

Stance Detection on Twitter Tutorial.txt

Stance Detection on Twitter Tutorial

Recommended pre-requisites:

- Basic Python coding skills

- Laptop with recommended software

- Recommended installations before tutorial:

 - Python (3.5+) with Jupyter notebooks, Scikit-Learn, Pandas, networkX, matplotlib, nltk, numpy, scipy, numba

 - Pytorch

 - TensorFlow

 - Transformers (<https://github.com/huggingface/transformers>)

 - fastText

 - UMAP (`umap-learn -- https://github.com/lmcinnes/umap`)

Outline:

- What is stance detection:

 - How is it different from sentiment analysis?

 - What are some of its applications?

- Stance detection in social psychology:

 - How durable are people's stances?

 - What we know about human behavior:

 - Homophily

 - In-group/out-group bias

 - Social influence/socialization

 - How does it reflect on social media:

 - Birds of feather

 - Echo-chamber effect

 - Social pressure and group norms

- Performing stance detection on Twitter:

 - Data exploration/preparation:

 - User level vs. tweet level

 - Features of interest: what are the features and what do they mean?

 - Stance detection using supervised learning:

 - Support vector machine

 - Experimenting with different features

 - Content vs. interaction features

 - Deep-learning classifier: fastText

 - Representing data

 - Extracting features

 - Performing experiments

 - Contextual embeddings: BERT+HuggingFace

 - Representing data

 - Performing experiments

 - Advantages and limitations

- Stance detection using semi-supervised learning

 - Label propagation:

 - What is label propagation

 - Why/how it works

 - Experimenting with data

 - User projection:

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What is user projection

Why/how it works

Advantages and limitation

Unsupervised stance detection:

User projection

Features to project users into lower dimensional space

User clustering

Making users separable into clean clusters

Experimenting with data

Advantages and limitations

Hybrid approaches:

Unsupervised stance detection with supervised/semi-supervised classification

Applications of stance detection:

Identifying discriminating features and user labeling

Visualizing stance detection

Propagating stance to popular accounts, media sources, etc.

Case studies for stance detection.