MAI 475– Large Language Model

IV MSAIM

17-06-2024

Regular lab Question

Lab Exercise 2:

Implement a story generation Natural Language Generation using any transformer-based Foundation models.

Comparative Study on any three models:

- Understand the importance of Natural Language Generation and its role in NLP.
- Discuss the relevance of story generation as an NLG task.
- Compare and contrast different transformer-based models such as **GPT-2/3/Neo**, **BERT, T5**, **BART**, and **FLAN-T5**, specifically in the context of creative text generation.

Model Selection and Justification:

- Select a suitable pre-trained transformer model for your story generation task.
- Justify your choice based on model architecture, training corpus, generation capabilities, and efficiency.
- Optionally, consider using models from Hugging Face Transformers library.

Dataset and Preprocessing:

- Choose an appropriate dataset (e.g., **WritingPrompts**, **FairyTaleQA**, or any short story dataset).
- Explain your data preprocessing steps such as tokenization, prompt formatting, and truncation or padding.

Implementation (25 Marks):

- Implement the story generation pipeline using Python and appropriate deep learning libraries (e.g., **PyTorch**, **TensorFlow**, or **Hugging Face Transformers**).
- Your system should accept a story prompt (e.g., a sentence or a few keywords) and generate a short story of approximately 200–500 words.

- Enable parameter tuning for temperature, top-k/top-p sampling, max length, etc. (Optional)
- **Develop a Streamlit Application for the Model.**

Evaluation and Results:

- Evaluate the generated stories using both **automatic metrics** (e.g., BLEU, ROUGE, Perplexity) and **human evaluation** (e.g., coherence, creativity, fluency).
- Discuss the strengths and limitations of your generated stories.
- Include at least three examples of prompts and the generated stories.

NB: No marks will be credited for the pipeline implementation.

Program Evaluation Rubrics

Model Selection and Implementation	**6 Marks**
Timely Submission	**2 Marks**
Viva	**2 Marks**

General Instructions

- The file you have to save with your name, last 3 digits of register number and program number “Anto_501_Lab1”.
- The implemented code you have to download and upload in the Google Class room in the given scheduled time.