CHANDRU GANESHAN

Data Scientist/ ML Engineer

Portfolio
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EDUCATION

Bharathiar University — **Coimbatore, India**
Master of Science – Data Analytics; CGPA: 8.16 — Oct 2024

Government Arts College — **Coimbatore, India**
Bachelor of Science – Statistics; CGPA: 7.93 — Jul 2022

TECHNOLOGIES I WORK WITH

Programming Language:	Python, R (dplyr, ggplot, plotly)
Libraries	Python (langchain, langgraph, autogen, crewai, huggingface, tensorflow, keras, open-cv, sklearn, streamlit, pandas, numpy, scipy, matplotlib, seaborn, plotly)
Data wrangling:	Data extraction, Data cleaning, Exploratory Data Analysis, Feature Engineering and selection.
Machine Learning:	Data modelling, Clustering and Classification, Regression analysis, Predictive modelling, Model validation, Fine tuning, Deployment, CNN, RCNN, LSTM, Transformer models.
Generative AI Frameworks:	Langchain, Langgraph, Autogen, CrewAI, Huggingface
DevOps:	Git, Github, Docker, Postman, Flask, FastAPI
Databases:	MySQL, PostgresSQL, Neo4j

WORK EXPERIENCE

Generative AI Engineer (Intern) — **May 2024 - Present**
ISPG Technologies Pvt Ltd, Kochi, Kerala

- Developing a Context-Aware Chatbot to provide intelligent, contextually relevant responses for enhanced user interaction.
- Utilize Langchain to streamline context management and improve conversational flow.
- Implement semantic search with smart filtering to retrieve precise, high-quality information.
- Leverage Python, Large Language Models (LLMs), and Hugging Face's NLP models for advanced natural language processing.

Data Scientist (Intern) — **Jan 2024 – April 2024**
Microbiological Laboratory Research and Services (I) Pvt Ltd, Coimbatore

- Spearheaded the creation of an AI-driven framework leveraging Machine learning algorithms to analyse results from rt-PCR run files, significantly reducing processing time to minutes compared to conventional software.
- Create a feature repository using Google Sheets to streamline the organization of features derived from rt-PCR run files.
- Designed a software utilizing an innovative File parsing algorithm to extract raw data from rt-PCR run files, significantly reducing processing time by 100% compared to traditional methods.
- Created a standalone web application capable of Extracting raw data, visualizing it, performing Feature extraction from rt-PCR data, and Interpreting results related to meningoencephalitis pathogens. The application's outputs correspond with the original reports provided by the laboratories.

SELF PROJECTS

PyMLRS (Open Source) |GITHUB|PyPI| — **April 2024 – May 2024**

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Machine Learning based approach for predicting seviourity of alzheimer through MRI brain images June 2023 |GITHUB|LIVE DEMO|

- Utilized pre-existing MRI scanned brain images to train a convolutional neural network in TensorFlow, maximizing efficiency and accuracy.
- Implemented data augmentation techniques to tackle imbalanced data challenges, employing a range of augmentation methods to enhance dataset diversity.
- Achieved 96% accuracy in classifying Alzheimer's severity by developing a CNN model tailored for the task.
- Launched a web application with Python and Streamlit, now accessible on the community cloud for seamless user interaction.

Predictive modeling for diabetic outcome classification: A Machine Learning Framework|GITHUB| May 2023 LIVE DEMO|

- Leveraged diabetes data from the Kaggle repository to train a decision tree model, enhancing its performance through meticulous data preprocessing and feature engineering.
- Conducted Exploratory Data Analysis (EDA) employing statistical tests and visualizations, meticulously selecting pertinent features to train the model.
- Achieved a 90% accuracy rate in predicting diabetic patient outcomes by developing a Decision Tree model leveraging vital parameters. ○ Implemented a dynamic web application using Python and Streamlit, featuring an interactive dashboard with engaging visualizations.

ACADEMIC PROJECTS

Development of AI-based framework for pathogen classification through RT-PCR data |GITHUB|LIVE DEMO|

M.Sc. Thesis, Department of Computer Applications, Bharathiar University, Coimbatore **Jan 2024 – April 2023**

- Developed framework for classifying meningoencephalitis pathogens with HRM and CT extracted from rt-PCT data.
- Executed data acquisition through File-parsing technique, to extract raw data from rt-PCR data.
- Maintain genuine peaks through a rule-based approach, effectively removing noise from rt-PCR data signal peaks.
- Generated synthetic features to overcome the issue of lack of positive data by inspecting original features of rt-PCR data.
- Developed ML model to classify the Meningoencephalitis pathogens with 97% accuracy. Our model results align with the original report of Microbiological Laboratory.

Design and development of deep Learning architecture for video-based emotion recognition and prediction | GITHUB|

M.Sc. Mini project, Department of Computer Application, Bharathiar University. **Jul 2023 – Dec 2024**
Coimbatore

- Utilized pre-existing dataset of from Kaggle to train convolutional neural network model in tensorflow, due to lack of emotions data.
- Addressing real-time image challenges, the Haar-cascade algorithm is employed specifically for extracting facial features.
- Probability values of each video frame were efficiently stored to train the LSTM model. Developed LSTM model to predict the forthcoming emotions of the person based on previous sequence of emotions with 65% average accuracy.

RELEASED SOFTWARE

Rextractor |GITHUB|SOFTWARE|

- Customized tool for independent PCR data extraction from ".rex" files, eliminating reliance on Rotor-Gene Q-Rex software.
- Capable of extracting HRM and Amplification data from Rotor-Gene Q-Rex ".rex" files, offering a standalone solution for conversion to Excel format.
- Significantly reduces processing time, converting files in less than a second per file compared to manual methods taking over a minute.

CERTIFICATIONS

- Udemy - Develop LLM powered AI Agent with Langgraph
- Graph Academy – Neo4j Fundamentals
- Graph Academy – Cypher Fundamentals
- NPTEL – Descriptive Statistics with R
- UiPath - Introduction to RPA and Automation