IIIDYT at IEST 2018: Implicit Emotion Classification With Deep Contextualized Word Representations

Anonymous EMNLP submission

Abstract

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1 Introduction

- High level description of the task (Klinger et al., 2018) and its *raison d'être* (Francés para Edison)
- High level description of the model used and results obtained

2 Related Work

- briefly describe previous Wassa papers (Baziotis et al., 2018; Duppada et al., 2018; Abdou et al., 2018) (Should we do this despite not having based our work in any of them?)
- Talk about elmo (Peters et al., 2018)

3 Proposed Model

3.1 Preprocessing

- Replaced `[#TRIGGERWORD#]`, `@USERNAME`, `[NEWLINE]`, and `http://url.removed`, by `__TRIGGERWORD__`, `__USERNAME__`, `__NEWLINE__`, and `__URL__` respectively.
- Tokenized by using an emoji-aware modified version of the `twokenize.py`[1] script.

To incorporate emoji knowledge we used an emoji database[2] which we also modified for avoiding conflict with emoji sharing unicode codes with common glyphs used in twitter such as the hashtag symbol. (Link to appendix for specifics; mention `keycaps`)

3.2 Model Architecture

- Elmo (Peters et al., 2018) as word representations
- BiLSTM (Graves and Schmidhuber, 2005; Graves et al., 2013) as context fine-tuner (?)
- max-pooling as word aggregation method
- slanted triangular learning rate schedule with mostly default params (just set the η_{max} parameter to 0.001.) as lr schedule (Howard and Ruder, 2018)
- 0.5 dropout after word layer, 0.1 after sentence layer (Srivastava et al., 2014)
- Only external feature is the elmo pre-trained language model

3.3 Ensembling

We trained several models with the previously-mentioned architecture, but different initial parameters (by changing the random seed). We fed them the test data, and averaged the predicted output probabilities. We tried all the possible combinations of averaging 2 to 10 models, and found out that a specific combination of 6 models yielded the best results (show bar graph). This provides evidence for the fact that having the same number of independent classifiers as class labels provides the best results (Bonab and Can, 2016).

[1] https://github.com/myleott/ark-twokenize-py

[2] https://github.com/carpedm20/emoji/blob/e7bff32/emoji/unicode_codes.py

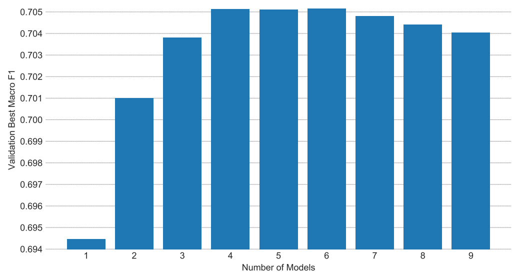

Figure 1: Best Macro F1 vs. Number of Ensembled Models

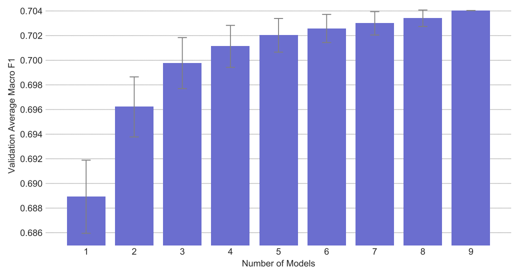

Figure 2: Best Macro F1 vs. Number of Ensembled Models

4 (Failed) experiments

- scalar gates, vector gates and elmo
- dropouts?
- POS tags
- combined pooling
- different learning rate schedules
- emoji vs no emoji
- sentence encoding lstm hidden size
- transformer architecture
- show different accuracies when using different training sizes?

5 Conclusions and Future Work

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Variation	Accuracy (%)	Δ%
Submitted	**69.23**	-
No emoji	68.36	- 0.87
No ELMo	65.52	- 3.71
Concat Pooling	68.47	- 0.76
LSTM hidden=4096	69.10	- 0.13
LSTM hidden=1024	68.93	- 0.30
LSTM hidden=512	68.43	- 0.80
POS emb dim=100	68.99	- 0.24
POS emb dim=75	68.61	- 0.62
POS emb dim=50	69.33	+ 0.10
POS emb dim=25	69.21	- 0.02

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