Course Name: Computer Vision

Weekly Report: 3

Group Name: XYZ

Submitted to faculty:

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WORK DONE THIS WEEK

Understanding the PRS(Person Retrieval System) Dataset

We studied PRS dataset, in which it consists of images with textual descriptions. This dataset aligns with goal of our problem statement, retrieving images based on textual prompts. Some of the key observations from our analysis are:

- It includes a lot of different human images with corresponding text descriptions.
- The textual descriptions vary in length and specificity.
- It has some noise, including some inconsistent annotations.

Running CLIP Code on PRS Dataset

We implemented the CLIP model on the PRS dataset, in order to test its capability to associate textual and visual data mapping. Steps taken:

- **Preprocessing:** To match the CLIP's input requirements, we cleaned and formatted the dataset
- **Model Testing:** Ran CLIP on the dataset to check how its ability to retrieve images based on some textual queries.
- **Performance Analysis:** Observed that CLIP model gave good results, while retrieving semantically similar images but faced challenges with unclear descriptions.

EDA(exploratory data analysis)of the PRS Dataset

We applied EDA techniques to PRS dataset in order to study its structural characteristics and detect possible obstacles. Key findings:

- Certain types of descriptions are occurring more frequently while the rest of the descriptions are appearing less often.
- The input data contains images which can have several connected descriptors and additional images that only possesses few descriptions.
- The changes in resolution quality coupled with lighting variations within the dataset might negatively affect model performance.

WORK TO BE DONE NEXT WEEK

1. **Model Deployment on Jetson:** Our team will conduct a deployment attempt of our optimized CLIP model on Nvidia Jetson AGX Orin devices.
2. **Optimization for Edge Devices:** Optimize edge device performance by implementing model quantization and pruning techniques on Jetson.
3. **Performance Testing:** Performance evaluation tests the model's capability under restricted resource conditions while examining opportunities for improvement.