Roop Sagar Mangineni

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Education

University of Illinois **Aug 2023 – May 2024**

Master of Science in Computer Science *Springfield, Illinois*

Technical Skills

Languages: Python, C++, SQL, HTML, CSS, JavaScript.
Al & ML : Machine Learning, Deep Learning, Image Processing, Natural Language Processing, Large Language Models, GenAI, Computer Vision, Time Series Analysis, Snowflake
Relevant Libraries: NumPy, OpenCV, Scikit- Learn, Matplotlib, keras, SpaCy, Tensorflow, NLTK, PyTorch.
Technologies/Frameworks: AWS, Github, Excel, Flask, PowerBI.

Experience

University of Illinois **Aug 2024 – April 2025**

Graduate Research Assistant *Springfield, Illinois*

- Applied text preprocessing (tokenization, lemmatization, stopword removal) to clean and prepare large textual datasets.
- Improved BERT model accuracy from 13% to 86.4%, evaluated with precision, recall and F1-score.
- Developed matching algorithms between large datasets, increasing text-matching accuracy and reducing manual error.
- Extracted key insights through exploratory data analysis to guide research and model tuning.

Accelerize 360 **May 2024 – Aug 2024**

Data Science Intern *Dallas, Texas*

- Integrated Salesforce data with Snowflake, mapping data types and creating structured tables from 10+ objects.
- Built internal dashboards using Retool to automate data integration and analysis workflows.
- Developed ETL pipelines in Python and SQL to transform and schedule processing of 1M+ rows of Salesforce data.
- Ensured high data quality and enabled business decisions through robust modeling and pipeline optimization.

Trainty Tech **Aug 2021 – Nov 2021**

Data Science Intern *Hyderabad, Telangana*

- Designed analytical solutions and leveraged data insights to support strategic decision-making across teams.
- Briefed cross-functional teams on findings, providing actionable recommendations to improve business strategy.
- Utilized advanced Excel tools, and created visual dashboards in Power BI to enhance business reporting accuracy.

Projects

Automated Blog Generation with LLama 2 | *Python, GenAI, LangChain* **November 2024**

- Engineered an automated blog generation pipeline using LLama 2, reducing manual content creation time by 85%
- Developed an interactive Streamlit web interface for real-time prompt customization and instant blog generation.
- Integrated LangChain Prompt Templates to enable dynamic, audience-specific content generation workflows.
- Applied advanced prompt engineering to enhance contextual relevance, coherence, and reduce API token usage.

Pneumonia Detection: CNN, VGG16, and ResNet | *Python, Image Processing* **November 2023**

- Built a pneumonia detection model on chest X-ray images using **TensorFlow**, achieving **91% accuracy**.
- Compared CNN, VGG16, and ResNet architectures to optimize classification metrics and performance.
- Applied advanced image preprocessing with **OpenCV** (normalization, augmentation) to enhance model generalization.
- Fine-tuned hyperparameters and applied deep learning techniques to improve robustness across diverse datasets.

Analysis of Diseases based on symptoms | *Python, Machine Learning* **January 2022**

- Implemented ensemble models including Logistic Regression, Decision Tree, Random Forest, SVM, and Naive Bayes to predict diseases from symptoms, achieving 97.62% accuracy.
- Applied image preprocessing techniques to improve chest X-ray quality and enhance model performance.
- Visualized results with data visualization tools and evaluated models using self-created datasets.

Credit Risk Modeling | *Python, ML Pipeline, Ensemble Learning* **October 2021**

- Analyzed **Lending Club dataset** of 2M+ loan applicants to build a probability model for risk prediction.
- Extracted insights for **strategic decision-making**, trend analysis, forecasting, and product development.
- Delivered actionable recommendations to improve risk assessment and facilitate informed business decisions.

Achievements

Graduate Research Assistant: Selected from a competitive pool of over 150 applicants at University of Illinois.
HackSRM Hackathon: Won 1st Prize for presenting innovative solutions and technical excellence.
Top Hat Hackers: Secured 3rd Prize at UIS for developing an project supporting neurodivergent needs in workplaces.
Leadership: Led the Data Science Club at SRM AP, representing SRM innovations at various tech exhibitions and forums.