DEEPAK KUMAR

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SUMMARY

- **Software Development & Architecture** –5+ years of experience building monolithic, event-driven, and microservices architectures for startups, founders, and big tech, delivering scalable, high-performance solutions.
- **Full-Stack & Cloud Expertise** – Proficient in Python, Java, Django, FastAPI, Flask, Spring Boot, React, and Next.js, with hands-on experience in AWS, Kafka, Redis, RabbitMQ, Docker, Kubernetes, and CI/CD pipelines.
- **AI/ML & Industry Impact**– Skilled in Machine Learning, Deep Learning, LLM fine-tuning, and RAG, with a strong focus on secure, resilient, and scalable architectures across FinTech, Healthcare, E-commerce, Trading, and SaaS.

SKILLS

- **LANGUAGES**: Python, Java, JavaScript, TypeScript, C, HTML, CSS
- **BASICS:** Data Structures & Algorithms, High & Low-Level System Design, Microservice Architecture, Multithreading
- **BACKEND FRAMEWORKS & TECH**: Django, SpringBoot, Spring Cloud, Spring Security, Flask, FastAPI, Hibernate, JDBC, JPA, Maven, SQLAlchemy, ORM, JUnit, NumPy, Pandas, Selenium, Redis, Kafka, Celery, RabbitMQ, Elastic-Search, JMeter, GraphQL, gRPC, Grafana, Prometheus, Resilience4j, Spark, Hadoop
- **CLOUD-DEVOPS:** AWS cloud (EC2, SNS, S3, RDS, Lambda, SES, etc.), Docker, Kubernetes, CI/CD, Jenkins, Terraform
- **FRONTEND FRAMEWORKS:** Node, React (Redux, Hooks, Router, Context), Next.Js
- **DATABASES**: MySQL, PostgreSQL, MongoDB, OracleDB, DynamoDB, Cassandra, Graph Database(Neo4J)
- **ML/AI:** NLP, CNN, LLMs, Fine-tuning, RAG, Yolo, MLFlow, KubeFlow, TensorFlow, PyTorch

EDUCATION

Illinois Institute of Technology, Chicago, IL - **Master of Computer Science**   May 2025
Dr. A. P. J. Abdul Kalam Technical University, Lucknow, India - **Bachelor of Technology**

WORK EXPERIENCE

Software Engineer | ORACLE   May 2021 – Aug 2023

- Developed a Python-based graph algorithm to detect invalid objects and components in Oracle Database logs, reducing customer service resolution time **by 50%** and increasing the coverage driving significant cost savings for the company.
- Collaborated on developing a distributed, microservice automation health and analytics platform, managing **10K+** core engine config files to assess system effectiveness and identify improvement areas. Led the development of the API Gateway and Auth services, leveraging Python, Flask, Java, Spring Cloud, Hibernate, JDBC, React, Docker, Helm and Kubernetes to architect a robust solution. **Link**
- Engineered a robust microservice platform for Database Engineers to debug customer issues across multiple database versions efficiently, leveraging React, Java, Spring Boot, Oracle DB, and Hibernate. This solution accelerated issue resolution time by **80%** and boosted engineer productivity, enabling faster root cause analysis. **Link**
- Enhanced functionality through **4+ cross-functional** teams collaboration, successfully debugged and resolved over 10+ bugs, and seamlessly **integrated 5+ new features** into core automation.
- Designed and developed a survey platform, a microservices-based, event-driven architecture for Database RCA Analysis, **reducing analysis time by 75%**. Enabled customer behaviour analysis for different severity issues using Python, NumPy, Pandas, Flask, SQLAlchemy, FastAPI, Redis, Kubernetes, and Docker, Jenkin.
- Collaborated to rewrite and enhance the Automation Framework tool in core Java, enabling multiple product teams, the Database, Cloud, and Middleware, to automate customer issue resolution for their products.

