DeePEN Code Usage Instructions

Preparation Stage

Model Download

All models used in this program are open-source and can be downloaded from Huggingface.

Relative Representation Matrix Construction

To construct the relative representation matrix, use the following command:

```bash
python src/transfer_matrix_save.py
```

Configuration File Setup

Based on the examples in the `confs` folder, fill in the configuration file according to the task requirements, the model, and the newly constructed relative representation matrix. The configuration file should include the following fields:

- `model_path` : Path to the model
- `probability_transfer_matrix_path` : Path to the relative representation matrix constructed in the previous step
- `file_path` : Paths to the example prompt and the validation and test datasets
- `prompt_template` : Prompt template
- `result_process_parameter` : Post-processing operation parameters

Execution Stage

For a four-model ensemble, run the TriviaQA test with the following script:

```bash
CUDA_VISIBLE_DEVICES=0,1 python src/main_4ensemble_llama_series_local_matri
x.py \
--config confs/G0003/TriviaQA/LLaMA+Mistral+InternLM+Tigerbot.json \
-lpm based_on_probility_transfer_logits_local_reweight_processor \
-d0 cuda:0 -d1 cuda:0 -d2 cuda:1 -d3 cuda:1 -dp cuda:0 \
-rsd eval/TriviaQA_old_version_0506/LLaMA+Mistral+InternLM+Tigerbot/reweigh
t/test \
-rm test \
-lr 0.2
```

Where:

- `-lpm` : Model ensemble strategy, detailed in `src/logits_processor/model_processor_factory.py`
- `-rsd` : Result storage path
- `-rm` : Running mode, either `dev` or `test`
- `-lr` : Learning rate

Testing Stage

To perform testing, use the following command:

```bash
python utils/evaluate/NQ_dir_test.py eval/TriviaQA_old_version_0506/LLaMA+M
istral+InternLM+Tigerbot/reweight/test
```

Result:

```
Found 0 missing predictions.
Accuracy: 75.67 (4540/6000)
```