

Mukul Chandrakant Mahadik

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Work Experience

National Renewable Energy Laboratory (NREL)

Golden, Colorado

Software Development Intern | *Python, Docker, MongoDB, Git, AWS (ECR, Cloudwatch, Inspector)*

08/2023 – 07/2024

- Refined data processing in model build and analysis pipeline, transforming raw data into inferred values with comprehensive manual and automated testing.
- Optimized system scalability through time complexity improvements, enhancing overall performance.
- Troubleshoot and resolved model build pipeline failures in staging and production environments using CloudWatch logs.
- Streamlined and automated DevOps processes by restructuring CI/CD workflows with GitHub Actions.
- Implementing data export/import functionality for timeseries data purge and restore, improving database efficiency and data lifecycle management.

Oracle Financial Services Software

Bangalore, India

Associate Technical Consultant | *PL/SQL, XML, Oracle DB, Oracle OFSAA, WinSCP, 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: Java, C++, Python, PL/SQL, HTML, CSS, JavaScript, TypeScript, XML

Frameworks: Flask, Spring Boot, Node.js, Express, React, Next.js, Algolia, GitHub Actions, Streamlit, Langchain

Databases: Oracle DB, PostgreSQL, MongoDB, AWS DynamoDB

Architectures: REST API, Microservices, RAG Chain, LLMs

Cloud Platforms: OpenStack, AWS Cloud Services (EC2, S3, SQS, Lambda, Cloudwatch, ECR)

Developer Tools: Git, Linux, Bash, VSCode, Docker, Taiga, Postman, Documentation, Agile, SDLC

Projects

PhotoOp Task Automation | *Python, Claude Opus LLM, MultiOn, RAG, GenAI*

06/2024 – 06/2024

- Designed a GenAI application that automates tasks like online shopping based on the input images.
- Leveraged Anthropic LLMs to extract context from images via RAG and automated browser actions with MultiOn API.

YouTube Conversation RAG GenAI | *Python, MongoDB, Streamlit, Deepgram, Together.ai, LLM*

06/2024 – 06/2024

- Built video search with Generative AI RAG chain, audio transcription, vector embedding, MongoDB vector search.
- Developed responsive Streamlit frontend integrating LLMs to query embedded video data and retrieve relevant info.

Product Data Catalog Web App | *React.js, Next.js, Express.js, PostgreSQL, Node.js, TypeScript*

06/2024 – 06/2024

- Developed a full-stack web app using Next.js and Express.js, implementing CRUD operations with user authentication.
- Leveraged TypeScript for development and Vercel and Heroku for deployment for reliability, maintainability, scalability.

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

Software Courses (Requirements; Design; Verification, Validation, Testing), Data Processing at Scale, Cloud Computing

National Institute of Technology Hamirpur

Hamirpur (H.P.) , India

Bachelors in Electronics and Communication | **GPA: 8.73 / 10**

08/2017 – 05/2021

Extracurriculars

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.

Coding Experiences: Debugging Made Easier | *Blog Website*

10/2021 – 06/2024

- Maintaining blog with posts - "Adding Local Directory to GitHub Repository" and "Renaming Multiple Files At Once".