RUTHVIK KILARU

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PROFILE SUMMARY

- Detail-oriented professional with **over 4 years** of extensive experience in analyzing complex datasets to drive informed decision-making.
- Proficient in ETL processes, data warehousing, big data technologies, Hadoop, Spark, and Kafka, Python, R, SQL, machine learning frameworks such as TensorFlow and scikit-learn, statistical analysis, data visualization, and business intelligence tools.
- Experienced in developing and deploying data-driven solutions to solve complex business problems.
- Skilled in data preprocessing, feature engineering, and model optimization, with a focus on achieving high accuracy and interpretability.
- Experienced in natural language processing, computer vision, and time series analysis.
- Expert in transforming raw data into actionable insights, enabling businesses to optimize strategies and improve operational efficiency.
- Adept at communicating findings to stakeholders through clear, concise reports and dashboards. Passionate about leveraging data to solve problems and support strategic initiatives.

FUNCTIONAL SKILLS

- Data Analysis
- Data Visualization
- SQL
- Statistical Analysis
- Data Preprocessing
- Data Cleaning
- Data Mining
- Business Intelligence (BI)
- Data Reporting
- Machine Learning
- Feature Engineering
- Data Preprocessing
- Data Integration
- Predictive Modeling
- Model Evaluation

TECHNICAL SKILLS

Programming Languages:	Python, R, C, C++, HTML, CSS
Big Data & Machine Learning:	PowerBI, Spark, Kafka, VectorDB, SQL(t-SQL, p-SQL)
Data Science and Miscellaneous Technologies:	A/B testing, Jira, Shell scripting, ETL, Data science pipelines based on CI/CD, PowerBI(PQ, DAX, Slicers), Snowflake, NLP, GANs, LLMs, APIs(REST), Excel(Power Pivot, VBA, Macros), AWS(EC2, Kinesis streams, S3 buckets, Redshift), Google Analytics(BigQuery) & Ads, Langchain, Github, Docker & Kubernetes

WORK EXPERIENCE

Illinois Institute of Technology, Chicago, IL | Research & Teaching Assistant | Jan 2023 – Till Date

- Directing joint research on how student behavior affects academic performance.
- Utilizing advanced methods for person detection, emotion recognition, and posture tracking through algorithms such as Yolo, HaarCascade, PoseNet, Openpose, and AlphaPose.
- Prototyping an Educational Advising Chatbot using RAG architecture with Langchain on AWS, showcasing integration of advanced AI frameworks and cloud technologies.
- Organizing and preparing data for RAG-based chatbot by employing web scraping tools like BeautifulSoup and Unstructured.io, effectively gathering and structuring web data.
- Improving chatbot's performance by refining and prompt-tuning it with synthetic data generated through LLMs and CI workflows, applying Evol Instruct and Contrastive Learning methods to enhance metrics.
- Conducting instructor-led recitations, grading assignments, and addressing over 250 student queries through 30+ interactive sessions, increasing engagement.
- Developing a Python grading algorithm with Professor Yong Zheng, automating processes and saving 40 TA hours.

Genesis Solutions,Hyderabad, India | Data Scientist | Jan 2021 – May 2022

- Leveraged advanced regression techniques, including polynomial regression and ridge regression, to achieve a remarkably low Root Mean Squared Error (RMSE) of 5.27 in Stock Price Prediction Analysis.
- Demonstrated proficiency in accurately forecasting stock prices, as evidenced by model's performance.
- Achieved an R-squared value of 0.87, indicating model's robustness by explaining 87% of variability in stock prices.
- Implemented a sophisticated text detection system using OpenCV for image processing and PyTesseract for Optical Character Recognition (OCR).
- Attained impressive Precision (0.92), Recall (0.89), and F1-score (0.90) in text region identification within images.
- Optimized algorithm for efficiency, enabling it to process images at a speed of 15 frames per second, making it suitable for real-time applications.

Vedanta Resources Pvt Ltd, Orissa, India | Data Engineer | Jul 2019 – Nov 2021

- Worked on real-time data in production department to make necessary technical improvements in that area.
- Developed and deployed Kafka and Spark-based data pipeline(Debezium connectors, Apache hudi, STARGAZE, Hive for metadata), enhancing data throughput by 15% and reducing waste by 10% via real-time analytics of 1+ million daily data points.
- Enhanced SQL database for supply chain efficiency, halving query times and cutting inventory costs by 5% through improved Forecasting.

EDUCATION

- Masters in Information Technology (Data Science) from Illinois Institute of Technology, College of Computing – 2024
- Bachelor of Technology from National Institute of Technology, Jamshedpur, India – 2019

RESEARCH AND PUBLICATIONS

International Conference on Recent Trends in Computer Science and Technology (ICRTCST) – IEEE 2021
Prediction of Maize Leaf Disease Using ML Models

- Implemented Support Vector Machine (SVM) techniques that demonstrated superior accuracy in detecting maize diseases, achieving a high accuracy rate of 95.6%. This highlights ability to effectively apply machine learning algorithms to solve real-world agricultural problems.
- Integrating Discrete Wavelet Transform (DWT) and YOLOv5 architecture for feature extraction and disease classification, my research contributed to a predictive model that increased precision of crop yield forecasts due to early disease detection, reflected in a sensitivity improvement of up to 92.3%.

CERTIFICATIONS

- Building Transformer-Based Natural Language Processing Applications from NVIDIA – Feb 2024
- Generative AI with Diffusion Models from NVIDIA – Feb 2024
- Building LLM-Powered Applications from W&B – Jan 2024
- GCP - Google Cloud Professional Data Engineer from Udemy – Jan 2024
- Large Language Models: Application through Production from Databricks – Dec 2023
- Deep Learning- PadhAI from One Fourth Labs – Sep 2021
- Machine Learning from Stanford Online – Aug 2021
- Foundations in Data Science- PadhAI from One Fourth Labs – May 2021