Department of Computer Science and Engineering

Politeness Transfer: A Tag and Generate Approach

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Keerthi Palireddy: 17wh1a0561
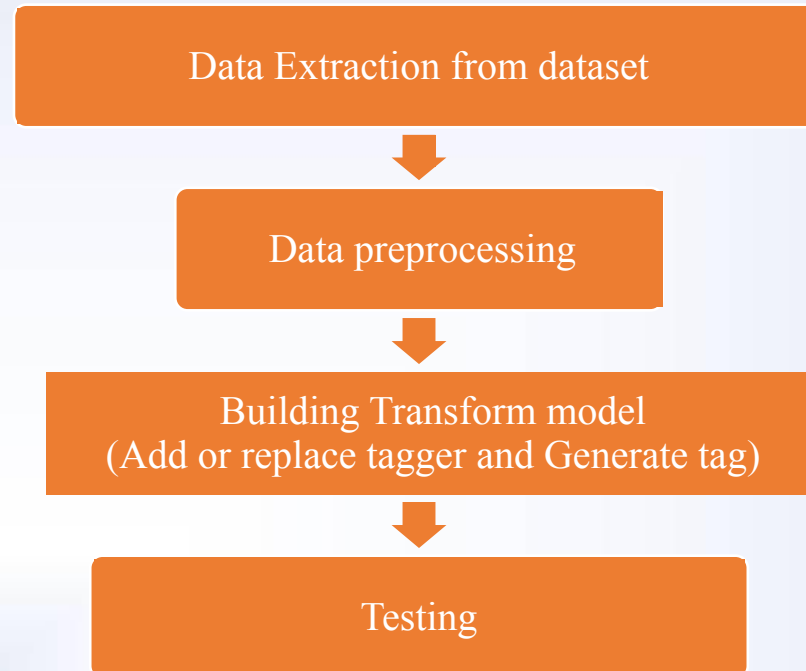
Sathwika Mikkili : 17wh1a0574

Shivani Aare   : 17wh1a05b5

Internal Guide: Mr. Bapiraju Mudunuri
Designation: Assistant Professor

Abstract

It is a task of politeness transfer which involves converting non-polite sentences to polite sentences while preserving the meaning. We also provide a dataset of more than 1.39 million instances automatically labeled for politeness to encourage benchmark evaluations on this task. We design a tag and generate pipeline that identifies stylistic attributes and subsequently generates a sentence in the target style while preserving most of the source content. For politeness as well as five other transfer tasks, our model outperforms the state-of-the-art methods on automatic metrics for content preservation, with a comparable or better performance on style transfer accuracy. Additionally, our model surpasses existing methods on human evaluations for grammaticality, meaning preservation and transfer accuracy across all the six style transfer tasks(Enron corpus, Captions, Yelp, Amazon, Gender, Political).

Architecture

Performance Metrics


```
Fold  9
Epoch 1/40
52/52 [==============================] - 28s 390ms/step - loss: 0.5240 - accuracy: 0.8102 -
val_loss: 0.4445 - val_accuracy: 0.8019
Epoch 2/40
52/52 [==============================] - 21s 406ms/step - loss: 0.3452 - accuracy: 0.8326 -
val_loss: 0.4180 - val_accuracy: 0.8599
Epoch 3/40
52/52 [==============================] - 468s 9s/step - loss: 0.1492 - accuracy: 0.9421 - val_loss:
0.5991 - val_accuracy: 0.8502
Epoch 4/40
52/52 [==============================] - 15s 279ms/step - loss: 0.0451 - accuracy: 0.9830 -
val_loss: 0.8403 - val_accuracy: 0.8454
Epoch 5/40
52/52 [==============================] - 16s 308ms/step - loss: 0.0300 - accuracy: 0.9940 -
val_loss: 0.6718 - val_accuracy: 0.8213
Train: 1.000, Test: 0.821
              precision    recall  f1-score   support

           0       0.94      0.94      0.94       180
           1       0.59      0.62      0.60        26

    accuracy                           0.90       206
   macro avg       0.77      0.78      0.77       206
weighted avg       0.90      0.90      0.90       206
```

Thank you