

# Sesica

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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

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### 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](#).
- [DRMMTKS](#): 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](#)
- [ESIM](#): this model is an implementation of [Enhanced LSTM for Natural Language Inference](#)
- [BiMPM](#): this model is an implementation of [Bilateral Multi-Perspective Matching for Natural Language Sentences](#)
- [MatchPyramid](#): this model is an implementation of [Text Matching as Image Recognition](#)
- [Match-SRNN](#): this model is an implementation of [Match-SRNN: Modeling the Recursive Matching Structure with Spatial RNN](#)
- [aNMM](#): this model is an implementation of [aNMM: Ranking Short Answer Texts with Attention-Based Neural Matching Model](#)
- [MV-LSTM](#): this model is an implementation of [A Deep Architecture for Semantic Matching with Multiple Positional Sentence Representations](#)
- [DIIN](#): this model is an implementation of [Natural Language Inference Over Interaction Space](#)
- [HBMP](#): this model is an implementation of [Sentence Embeddings in NLI with Iterative Refinement Encoders](#)

## reference

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### deep-learning semantic similarity calculation reference

- <https://github.com/NTMC-Community/MatchZoo-py>

### LTR part code reference

- <https://github.com/microsoft/LightGBM>
- <https://github.com/jma127/pyltr>
- <https://github.com/slundberg/shap>