AKANKSHA SHAH

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Education

Texas A&M University, College of Engineering   College Station, TX
Master of Computer Science   GPA: 4.0/4.0
- **Courses**: Software Engineering, Machine Learning, Artificial Intelligence, LLMs.

College of Engineering Pune (COEP)   Pune, India
Bachelor of Technology in Computer Engineering, Honors in Computer Engineering   CGPA: 9.14/10
- **Courses**: Data Structures, Object Oriented Programming, Operating Systems, Compilers, Software Engineering, Database Management, Information Retrieval, Data Science.

Technical Skills

Languages: C/C++, Java, Python, Ruby, TypeScript, JavaScript, HTML, CSS, SQL, Shell Scripting
Frameworks: Spring Boot, Angular, Node.js, Ruby on Rails
Tools & Technologies: Kafka, IBM MQ, Jenkins, Docker, OpenShift, Linux CLI, REST APIs, Maven, Jira, Bitbucket, Git
Databases & Others: MySQL, PostgreSQL, Oracle, MongoDB

Work Experience

Citicorp Services India Private Limited   Pune, India
Software Developer   July 2022 – July 2024

Data Security - Kafka Encrpytion | *Spring Boot, Java, Kafka, Ionic KMS*
- Engineered an **annotation-driven** Spring Boot library to **encrypt/decrypt** large-scale **individual and bulk** Kafka data streams.
- Achieved <**2ms** encryption **overhead**, securing sensitive data for **16 production applications.**
- Enhanced **data security** and **integrity** of restricted information by **98%.**

Data Replication Utility | *Spring Boot, Java, Spring Batch, SQL, Multithreading*
- Contributed to developing a mission-critical **data replication** solution using **Spring Batch** and multithreading to replace a legacy end-of-life system, ensuring uninterrupted **data availability** for **12 production applications**.
- Reduced data **replication time** by **85%** through **parallel, and incremental** replication to distributed servers.
- Enhanced data replication **reliability**, achieving a **95% reduction** in **errors** through robust **retry and job cancellation** features.

Document Storage Service | *Spring Boot, Java, S3, Kafka*
- Engineered a **client-agnostic, extensible metadata model** for a **microservices-based** document storage service, enhancing scalability to support **20+ client applications** and reducing developer **overhead** for new **client integration** by **60%**.
- Implemented a metadata-based **search and retrieval feature**, enabling flexible document discovery using custom parameters.

Service Cataloging & Discovery Platform (Pismo Migration) | *Angular, Spring Boot, Kafka, AsyncAPI, Pismo*
- Spearheaded the development of a **centralized service catalog and discovery platform**, enabling the **US migration** of core banking workflows to **Pismo**, a cloud-based FinTech solution.
- Empowered developers with a **"try-out"** feature for testing services in a Pismo sandbox environment and provided language-agnostic **boilerplate code generation** to accelerate new service creation.
- Replaced manual Excel-based service specifications with an automated system, centralizing management for **8 core services** and **eliminating** an estimated **12 hours/week** of **manual effort**.

Innovation Project, GigawaTTS | *Angular, Spring Boot, ONDC*
- Conceptualized and developed a full-stack prototype of a **B2B e-commerce platform** using **ONDC (Open Network for Digital Commerce)** as a part of **Citi India Innovation Project**.
- Researched and analyzed the B2B e-commerce ecosystem in India, incorporated novel features in the product that addressed customer pain points, and created cross-selling opportunities within the product, which was facilitated and recognized by global leaders of Citi.

Citicorp Services India Private Limited   Pune, India
Summer Analyst - Internship   May 2021 – July 2021

- Implemented a **maker-checker** process in an application that tested various integrated middleware services using REST, SOAP, TIBCO EMS, and IBM MQ as endpoints. Enhanced operational efficiency by 75% through an additional supervision layer.

Projects

Meal Calorie Prediction | *Python, CGM, LSTM, CNN, Neural Networks*   **Oct 2024 – Dec 2024**

- Designed and implemented a multimodal machine learning framework for meal calorie estimation by integrating CGM data, microbiome profiles, demographics, and meal images.
- Developed a hybrid model combining ResNet-50 (CNN) for image analysis, LSTM for glucose trends, and a fully connected network for tabular data fusion.
- Hypertuned the model to achieve high prediction accuracy (RMRSE: 0.33), demonstrating its potential for advancing personalized nutrition and dietary monitoring.

Project Management Tool | *Ruby on Rails, PostgreSQL*   **Oct 2024 – Dec 2024**

- Enhanced project management for the Teamup organization by integrating Google Calendar for seamless task scheduling. This enabled mentors and students to track deadlines and milestones efficiently.
- Improved resource management with a shared space where mentors and admins could upload and organize materials for easy student access.
- Facilitated effective mentorship by allowing mentors to create milestones, track student progress, and provide real-time feedback, leading to better student engagement and outcomes.
- Enabled data-driven decision-making with analytics dashboards for real-time tracking and insights, optimizing project and resource management.

Detection and Mitigation of (D)DoS Attacks in SDN Environment | *Python, OpenFlow, POX - SDN Controller, Mininet*   **July 2023**

- Devised a novel algorithm to detect the presence of (D)DoS attacks in SDN environment using Shanon Entropy and dynamic threshold value, derived from the changing network congestion.
- Identified the attacker and victim hosts in case of an attack to install drop flow rules using OpenFlow protocol into underlying forwarding devices to mitigate the attack at source.
- Published research in ***International Journal of Advanced Research in Science, Communication and Technology (IJARSCT).***

Userland Multithreading Library | *C Programming Language, Multithreading*   **April 2022 – May 2022**

- Developed a lightweight userland multithreading library based on one-one and many-one threading models for POSIX conformant operating systems.
- Provided abstractions for thread scheduling, synchronization, resource blocking, and signal handling.

Price Tracer | *ReactJS, Node.js, MongoDB, Nightmare Web Scraping*   **Aug 2021 – May 2022**

- Leveraged web scraping technology to automate the process of price tracking across five e-commerce platforms.
- Provided graphical features to analyze the price trends and get price drop notifications.
- Incorporated a product recommendation system to suggest similar products from supported websites using web scraping.