SANIDHYA MANGAL

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Education

Vanderbilt University *(Nashville,TN)*, MS in Computer Science; *3.94/4.0*

Medi-Caps University *(Indore,India)*, B.Tech in Computer Science; *8.41/10.0*

Technical Skills

Development Tools: Python (Pandas, Scikit-Learn, Numpy, Tensorflow, Keras, Pytorch, Django, Flask, Plotly), Bash

Analysis Tools: SQL (Presto, MySQL, Oracle, DynamoDB, ORM), MS Excel, MS PowerBI

Deployment Tools: Docker, Kubernetes, GIT, DataBricks, AWS (Lambda, EC2, EKS, ECS, RDS, S3, Sagemaker)

LLM Tools: LangChain, Llama-Index, OpenAI, AzureOpenAI, GPT, VertexAI, Azure AI Search, Semantic Kernel.

Experience

HealthEdge   **February 2023 – Present**

Associate Data Analyst   *Nashville, TN*

- Deployed GenAI chatbot for documentation, boosting customer satisfaction and cutting ticket resolution time by 38%.
- Developed tool detecting payment integrity violations in claims data, saving $2.5M annually across all customers.
- Amplified 20% operational efficiency by designing executive dashboards for claims cycle and payouts monitoring.
- Optimized the ETL pipeline for analyzing system load and thread dumps, reducing processing time by 200%.
- Led OCR and Entity Extraction project, automating provider onboarding, saving 1,000+ man-hours per customer.
- Contributed to developing an internal RAG framework for rapid deployment of GenAI-powered chatbots.
- Collaborated with the Office of Customer to deploy an XGBoost model identifying key drivers of customer health scores.

Asurion   **May 2022 – August 2022**

Data Science Intern   *Nashville, TN*

- Designed SVM and Decision Tree models stacked on TF-IDF to analyze real-time call transcriptions, influencing expert behavior and driving upsell, resulting in an estimated 6% improvement in sales, equivalent to $1.2 million.
- Assembled DS life-cycle: ideation, opportunity sizing, modeling, deployment, and exposure in A/B testing.
- Engaged with stakeholders to identify & define business & analytical needs; translated insights into business outcomes.
- Experimented with feature engineering & BERT variants to improve classification model robustness on a small dataset.
- Achieved 88% of overall recall with a mean AUC of 0.81 and meaningful insights like correlation coefficients.

Maize Zhou Lab   **July 2021 – May 2022**

Research Assistant   *Nashville, TN*

- Contributed to research projects by developing a toolkit for state-of-the-art ML models to facilitate genome filtering on long and short reads, leading to multiple publications; improvement of overall F-1 score by 20% from predecessors.
- Translated research problem into end-to-end MLOps pipeline; data processing, modeling, evaluation & deployment.

Engineerbabu   **June 2020 – June 2021**

Machine Learning Engineer   *Indore, India*

- Desinged a CNN based tool perform progronis of lung and colon cancer with overall AUC of 0.92 and 91% precision.
- Supervised a team of six that reduced inference time by 30% for machine learning models by improving the ML pipeline.
- Deployed linear/GLM models in production for edge AI using API, enabling interpretation & generation of insights.
- Optimized decision-making process by 12% through EDA, including ETL, hypothesis testing, and statistical analysis.

Projects

Self-SupervisedGAN | *PyTorch, GAN, Self-Supervised Learning, Computer Vision, Generative Modelling*

- Generated high-fidelity images and improved VanillaGAN's performance using self-supervised pre-training.
- Added self-supervision to prevent forgetful discriminator which aids in better convergence and prevents mode collapse.

Interpretable-BERT | *PyTorch, Transformers, Interpretability, Named Entity Recognition, Classification, NLP*

- Designed probes to leverage pre-trained BERT representations to perform named entity recognition on the input text.
- Analyzed contextual representations to examine how pre-training task affects the linguistic knowledge in transformers.

Publications

- Yunfei Hu, **Sanidhya Mangal**, Lu Zhang, and Xin Zhou. "Automated filtering of genome-wide large deletions through an ensemble deep learning framework." Methods (2022).
- **Sanidhya Mangal**, Aanchal Chaurasia, and Ayush Khajanchi. "Convolution neural networks for diagnosing colon and lung cancer histopathological images." arXiv preprint arXiv:2009.03878 (2020).
- **Sanidhya Mangal**, Poorva Joshi, and Rahul Modak. "LSTM vs. GRU vs. Bidirectional RNN for script generation." arXiv preprint arXiv:1908.04332 (2019).