Fake-EmoReact

Team - November

Outlline

1. Data Analyze
2. Data Preprocessing
3. Experiment
4. Result (leaderboard)

Data Analyze

	real	fake
the number of samples (A)	31799	136722
the numbers of unique text (B)	23134	3225
the average number of replies (=A/B)	1.37	42.39
number of unique texts which are repeated posted	2495	2
the average of the length of the text	113	199

Data Preprocessing

- feature: “text” and “reply”
- word embedding: TF-IDF、GloVe
- data set: split train.json (training : validation : testing) = (8 : 1 : 1)

Data set

	real	fake
training	25470	109513
validation	3149	13536
testing	3180	13673

Hardware

CPU : Intel(R) Xeon(R) CPU E5-2676 v3 @ 2.40GHz

RAM : 32G

GPU : GeForce GTX 1080 11G

OS : Ubuntu

Experiment 1

Different pre-process in BERT-Base (L-12_H-768_A-12)

1. text only
2. text + reply
3. text + reply with replacement Tag and URL:
   e.g. "... leading these terrorists! @GenFlynn @BarbaraRedgate ... https://t.co/VK5hGfZmPf @JosephJFlynn1 @GenFlynn"

   => "... leading these terrorists! TAGUSER TAGUSER … URL TAGUSER TAGUSER"

Experiment 1 result

method	accurracy	precision	recall
text	0.9738	0.990	0.716
text + reply	0.9949	0.9980	0.9965
text + reply with replacement	0.9923	0.9959	0.9941

Experiment 2

Compare different models

1. TF-IDF + Xgboost
2. GloVe(twitter) + LSTM
3. GloVe(twitter) + Bi-LSTM
4. BERT-Mini (L-4_H-256_A-4) + dropout + classifier
5. BERT-Base (L-12_H-768_A-12) + dropout + classifier

Experiment 2

model	accurracy	precision	recall
TF-IDF + Xgboost	0.966	0.971	0.82
GloVe + LSTM	0.971	0.976	0.989
GloVe + Bi-LSTM	0.971	0.971	0.989
BERT-Mini + dropout + classifier	0.971	0.976	0.989
BERT-Base + dropout + classifier	0.993	0.997	0.998

Result (leaderboard)

BERT-Base (L-12_H-768_A-12) + dropout + classifier

Precision score	Recall score	F1 score
0.7394(18)	0.6664(13)	0.6353(14)

Reference

- Transformers: https://huggingface.co/transformers/
- Classify text with BERT: https://www.tensorflow.org/text/tutorials/classify_text_with_bert
- bert-as-service: https://github.com/hanxiao/bert-as-service
- predict fake news: https://towardsdatascience.com/predicting-fake-news-using-nlp-and-machine-learning-scikit-learn-glove-keras-lstm-7bbd557c3443

team November 陳菀渝 309555007 請問遇到表情符號，有作什麼特殊處理嗎

報告組別: team november 孫維佑 309511065問題: 考慮過完全平衡data? 像是讓dev裡的real/fake 1:1這樣

team November 羅禾洲 0816166 請問你們覺得為什麼replacement沒有增加precision嗎

報告組別: team November，林哲宇 0616018 請問訓練時間大概多久呢，我自己訓練BERT 開 GPU 只訓練 10% 測資就花了兩小時左右

請問取代掉以後效果更差的可能原因？或是說有可能有其他更好的取代方式？或是直接刪除效果可能更好？報告組別:team november, 問題:0686011。

報告組別:Team November 問題:309551179 你們如果不是用replacement而是直接刪掉網址，會不會訓練效果比較好?

team november 黃靖 309706022 想請問為什麼沒有考慮用Categories內容去做分析?有甚麼考量嗎?

有沒有想過可能有甚麼原因造成eval和practice phase的表現有落差？ 報告組別:Team November 問題:0713309