RAJKUMAR LAKSHMANAMOORTHY

Machine Learning Engineer

Phone: +91 – 6379189691 | E-mail: rajkumar.galaxy@gmail.com | LinkedIn | GitHub | Portfolio | Kaggle | Stack Overflow | LeetCode

Professional Experience (2 years 11 months)

1. Akrivia Automation Pvt Ltd, Hyderabad – Machine Learning Engineer (Onsite) Presently working – since Jan 2022

Domain: Human Resource Management (A Product based organization developing a proprietary product Akrivia HCM)

Projects:

1. **Generating Interview Questions with LLMs** (Nov 2024 - Ongoing)

   Leading a team of 2, developed an LLM RAG system using Gemini Pro, LangChain, ChromaDB to generate domain-specific interview questions both technical and behavioural from sources such as webpage, PDF, DOCX, YouTube, Vimeo, PPT, XLSX, saving the time of HR and technical manager (for Onboarding module).

2. **Client Call Summarization and QA System** (Oct 2024 – Nov 2024)

   Leading a team of 2, developed a Generative AI system using OpenAI's Whisper and Langchain to summarize client's calls and answer questions upon it enabling effective communication of technical and business requirements (for Implementation module)

3. **LMS Evaluation System** (Oct 2024 – Nov 2024)

   Leading a team of 2, developed an evaluation system for Learning Management using LLM RAG, LangChain to generate questions of different levels (beginner, intermediate, advanced) based on the domain and courses (for LMS module)

4. **Unbiased Content Generation with LLMs** (Aug 2024 – Sep 2024)

   As an individual contributor, developed a Generative AI system to generate unbiased job descriptions, email contents, leave applications, and feedbacks, reducing bias in HR and employee content (for HR module).

5. **Attrition Prediction** (Feb 2024 – July 2024)

   As an individual contributor collaborating with multiple modules, predicted employee attrition using ensemble of RF, LightGBM and CatBoost classifiers, reducing attrition by 25%. Trained on IBM attrition data and annotated proprietary data (for Offboarding module).

6. **Emotion Recognition** (Dec 2023 – Jan 2024)

   As an individual contributor, developed a Flask pipeline to store interview videos in AWS S3 and determine emotions of the candidate using AWS Rekognition API, assisting HR in behavioural analysis in interview decision making process (for Onboarding module).

7. **RASA AI Chatbot** (Jan 2023 – Nov 2023)

   As a part of 3-member team, developed a multilingual chatbot with RASA framework backed with DIET classifier and GPT-4 for proprietary AI assistant, simplifying HR activities and improving user satisfaction. Intents and examples were generated, annotated for classification as well as for custom NER. Rules, stories, Python forms and actions were formulated to train and evaluate the chatbot. Flask APIs were written to communicate with backend to access HR data to process and to serve the user via UI (for Leave, Attendance, Payroll, Onboarding, LMS, Offboarding & HR modules).

8. **Behavioural Analysis from Interview Videos** (Sep 2022 – Jan 2023)

   Leading a team of 4, analysed interview videos to classify traits and sub-traits hierarchically using Automatic Speech Recognition, Whisper small, BERT, a stack of LightGBM classifiers, enhancing hiring decisions with reduced human intervention. Written Flask API to serve the model (for Onboarding module)

9. **ID Card Parsing** (May 2022 – Sep 2022)

   As a part of a 4-member team, classified and extracted details from ID cards using finetuned ResNet50, finetuned YOLO v5 and EasyOCR, improving ID verification accuracy and reducing manual effort by 98%. ID cards data are collected and annotated for classification and detection (for Onboarding module).

10. **Resume Parsing and Ranking** (Jan 2022 – May 2022)

    As a part of a 3-member team, built a ATS system to extract and rank resumes based on job descriptions using NER and DGL graph networks, increasing screening efficiency by 50% and reducing screening time by 95%. Job descriptions are annotated for NER, stored in Networkx graphs with skills and job titles as nodes and their importance as edges (for Onboarding module).

2. Analytics India Magazine, Bangalore – Data Science Intern (Remote) – Mar 2021 to May 2021 (3 months)

Domain: Digital tech publishing

Responsibilities: Written 62 research review articles, tutorials and blogs in Python programming concepts, Machine Learning, Deep Learning, Data Analysis, NLP, Transformers, Computer Vision, Dimensionality Reduction, Probability and Statistical approaches, Predictive Analytics, and Time-series forecasting.

