Sesica

semantic similarity calculation

Software Requirements:

- Python3
- virtualenv or Anaconda
- CUDA 10.0 (Optional if using GPU)
- cuDNN (>= 7.4.1) (Optional if using GPU)

Sesica has been tested on Windows, Ubuntu 16.04, and 18.04 operating systems.

Installation

virtualenv

```
virtualenv -p python3.7 venv

source ./venv/bin/activate

pip install -r requirements.txt
```

Anaconda

```
conda create -n venv python=3.7

conda activate venv

pip install -r requirements.txt
```

Model

- DRMM: this model is an implementation of A Deep Relevance Matching Model for Ad-hoc Retrieval.
- DRM-MTks: this model is an implementation of A Deep Top-K Relevance Matching Model for Ad-hoc Retrieval.
- ARC-I: this model is an implementation of Convolutional Neural Network Architectures for Matching Natural Language Sentences
- ARC-II: this model is an implementation of Convolutional Neural Network Architectures for Matching Natural Language Sentences
- DSSM: this model is an implementation of Learning Deep Structured Semantic Models for Web Search using Clickthrough Data
- CDSSM: this model is an implementation of Learning Semantic Representations Using Convolutional Neural Networks for Web Search
- MatchLSTM: this model is an implementation of Machine Comprehension Using Match-LSTM and Answer Pointer
- Duet: this model is an implementation of Learning to Match Using Local and Distributed Representations of Text for Web Search
- KNRM: this model is an implementation of End-to-End Neural Ad-hoc Ranking with Kernel Pooling
- **ConvKNRM**: this model is an implementation of [Convolutional neural networks for soft-matching n-grams in ad-hoc search](https://arxiv.org/abs/1711.00523)
- **ESIM**: this model is an implementation of [Enhanced LSTM for Natural Language Inference](https://arxiv.org/abs/1603.01367)
- **BiMMP**: this model is an implementation of [Bilateral Multi-Perspective Matching for Natural Language Sentences](https://arxiv.org/abs/1709.07209)
- **MatchPyramid**: this model is an implementation of [Text Matching as Image Recognition](https://arxiv.org/abs/1708.02152)
- **Match-SRNN**: this model is an implementation of [Match-SRNN: Modeling the Recursive Matching Structure with Spatial RNN](https://arxiv.org/abs/1610.03458)
- **aNMM**: this model is an implementation of [aNMM: Ranking Short Answer Texts with Attention-Based Neural Matching Model](https://arxiv.org/abs/1708.07339)
- **MV-LSTM**: this model is an implementation of [A Deep Architecture for Semantic Matching with Multiple Positional Sentence Representations](https://arxiv.org/abs/1708.00421)
- **DIIN**: this model is an implementation of [Natural Language Inference Over Interaction Space](https://arxiv.org/abs/1708.00421)
- **HBMP**: this model is an implementation of [Sentence Embeddings in NLI with Iterative Refinement Encoders](https://arxiv.org/abs/1708.00421)

**reference**

**deep-learning semantic similarity calculation reference**

- [https://github.com/NTMC-Community/MatchZoo-py](https://github.com/NTMC-Community/MatchZoo-py)

**LTR part code reference**

- [https://github.com/microsoft/LightGBM](https://github.com/microsoft/LightGBM)
- [https://github.com/jma127/pyltr](https://github.com/jma127/pyltr)
- [https://github.com/slundberg/shap](https://github.com/slundberg/shap)