CS 577 Final Project

Tania Chakraborty, Jihyun Pyun, Poonyapat Sinpanyalert

Introduction

- **Goal**: classification
    - Challenging due to the length of the articles and subtle indicators of political leanings.
- **Solution**: Classify other features of the text and use the results as input for a neural model.
    - The approach is a form of multi-task learning, with disjoint datasets used for training.

Methods - naive models

Political stance classifier

- **Model**: LSTM with GloVe 50 embeddings
- **Input**: subset of 600,000 news articles
- **Output**: 2 categories
  - left and right

Hyperpartisanism classifier

- **Model**: LSTM with GloVe 50 embeddings
- **Input**: subset of 600,000 news articles
- **Output**: {0,1} hyperpartisan (or not {1,0})

Methods (Cont.)

Political tweets stance classifier

- **Models**: NN, RNN
- **Input representation**: TF-IDF, word embedding
- **Output**: three stance classes
  - Republican
  - Democrats
  - Neutral

Politically biased tweets classifier

- **Model**: LSTM with Glove embeddings
- **Input**: 5000 posts from the social media accounts of politicians
- **Output**: neutral, partisan

Experiments

Predicting political stance

Architecture	Baseline (random)	Training Accuracy	Validation Accuracy
LSTM with only text as input	50%	90%	53.80%
LSTM with NER	50%	68.2%	56.4%
LSTM with NER and election tweet classifier	50%	68.2%	56.4%

Experiments (Cont.)

Predicting hyperpartisanism

Architecture	Baseline (random)	Training Accuracy	Validation Accuracy
LSTM with only text as input	50%	84%	55.68%
LSTM with NER	50%	50%	50%

Discussion

- **Challenges** - classifiers from our twitter datasets did not improve performance of LLVM
- **The primary intuition**: CRF/structured learning approach
- **If more time is allowed,** run the classifier over shorter spans of the news article and then use the aggregated result
- **Given years,** learn to model dependencies that exist in the world and use these dependencies for a prediction task
- **Other idea** - learn the dependencies as we train our model