Yogesh Kumar

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Professional Experience

Tricon infotech Pvt. Ltd. 08/2021 – Present

Machine Learning Engineer

- Designed and implemented a state-of-the-art RAG (Retriever-Augmented Generation) system tailored for drug discovery applications. Integrated Weaviate as the vector database for efficient embedding storage, and expertly fine-tuned ChatGPT and LLaMA2 as the Language Model Module (LLM), achieving enhanced performance in contextual understanding.

➢ End-to-End Document Information Extraction Pipeline using CV and NLP

- Employed OCR to extract text from PDFs and utilized BERT, a language model, to generate text embeddings. Afterwards, I fine-tuned the BERT model to categorize documents and used Named Entity Recognition (NER) to extract valuable information from paragraphs the automation process reduced thousands of manual works.
- Integrated the Detectron model to identify the location of tables and checkboxes, while utilizing the LayoutLM transformer to extract key-value pairs. Additionally, I utilized the Long T5 and Pegasus transformers for document summarization, which allowed for significant timesaving by avoiding the need to review the entire document.

➢ Development of a Health Care Search Engine using NLP and Elastic Search

- Created a custom Transformer model architecture from scratch that can efficiently extract query embeddings from customer input in the search bar. By utilizing cosine similarity, the model identifies the closest and most relevant links to the user's query, resulting in a significant increase in user interaction time with the app.
- Developing a new model using a Siamese network architecture, similar to the one used in SBert, and experimenting with various embedding techniques to improve its accuracy. I am also conducting experiments on the architecture and loss function to further enhance its performance.

➢ Efficient Author Institute Matching with spaCy Transformer and Elasticsearch

 Implemented a highly efficient system for matching authors' institutes with their corresponding Ringgold ID by utilizing spaCy transformer with transfer learning techniques and Elasticsearch as a Database.

Robosoft technologies pvt.ltd. 08/2020 – 08/2021

Machine Learning Engineer

➢ **Recsys: Content-Based Recommendations for Movies and Food Recipes.**

 Develop a cutting-edge content-based recommendation system that provides personalized movie and food recipe suggestions. The system will leverage ElasticSearch for enhanced semantic search capabilities and will be deployed on the robust AWS infrastructure.

➢ **AWS EMR and Delta Lake Data Pipeline for Structured Data Analysis**

 Designed and implemented a data pipeline that leverages AWS EMR and Delta Lake with Melodian architecture. It efficiently ingests, transforms, and analyzes structured data stored in Amazon S3, offering versioning and transactional capabilities for enhanced data management.

➢ **SalesForcasting: Time Series Sales Forecasting.**

 Empowering 5000 Outlets with Time Series Models and Parallel Programming. Our solution utilizes LSTM, Prophet, SARIMA, and XGBoost forecasting models to accurately predict sales for the upcoming month. To tackle the challenge of large datasets, we leveraged PYSpark UDFs for parallel programming, leading to optimized data processing, enhanced warehousing efficiency, and remarkable revenue growth.

Strawberry Infotech, Inc 8/2019 –07/2020

Machine Learning Engineer

➢ **Recsys: Collaborative Filtering with K-Means Clustering for Personalized Recommendations.**

 Build a Recommendation system based on collaborative filtering and Unsupervised machine learning algorithms (K-means clustering) provided based on past usage.

Planet Web IT solution

Software Developer 9/2017 – 8/2019

 Developed a web application and RESTful API using Django, focusing on image processing and utilizing computer vision CNN(YOLOV3) to provide personalized apparel recommendations.

Education and Credentials

BTech in Computer Science – Uttar Pradesh Technical University, Ghaziabad, India, 2013

Technical Proficiency

 Machine Learning and Deep Learning • Python • Tensorflow • Keras • Pandas • Numpy • Matplolib • Deep learning • Natural language processing • Hugging Face • LLM • Computer vision • Open CV

 MLOps and Deployment • Docker • Kubernetes • Rest API • MLflow. • MySQL • Git • Rest API