Link to works: https://analyticsindiamag.com/author/rajkumaranalyticsindiamag-com/

Skills, Tools and Technologies

Languages: Python 3, JavaScript
ML Frameworks: PyTorch, TensorFlow, Keras
ML Libraries: SciKit-Learn, LightGBM, XGBoost, CatBoost
NLP: Transformers, HuggingFace, NLTK, spaCy, RASA, Chatbots, QA, NER, Sentiment Analysis
Generative AI: LLM, LangChain, LlamaIndex, RAG pipeline, Prompting, GPT, PEFT (LoRA, QLoRA)
Audio & Video: Automatic Speech recognition, OpenAI Whisper, Video-Text Translation, MoviePy, FFMPG
Computer Vision: TorchVision, OpenCV, Pillow, SciKit-Image, Timm, Segmentation, Recognition, GAN, OCR
Databases: SQL (SQLite3, MySQL), NoSQL (MongoDB), Vector Databases (Chroma DB, PineCone DB)
Data Analysis: Pandas, NumPy, SciPy
Data Visualization: MatplotLib, Seaborn, SHAP
Data Scraping: BeautifulSoup, Selenium, Playwright
Unsupervised ML: Recommender Systems, KMeans Clustering, Anomaly Detection
Graph Nets: Networkx, DGL
MLOps & SDLC: Git, BitBucket, GitLab, JIRA
APIs & Deployment: Flask, Streamlit, Docker
Cloud Computing: AWS (S3, EC2, SageMaker, Rekognition)

ML Forum Kaggle 3x Expert with 9 Datasets, 20+ Notebooks, 120+ Discussions | https://kaggle.com/rajkumarl

ML Blogs 70+ blogs, tutorials and review articles in Python, ML, NLP, Computer Vision and LLMs | https://rajkumargalaxy.github.io/r/blogs

ML Projects | https://rajkumargalaxy.github.io/r/projects

1. GenAI-Book-Summarizer-QA | GitHub source | Generative AI | RAG | Langchain | QA | Google Gemini | ChromaDB
A book summarizer and book QA system built using Google Gemini, ChromaDB, Langchain to process books of various formats such as PDF, DOC, DOCX.

2. Wiki-IR-ChatBot | NLP | Information Retrieval | Web Scraping | NLTK | BeautifulSoup
A ChatBot that responds to humans by retrieving information from Wikipedia.

3. Conversational AI Chatbot | NLP | NLU | DialoGPT model | Transformers | Object-Oriented Programming
Intelligent ChatBot that makes cognitive conversations with human users.

4. Sentiment Analysis on WNLI Dataset | NLP | BERT | PyTorch | Transformers | Fine-tuning | GLUE Benchmark
Sentiment Analysis on WNLI by fine-tuning a BERT model in PyTorch.

5. People Clothing Image Segmentation | Computer Vision | OpenCV | TensorFlow | U-Net | ResNet Encoder
Data collection and cleaning, Data processing, Modelling U-Net with a pre-trained ResNet encoder, Fine-tuning, Model evaluation

Key Certifications

1. **Natural Language Processing (NLP) Specialization** – Mar 2024 – *Coursera* (3 courses)
2. **Generative Adversarial Networks (GAN) Specialization** – Jul 2024 – *Coursera* (3 courses)
3. **Machine Learning (ML) Specialization** – Jan 2023 – *Coursera* (3 courses)
4. **Data Science Domain** – Jan 2021 – *NPTEL* (7 courses)
5. **Essential Mathematics for ML** – Oct 2022 – *NPTEL* (1 course)
6. **Deep Learning for Computer Vision** – Oct 2022 – *NPTEL* (1 course)
7. **Rasa Developer Certification** (Chatbot development) – Jun 2023 – *RASA*

Education

Masters in Engineering - Engineering Design 2014-2016 - 5th Univ Rank, Anna University 8.6 CGPA
Bachelors in Engineering - Mechanical Engineering 2006-2010 - 13th Univ Rank, Anna University 88.4%

Interests

Reading and writing novels, Painting, Playing Chess, Practicing Martial Arts.