

# Ritwik Deshpande

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## EDUCATION

### University of Illinois Urbana-Champaign, USA

Aug'22 – Dec'23

Master of Computer Science | **CGPA - 4.0/4.0**

*Assistantships:* Teaching Assistant for Distributed Systems, Research Assistant at NCSA

*Courses:* Cloud Storage Systems, Database Systems, Advanced Data Management, Computer Security, AI

### Visvesvaraya National Institute of Technology, India

Jul'16 – May'20

Bachelor of Technology in Computer Science Engineering | **CGPA - 9.22/10**

*Courses:* Distributed Systems, Computer Networks, Operating Systems, Data Structures & Algorithms

## TECHNICAL SKILLS

**Languages:** Python3, Java, JavaScript, TypeScript, C, C++, Bash, SQL

**Technologies/Frameworks:** Spark, Kafka, Splunk, Spring, Dagger, Mockito, Flask, Jenkins, React, Node, Git

**Cloud Technologies:** Docker, Singularity, Kubernetes, AWS(Certified), GCP

**Databases:** MySQL, Oracle 19c, MongoDB, Cassandra

## PROFESSIONAL EXPERIENCE

### Amazon Web Services | *Software Development Engineer Intern* | *AWS Security*

Chicago, USA | May'23-Aug'23

- Implemented a Java(Dagger) microservice deployed on AWS Lambda fronted by API Gateway(Coral-Lambda-Endpoint).
- Created IAM user roles and policies, built a CI/CD pipeline and Cloud-Formation stacks using CDK(Typescript Infrastructure-as-code), wrote end-to-end unit tests, and integration tests using mockito and hydra frameworks respectively.
- Automated self-service onboarding of tenant(other AWS services) accounts, to scale and accelerate the manual onboarding process by 95%.

### National Center for Supercomputing Applications | *Solutions Architect*

UIUC, USA | Jan'23-Dec'23

- Utilized funcX to develop a novel 100% automated CustomImageBuilder platform, that reads the required image specs and enables users to build custom apptainer/singularity images for HPC platforms.
- Transitioned the funcX dependencies from pre-existing Conda virtual environment setup on CPU nodes to using singularity containers on the GPU nodes of the Delta HPC clusters. This assisted in scaling the platform for use in real-world ML research projects such as Distributed Inference, Enzyme Predictions, and Morbidity Detection

### JP Morgan Chase & Co | *Software Engineer II* | *Data Engineering Team*

Mumbai, India | Aug'20-Aug'22

- Expedited the migration of legacy ETL pipelines using on-premise licensed tools to the JPMC private cloud platform (Gaia Kubernetes Platform and Gaia Oracle Service), resulting in a reduction in annual costs by up to \$100,000 for the firm.
- Implemented a Big Data pipeline consisting of scheduled cloud-native Spark batch jobs, capable of extraction, transformation, and load of 20GBs of daily Annuities data from s3 to the Oracle database, thus reducing the processing time by nearly 50%.
- Developed Oracle PL-SQL procs for one-time migration to an optimized(60% lesser storage costs) data-model for Annuities.
- As SWE-II led the Life Insurance ETL team, which involved disambiguation and planning overall design and sprint goals, Kubernetes setup and integration, creation of ETL pyspark jobs, designing SpringBoot REST APIs and microservices, setup of Jenkins CI/CD pipelines, adding Hydra Integration Tests and Canary Tests before deployment to Production.

## PROJECTS

### Unified Banking Platform | *UIUC, Database Systems*

- Engineered a unified retail banking platform, empowering users to oversee different accounts seamlessly across multiple banks.
- Introduced real-time overdraft monitoring, allowing users to rectify negative balances promptly to evade penalties thus fore-warning users through notification before their accounts are blocked, providing 100% operational efficiency.
- Technologies Used: Flask, Python3, React, MySQL, GCP.

### Morbidity Detection using Clinical Notes | *UIUC* | *NCSA*

- Utilized funcX to set up a high-throughput env on the Delta cluster at NCSA, optimizing performance for training jobs.
- Parallelized training of BiLSTM models for 16 morbidities, achieving results outperforming the paper's 40-hour runtime, completing the process in 5 minutes(98% performance boost) leveraging the Nvidia A100 GPUs of Delta cluster.
- Technologies Used: Pytorch, FaaS(funcX), Python3.

### DigiDocs - Paperless Office | *Winner- Smart India Hackathon'20*

- Worked on a full-stack web application that provides 100% automation of manual office procedures through an intuitive workflow management system.
- Created a robust two-step authentication process for signing the document with approval seal, and leveraged fault-tolerant and highly-available Cassandra store and appropriate Redux caching mechanism to store and update workflow JSON objects in real-time thus facilitating contact-less document transfer and signing during the Pandemic with 95% savings in paper.
- Technologies Used: Java, React, Node, SpringBoot, Cassandra.

## ACHIEVEMENTS

- Team Lead for the ETL platform of the Life Insurance product at J.P Morgan Chase & Co.
- Winner at the HackerEarth Blue Sky Smart Air Quality Monitoring Systems ML-Hackathon.
- Two-time Winner at the Smart India Hackathon'20, '19.