ADARSH BALAN

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CAREER SUMMARY

Data Science and ML professional with 5+ years of expertise in Finance, Consulting, Healthcare, and Academia. Proven ability to solve complex business problems, drive insights from data, and deliver AI-driven solutions. Skilled in collaborating with cross-functional teams to build and deploy impactful data applications.

EDUCATION

Advanced Management Programme in Business Analytics (AMPBA), Indian School of Business   2024

Bachelor in Commerce, Accounting, Panjab University, GCCBA Chandigarh   2019

CMA Intermediate, Institute of Cost Accountants of India   2018
Awarded the Certificate of Merit Award for completing all subjects in single sitting.

SKILLS

Programming Languages	Python, R, SQL, Cypher(Neo4j), Bash
Machine Learning	Supervised/Unsupervised, Regression, Classification, Clustering, Time Series, DL
NLP	Regular Expressions, NLTK, Spacy, Word2Vec, Transformers, Sentiment Analysis
MLOps	Mage AI, LangChain, Azure AutoML, Docker, Kubernetes, TensorFlow, PyTorch
Data Engineering	PostgreSQL, Big Query, Data Lake, PySpark, APIs and Integration
BI Tools	Tableau, Power BI, R Shiny, Looker Studio

EXPERIENCE

Research Associate with Prof. Karthik Balakrishnan - Accounting Area   Oct 2023 - Present
Indian School of Business, Hyderabad

- Utilized natural language processing (NLP) techniques to scrape, preprocess, and analyze vast amounts of unstructured SEC textual data, transforming it into structured data sets for further analysis.

- Created an AI Simulation game where students, divided into groups representing companies, took on roles as functional departments. They made strategic decisions based on scenarios and market research, utilizing an AI assistant powered by a Retrieval-Augmented Generation (RAG) system to enhance decision-making and simulate real-world business dynamics.

- Finetuned GPT-4o mini for financial sentiment analysis using the TRC2 dataset, comparing its performance with FinBERT on the Financial PhraseBank and other test sets to enhance the model's accuracy in interpreting financial communications.

- Authored detailed case study on cost accounting practices within the healthcare sector, specifically evaluating the effectiveness of the PMJAY Ayushman Bharat Insurance Scheme, providing data-driven recommendations for policy improvements.

Project Associate, Bharti Institute of Public Policy (BIPP)   Jan 2023 - Sep 2023
Indian School of Business, Mohali

- Managed agile planning and end-to-end SKU management for the India Data Portal project, driving data-driven decision-making.

- Created dynamic data visualizations and Tableau dashboards for policy-related datasets, web scraping, and data cleaning.

Senior Executive - Cost Accountant   Nov 2021 - Sep 2022
Max Healthcare Institute Limited, Mohali

- Implemented Costing Module-NAV Software, processed monthly closing activities, prepared Patients Based Costing Reports, generated MIS Reports, and coordinated with cost auditor for compliance.

TRAINING EXPERIENCE

Industrial Trainee, Indian Oil Corporation Limited   Sep 2020 - Aug 2021
Cost Assistant, Khurana & Co. Cost Accountants   Apr 2019 - Mar 2020

SELECTED PROJECTS

- **ISB AMPBA Capstone Project with Deloitte: Anomaly Detection in Business Processes using Generative AI.** Led the development of an application to generate actionable insights from large business datasets, enhancing financial governance. Managed all phases, including stakeholder collaboration, HLD/LLD design, LLM and agent integration, coding, testing, and deployment. Delivered a CSV agent chatbot that executed Python commands from natural language inputs, with a callback feature to display thought processes and refine prompts.

- **Agentic RAG System for Multimodal PDF Querying**: Developed an Agentic RAG System that integrates LangChain, OpenAI, Cohere Rerank, and ChromaDB to retrieve and synthesize multimodal content (text, images, tables) from multiple PDFs into context-aware responses, and conducted comprehensive evaluations on its accuracy, relevance, and fluency.

- **Virtual Try-On Prototype with Flask, Twilio, and Gradio's API using IDM-VTON Model.** Built a virtual try-on application where users can send images via WhatsApp to virtually try on garments, leveraging Nymbo's Virtual Try-On Gradio's API which uses IDM-VTON. Integrated Flask to manage the backend API, Twilio for WhatsApp-based interaction, and Ngrok for local server exposure. The system processes the user's images and returns a virtual try-on result in real-time through WhatsApp.

- **Forecasting Electricity Energy Consumption using Azure Auto ML.** Developed a forecasting model using Azure Auto ML to predict electricity consumption in industrial and commercial sectors. The model achieved less than 2% deviation and was deployed as an application on Streamlit.

- **Image Segmentation on Pathology Images using UNet with ResNet.** Finetuned a UNet model with ResNet as the backbone for image segmentation on pathology images. The model was trained with mask images where nuclei were marked, achieving a best validation loss of 10%. This work contributed to advancements in medical image analysis and segmentation.

CERTIFICATIONS

- UC Berkeley MOOC: Large Language Model Agents - Mastery Tier.

- Consensys: Blockchain: Foundations and Use Cases

- USF Muma College of Business: The Impact of Fintech: AI, Blockchain, Cryptocurrency, and the Future of Business

- Google: Introduction to Large Language Models

COMPETITIONS

- MachineHack: Ranked 4th out of 102 participants for Criminal Incident Rate Forecasting Hackathon.

- Trilytics'24: Ranked 70th out of 9,292 teams in Round 1 of Analytics Case Competition.

- Analytics Vidhya Blogathon- 49 and 48th: Ranked 7th and 13th out of 4,300+ participants based on the number of unique page views for my articles.

FREELANCE GIGS

- Uber Scaled Solutions: Evaluated Python and SQL code to ensure optimal performance and compliance with evaluation guidelines.