shipment features (cloning, routing, sharing, orders, invoicing) through Agile methodologies.

Samsung, South Korea | R&D Engineer

December 2019

- Worked on UI and Notifications which helped launch the world's first foldable phone at Samsung HQ, South Korea.

Samsung, India | R&D Engineer

June 2018 - April 2021

- Maintained and optimized full-stack codebase for 5 OS iterations, enhancing performance for 1.48+ billion devices.
- Improved performance by reducing battery usage and memory consumption by 20%, utilizing Java for back-end and front-end optimizations for low-end devices.
- Handled 5 Application and Framework modules - Settings, Calendar, QuickPanel, Status-Bar and warning notifications.
- Upgraded the customer satisfaction metrics by 10% through implementation of Search feature for Quick Panel.
- Collaborated cross-functionally with teams to build backend data-porting solutions integrating 20+ network operators.

PROJECT EXPERIENCE

U-Pass Manager | Virginia Tech | [GitHub](#) | [Demo](#)

January 2025 - May 2025

- Architected Kubernetes-managed Next.js, React, Node.js web app, ensuring 99.9% uptime for 10K+ student records.
- Cut manual entry 95% with AWS Lambda automating S3 to RDS ingestion and boosted pickups using SES notifications.
- Improved API speed 50% and secured role-based access via optimized GraphQL/REST endpoints (Express, Apollo, JWT).
- Halved student wait times with a 100 ms NFC validation pipeline using Socket.IO for real-time distribution.

LifexAI | Bitcamp-Hackathon of University of Maryland | [GitHub](#) | [Demo](#)

April 2025

- Built LifexAI - AI detective web app integrating Google Gemini Vision API, Capital One Nessie API, and real-time Chart.js dashboards with Tailwind CSS and Framer Motion, boosting anomaly detection accuracy by 30%.
- Accelerated data loading 50% with Typescript React Query caching & Next.js APIs on Cloudflare Workers.
- Ensured 99.9% uptime and global delivery via Vercel-hosted frontend and automated CI/CD with Docker.

Book Wonders | Virginia Tech

January 2024 - May 2024

- Developed a scalable e-commerce app with login, book browsing, cart, and checkout, supporting 1000+ transactions.
- Designed and implemented 10+ responsive pages using HTML/CSS, React SPA, and optimized state management with Context API and Redux, improving load and data flow by up to 30%.
- Constructed 15+ RESTful APIs in Java (Jakarta EE) with MySQL integration, managing CRUD for 1,000+ book records.
- Deployed on AWS (EC2, S3, RDS, EMR) for processing and scaling, with CI/CD enabling zero-downtime updates.

DoDEx: Winner for People's Choice Hack | Bitcamp-Hackathon of University of Maryland | [GitHub](#)

April 2024

- Engineered an AI parser using Python with LLM + RAG, improving Defense Contract validation accuracy by 30%.
- Developed a web scraping and validation pipeline in C#, extracting and categorizing key contract data, and ensuring high accuracy through advanced AI-driven validation techniques.

SKILLS

Programming Languages and Databases: Java, C#, Python, Go, C++, JavaScript, PostgreSQL, MongoDB, MySQL.

AI & Machine Learning: OpenAI, Applied AI, LLMs (Gemini, GPT-4), RAG, TensorFlow, Streamlit.

Frameworks and Technologies: React, Angular, Next.js, TypeScript, GraphQL, Spring, Node.js, Express, FastAPI.

Cloud & DevOps: AWS(Lambda, IAM, VPC, Cloudwatch, EC2, S3, EMR, SageMaker, API Gateway), Docker, CI/CD.

Tools & Platforms: Git, Figma, JIRA, IntelliJ, Kibana, UNIX, Perfonce/P4V.