Mukul Chandrakant Mahadik

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Work Experience

National Renewable Energy Laboratory (NREL) — **Golden, Colorado**
Software Development Engineer | *Python, Docker, MongoDB, Git, GitHub Actions, AWS* — **08/2023 – 12/2024**

- Refined data processing in model build and analysis pipeline, transforming raw data into inferred values with comprehensive automated unit and integration testing.
- Reduced processing times by **90%** by optimizing pipeline algorithms using reduced time complexity for model loading.
- Improved pipeline reliability by **30%** by adding data filtering to resolve build failures observed via Cloudwatch logs.
- Cut deployment times by **80%** and automated DevOps process by reforming CI/CD pipelines with GitHub Actions.
- Optimized storage usage by **1 TB** and reduced costs by **70%** through archiving raw timeseries data for efficient data lifecycle management.

Oracle Financial Services Software (OFSS) — **Bangalore, India**
Software Development Engineer | *PL/SQL, XML, Oracle DB, Oracle OFSAA, ETL* — **07/2021 – 05/2022**

- Implemented OFSAA LLFP fintech solutions in SIT, UAT and provided post-implementation support in Production environments for **2** international financial banking firms.
- Engineered **6** GUI based workflow runs for ETL pipelines with numerous tasks and integrated them with backend scripts to process data from Pre-staging to end-user report generation stage.
- Enhanced UI for Individual Assessment (IA) module based on XML Forms Framework by customizing **4** UI Forms and **8** PL/SQL scripts to process over **300k** customer records by proposing to debug existing legacy code.
- Generated PL/SQL scripts for data manipulation and validation to automate manual tasks for filtering source data that helped reduce execution times by **20%** while generating end-user reports containing customer data for over 6 months.
- Documented technical designs and deployed code packages across environments via WinSCP/PuTTY client-server apps.

Technical Skills

Languages: Python, Java, C++, JavaScript, TypeScript, PL/SQL, YAML
Frameworks: REST API, Flask, FastAPI, Node.js, Express, React, Next.js
Databases: PostgreSQL, MongoDB, Oracle DB, Supabase, SQLAlchemy
Generative AI: LLMs, Meta Llama, Anthropic, OpenAI, RAG
Cloud Platforms: OpenStack, AWS (EC2, S3, SQS, Lambda, Cloudwatch, ECR)
DevOps: Docker, GitHub, GitHub Actions
Developer Tools: Git, Linux, Bash, Postman, Figma

Projects

Bookwise: Second Brain for Readers | *Python, FastAPI, Supabase, TypeScript, NextJS* — **10/2024 – 10/2024**

- Architected a full-stack document processing pipeline enabling readers to capture and explore reading insights.
- Utilized LLMs to enhance information organization and retrieval using knowledge graphs, word clouds.

Recruit AI Agent | *Python, FastAPI, TypeScript, NextJS, Groq, OpenAI* — **10/2024 – 10/2024**

- Developed an LLM-based agentic automated candidate evaluation app with job matching and profile analysis.
- Implemented recruiter-candidate matching workflows including async processing of PDF parsing, data visualization.

Microservices Video to MP3 Converter | *Python, Docker, Kubernetes, RabbitMQ, MongoDB* — **09/2024 – 09/2024**

- Engineered a distributed system for converting video files to MP3 format using microservices architecture.
- Implemented secure JWT user authentication, message queuing with RabbitMQ, scalable storage, notifications.

Classic To-Do List | *React, Go, GraphQL, AWS (EC2, Amplify, RDS), PostgreSQL* — **08/2024 – 08/2024**

- Developed a full-stack task manager webapp with CRUD operations using React and Go with PostgreSQL database.
- Implemented GraphQL API for efficient data retrieval; deployed on AWS with self-signed SSL certificate for HTTPS.

Cloud-based Video Face Recognition App | *AWS, Python, Flask, Docker, OpenStack* — **02/2023 – 04/2023**

- Designed a 3-tier hybrid cloud architecture leveraging AWS and OpenStack for Web, App, and Data tiers integration.
- Prepared Python scripts for: Lambda triggers, S3, DynamoDB; auto-scaled 20 EC2 instances via SQS and Cloudwatch.

Education

Arizona State University — **Tempe, Arizona**
Masters in Computer Science | **GPA: 3.90 / 4.0** — **08/2022 – 05/2024**

National Institute of Technology Hamirpur — **Hamirpur (H.P.) , India**
Bachelors in Electronics and Communication | **GPA: 8.73 / 10** — **08/2017 – 05/2021**

Extracurriculars

UC Berkeley Journalism AI/Journalism Hackathon | *Overall Winner* — **10/2024 – 10/2024**

- Finished in the top three teams for developing documentary film making toolkit alongside media professionals.

AICamp Generative AI Hackathon for AI Agent and RAG | *Overall Winner* — **06/2024 – 06/2024**

- Won the AWS for Startups prize for creating a multimodal AI assistant that automates browser tasks on behalf of users.