
Team rank-re-rank-re-rank

20th April 2023

DATASET

We had tried to use multiple external datasets (declared on AICrowd website) for experiments. However, our current leaderboard score has been achieved only through using the Product 10k dataset.

To train the model, we merged the Products 10k training and test sets, and also added images from the competition's validation small dataset, which can be accessed at this link:

https://drive.google.com/file/d/1i6OyBPWqSGCR_-6p35kvqBUWT_GovPZS/view?usp=sharing

PRE-TRAINED MODEL

Our current objective is to fine-tune an OpenAI CLIP (Contrastive Language-Image Pre-Training) Vision Transformer (ViT) H-14 model for a classification task on the Products 10k dataset. The resulting embeddings will then be used to compute similarity.

DATA AUGMENTATIONS

- Random Horizontal Flips
- Color Jitter with settings as listed in the config in train_lightning.py

LOSS FUNCTION

ArcFace with Adaptive margin

RE RANKING BASED ON QUERY EXPANSION

Re-ranking with k-reciprocal Encoding

CONFIG

The config to obtain our current leaderboard has already been written to the training file

RUN INSTRUCTIONS

To begin training:

1. Download and prepare the dataset as described above.
2. Update all path variables in the config class in `train_lightning.py` and in `eval_all_epochs.py`
3. Run `pip install -r requirements.txt`
4. Run `cd train_scripts`
5. Run `python train_lightning.py`
6. To select the best model, run `python eval_all_epochs.py`. Note: This will evaluate re-ranking on the models, you will have to manually select the one with the best score.
7. The best weights for reranking, with our settings, was at `epoch=6-step=54502.ckpt`.