

Abhishek Vardhan Narayanam

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PROFESSIONAL SUMMARY

Innovative Python Developer with close to 3 years of experience in building and enhancing robust applications using Flask, Machine Learning, Deep learning, SQL, CICD development and Generative AI. Currently leading a team of three, I drive key projects like the Bank Statement Analyzer and a self-initiated in-house OCR solution, significantly reducing costs by eliminating third-party dependencies. Possesses deep knowledge of the financial domain coupled with excellent communication and collaboration skills.

EXPERIENCE

• Development Bank of Singapore

Hyderabad

June 2022 - Present

- **Bank statement Analysis (BSA) Application:** Designed, developed, and managed the Bank Statement Analyzer (BSA) web application. The application delivers financial insights by leveraging advanced data analysis and visualization tools, helping evaluate customers' financial capabilities. Played a key role in resolving bugs, incorporating user requirements, and implementing customized insights to enhance functionality. Deployed the application on OpenShift, ensuring its scalability and reliability. Regularly performed technical upgrades and collaborated with cross-functional teams to deliver a robust, user-friendly solution.
Technologies used: Numpy, Pandas, Flask, SQL, Jenkins, OCP, Jenkins
- **ML-Based Loan Approval System:** Built and deployed a Machine Learning model to help predict loan approvals in the Bank Statement Analysis (BSA) system. The model supports Relationship Managers (RMs) by providing automated loan predictions, requiring explanations when decisions differ from the model's suggestions. Used feature engineering and oversampling to handle imbalanced data, focusing on high recall to reduce fraudulent approvals. Added a performance tracking dashboard (Precision, Recall, F1-score) and planned regular model updates.
Technologies used: Scikit-learn, Pandas, Flask, SQL, Pickle, Feature Engineering, Model Deployment
- **In-House OCR Solution:** Developed an in-house Python OCR solution to extract data from various bank statement templates, replacing an expensive third-party service. Achieved a significant accuracy improvement from 91% to 99% and enhanced response speed, making the system 3x faster. This led to a \$300K reduction in annual renewal costs while improving processing efficiency.
Technologies used: Py-tabula, Pymu-pdf, Pypdf2
- **Testcase generator using Genai:** Developed and fine-tuned a Large Language Model (LLM) using LoRA and QLoRA techniques on Vertex API to automate the conversion of test instructions into BDD format. Custom prompts and example-driven training were used to enhance model accuracy. The model was quantized to improve processing speed. This solution reduced 80 man-hours by generating 500 automated test cases, significantly increasing testing efficiency.
Technologies used: Langchain, Vertex ai, Few short templates, QLoRA
- **Interactive Dash Dashboard for BSA Application:** Developed an interactive Dash dashboard for real-time BSA analysis, featuring visualizations such as pie charts, bar graphs, and line plots. The dashboard enabled quick insights and data-driven decision-making by displaying key metrics and trends.
Technologies used : Pandas, SQL, Dash , Bootstrap, Plotly

SKILLS SUMMARY

Languages & Tools: Python, C++, Java, SQL, BASH, Docker, GIT, PostgreSQL, MySQL
Frameworks & Libraries: Flask, Django, FAST api, Selenium , DASH ,BeautifulSoup ,TensorFlow, PyTorch, Keras
Web Technologies: HTML, CSS, JavaScript, Bootstrap, Angular
Cloud Technologies: EC2, VPC, Lambda, Route 53, ECS, SNS, SQS, S3, Heroku, Openshift
Dev-ops tool: Git, Linux, Jenkins, Docker, CICD pipelines
ML Algorithms: Logistic Regression, Linear Regression, KNN, PCA, Random Forest, XG Boost
NLP tools: RNN, LSTM, Transformers, BERT, GPT
Gen AI tools: Lang-chain, Neo4j, Lang-graph, Advanced RAG, LLM Fine-Tuning (LoRA, PEFT),
Skills: Leadership, Stakeholder Management, Cross-functional Collaboration, Agile Methodologies, Teamwork

PUBLICATIONS

Parts of Speech Tagging using Viterbi algorithm [Read Publication](#)

Published in the International Journal of Scientific Research in Engineering and Management

May 2022

PROJECTS

Movie Recommendation System [GitHub Repo](#)

Developed a content-based movie recommender system deployed on AWS EC2 instance and configured Domain name using AWS Route53. Used cosine similarity and Naive Bayes sentiment analysis to enhance recommendations from IMDB data on 4,000 movies. This project showcases skills in recommendation systems, machine learning, cloud deployment, and API data acquisition.

Technologies used: Cosine similarity, Pandas, NLP, EC2, Route53, Naïve Bayes, Flask

Database Query Chatbot

Developed a chatbot using Streamlit that retrieves data from multiple databases based on natural language prompts. Integrated the Llama 3 model and LangChain SQL agents to convert prompts into SQL queries, with error-handling to refine queries for accurate results. Enabled seamless connection to SQLite or MySQL Workbench, allowing database selection based on requirements. Implemented a history tab to track previous queries and responses for reference. The application supports complex queries, optimizes performance for large datasets, and features a modular design for future scalability. **Technologies used:** Flask, Langchain, SQL_agent, Openai, Ollama, lang graph, RAG

HONORS AND AWARDS

- **Employee of The Month (Jan - 2024)**

Recognized for developing and fine-tuning a Large Language Model (LLM) using LoRA and QLoRA techniques on Vertex API to automate the conversion of test instructions into BDD format.

- **Tech Hero Award - 2024**

Recognized for conceptualizing and developing an in-house Python OCR solution increasing response speed by 3x, and reducing annual renewal costs by \$300K.

- **1st Place in Code Hackathon**

Secured 1st position at Gitam Coding contest (GCC) at university level, focused on Data structures and algorithms.

CERTIFICATIONS AND COURSES

Red Hat Certified System Administration (RHCSA)

Optical Character Recognition (OCR) (Udemy)

EDUCATION

- **Gitam University**

Bachelor of Technology – Computer Science

July 2018 - May 2022