Kartikeya Khare

Email | Website | LinkedIn | GitHub

Education

Indian Institute of Technology (BHU), Varanasi CPI - 8.68
Bachelor of Technology *Nov. 2020 – May 2024*

Sir Padampat Singhania Education Centre 93.60%
Senior School *Mar. 2018 – May 2019*

Experience

Decision Analytics Intern May 2023 – Jul. 2023
EXL Service *Gurgaon, India*

- Developed a job description generator built on top of the GPT 3.5 large language model. This project was eventually integrated in the company's primary hiring pipeline.
- Used prompt engineering techniques to improve model response and generate outputs as per user requirements.
- Built a resume-job description matching system by utilizing pre-trained transformer models.
- Performed extensive data cleaning and preprocessing, including information extraction from jobs and resumes' dataset using named entity recognition.
- Used word embeddings learned by transformers and implemented matching rules to calculate similarity.
- Evaluated the models' performance by using precision at k metric by comparing against a manually annotated dataset. Achieved a maximum precision of 0.84.

Projects

little_ai Jan. 2024 – Mar. 2024

- little_ai is a flexible and lightweight deep learning library built from scratch using Python and its libraries.
- The Learner framework of the library makes building model architecture and training the models very convenient and flexible by incorporating various features via callbacks.
- Features for diagnosing model training via hooks to ensure training is accurate and stable are built-in in little_ai.
- The library is lightweight enough to train simple architectures with a few lines of code but also powerful enough to build state-of-art models like stable diffusion using it.

Textual Inversion Nov. 2023 – Dec. 2023

- Implemented the textual inversion paper that personalizes image generation models like Stable Diffusion using just a few example images.
- Built a Stable Diffusion inference pipeline from scratch using the Hugging Face Diffusers library.
- Modified the output embeddings of the diffusion model using learned embeddings corresponding to a GTA 5 artwork which transforms the input image into a GTA 5 style artwork, as described in the paper.
- Deployed the textual inversion web app on Hugging Face Spaces.

Bank Boosting Feb. 2023 – Mar. 2023

- On the dataset (having 40,000+ rows, 20+ features) containing a bank's client information and details of marketing campaigns undertaken, conducted extensive data cleaning and exploratory data analysis to derive insights.
- Utilized Scikit-Learn to iteratively build and evaluate different machine learning models to predict if a customer will subscribe to the bank's term deposit.
- The XGBoost model, after extensive hyperparameter tuning using a Tree-Structured Parzen Estimator approach, achieved a micro-averaged precision score of 0.92.
- Used techniques like SHAP, monotonic constraints, and partial dependence plots (PDP) to interpret model outputs.

Technical Skills

Languages: Python, R, Java
Database: MySQL
Data Visualization Tools: PowerBI, Tableau
Libraries and Frameworks: PyTorch, fastai, Scikit-Learn, pandas, NumPy, Matplotlib