MANASA KRISHNAN

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Highly skilled professional with a solid background in developing solutions across diverse domains. Specialized in Natural Language Processing, Computer Vision, clustering, and predictive modeling algorithms. Success in analyzing time series data, forecasting, and pattern recognition. Skilled in the development of machine learning applications and utilizing frameworks such as TensorFlow, PyTorch, and NLTK. Eager to contribute to impactful solutions and advance the forefront of machine learning innovation in a dynamic and collaborative environment.

EDUCATION

Master of Science in Data Science, Northeastern University (GPA: 3.88/4.00) **Sep 2021 - Dec 2023**

Bachelor of Technology in Computer Science and Engineering, SASTRA University (GPA: 3.50/4.00) **Jul 2017 - Jun 2021**

Certifications: AWS Certified Machine Learning Specialty, *IBM Data Science Professional*

EXPERIENCE

Machine Learning Engineer, *Arlo Technologies* **Apr 2024 - Present**

- Designed a sophisticated video annotation tool, leveraging PyQt5, OpenCV, and Pillow to enhance the recognition of faces and vehicles
- Pioneered advanced research in computer vision, specializing in vehicle data engineering, detection, and facial recognition

Computer Vision/Machine Learning Engineer Intern, *Arlo Technologies* **Aug 2022 - Sep 2023**

- Implemented models like YOLO, Faster and Mask R-CNN and semantic segmentation to detect and estimate occlusion in vehicles
- Enhanced vehicle re-identification across multi-viewpoints using PyTorch-based TransReID architecture within a Docker environment
- Conducted advanced Image Quality Assessment using PyTorch and TensorFlow, leveraging pixel transformations for object detection
- Engineered AWS QuickSight dashboard with Python for AWS Lambda to read files into DynamoDB and CloudFront to deliver images

Research Assistant, *D'Amore-McKim School of Business, Northeastern University* **Dec 2021 - Jan 2022**

- Performed cleaning of large financial datasets, utilized SAS Studio for statistical analysis, and SQL for database tasks in Amazon Athena
- Utilized PowerBI and Power Query to analyze Certik issues, which enabled efficient resolution of critical system incidents

Data Engineer Intern, *Deloitte* **Jun 2020 - Jul 2020**

- Employed ETL techniques using Snowflake for the management of large datasets, resulting in a 30% enhancement in data processing
- Leveraged Tableau's Data Story feature enhancing storytelling in strategic decision-making for cloud system configurations

ACADEMIC PROJECTS

Conversational Agent for Disease Information Retrieval – Rare Disease Query Processing using LLM **Oct 2023 - Dec 2023**

- Developed a conversational agent for rare disease IR using BeautifulSoup for dataset creation and tf -idf for vectorization
- Leveraged cosine similarity for graded relevance and GPT and LLaMA for summarization, achieving 73% accuracy

Comprehensive NLP-Based Question Answering System – Closed domain QA model **Mar 2023 - May 2023**

- Developed a Question Answering System using deep learning architectures like BiLSTM and BERT with advanced ablation settings
- Obtained f1scores of 89% with BERT and 81% with BiLSTM and developed a GUI with PySimpleGUI to enhance the usability

Advanced Forest Fire Prediction – Prediction of the burnt area of forests **Mar 2023 - May 2023**

- Utilized decision trees, XGBoost, SVM, GBM, and linear regression to predict burnt forest area.
- Achieved an RMSE of 0.03 for Random Forest tuned with GridSearch CV and enhanced user interaction through Dash.

Sign Language Recognition using Deep Neural Networks – Sign language classification **Mar 2022 - May 2022**

- Developed live American Sign Language Translation System using OpenCV, FastAI, PyTorch, Keras, and Sklearn with the custom dataset
- Developed 3 models – CNN, VGG16, and ResNet50 with an accuracy of about 92%, 94%, and 97% (on the custom dataset)

Diabetic Retinopathy Detection – Severity stage classification **Oct 2021 - Dec 2021**

- Detected diabetic retinopathy in human fundus images using ResNet34, and multitask learning (ResNet50 – regression, classification)
- Performed data augmentation and reduction using T-SNE and PCA and achieved an accuracy of 80% using a 3-layer multitask network

SKILLS

Programming Languages : Python, SQL, JAVA, R, C++, Linux, Latex, MATLAB, Scala

Cloud Services, Databases & Tools : Amazon (AWS) Services: Kinesis, S3, Glue, RedShift, Kubernetes, SageMaker, Kafka, Airflow, Azure Synapse, Databricks, IBM Watson, GCP, PostgreSQL, MySQL, MongoDB, CUDA, JIRA, Excel

ML Frameworks : Pandas, PySpark, NumPy, SciPy, Matplotlib, Seaborn, Django, Hadoop, A/B testing