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.