Software Engineer | FINOIT INC   Jan 2020 – Apr 2021

- Led and orchestrated the end-to-end development of payment microservice for B2B SaaS Platform in Django Rest API, Stripe, MySQL, and RabbitMQ with Stripe 3D Secure and split payment functionality, resulting in a **10% reduction** in operating costs for the company and **increased revenue to $1.2M Link**
- Developed an integrated platform in Python, Django MVC, Jinja, Javascript, HTML, CSS, and PostgreSQL to manage employee attendance, efficiency, project health, invoices, revenue distribution, and security. Achieved **15% fewer project delays** and an **18% increase in revenue**.
- Contributed to laboratory management software, developing robust backend APIs in Django Rest, MySQL, S3, SES, Redis, GitLab CI/CD and Docker, for seamless integration with frontend functionality, reducing sample process time by **37%** and yielding a **16% increase** in yearly **revenue to $12.6M**. **Link**

- Developed AWS Lambda function to process SNS events, enabling real-time data sync between platform databases and QuickBooks, reducing data discrepancies and improving operational efficiency
- Guided and mentored juniors, conducted thorough code reviews, and enhanced code quality.

Software Engineer | FLUPER LTD   Feb 2019 – Jan 2020

- Enhanced Existing API **performance by 300%** using Async task management with RabbitMQ+Celery. Used caching mechanisms to reduce redundant computations and database queries.
- Collaborated to build an e-commerce platform built on **microservice** architecture, resulting in a **40% surge** in online sales within the first quarter post-launch. **Link**
- Developed a scalable social media platform for a startup with an Instagram-like feed, chatting, and lucky draw system using Python, Django, ORM, RabbitMQ, Celery, Twilio, Firebase(Chat), MySQL, PostgreSQL, EC2, S3, Redis, Stripe for subscription attracting **10K+ users** and **30K+ posts** within the **first month**. **Link**
- Developed a full-stack application similar to Yelp, enabling users to create map pins, rate tourist spots, and search popular nearby locations. Built with Django REST & MVC, Twilio, Angular, PostgreSQL (for geospatial queries), Google Maps, and Firebase, AWS service, OAuth 2.0 Integration.
- Restructured existing project database tables and optimised queries, achieving up to a **50% improvement** in query performance.

RECENT PROJECTS

- **LLM Fine Tune**: Predicted upcoming research papers using a fine-tuned GPT-Neo 2.7 LLM model, based on author names or future years (e.g., 2030). Fine-tuned the model using the ArXiv research publications dataset.
- **PolicyCheck AI (Ongoing)**: Building a policy-aware AI model to evaluate civil project compliance against government regulations using Retrieval-Augmented Generation (RAG) and LLM fine-tuning. Enables automated compliance verification with rule-specific explanations and violation detection.
- **Crypto Trading Platform** - Developed a crypto trading platform for a startup company in **distributed microservice** architecture using RabbitMQ and Celery to **process 500+ orders per min** and refresh data, ensuring fault tolerance. Utilised Celery for reliable order processing, with FastAPI for fast performance and MongoDB for data storage. **Link**
- **The1 Recharge** - Developed a scalable recharge and bill payment platform for a startup, integrating multiple third-party APIs for mobile, metro, television, and WiFi services. Engineered key features like coupon management, user authentication, and detailed reporting using Python, Django, and MySQL. Integrated Stripe for secure payments and implemented a **resilient error handling** and **retry mechanism** to ensure high reliability during transactions.
- **Master-Slave MySQL with ProxySQL Load Balancer -** Configured MySQL master-slave replication with ProxySQL to **scale databases** and **reduce latency**. Tested one-master-one-slave and one-master-two-slaves setups using Python and Docker Compose.
- **Consistent Hashing and Data Backup in Distributed Systems -** Developed a distributed MongoDB (**100M data**) solution using consistent hashing to manage data distribution and backups. Implemented **fault tolerance** by creating **backup** copies on neighbouring nodes.