

Automated Feedback for Essays from English Learners : Sprint 1

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Project Goals

- Kaggle Competition project
- To develop natural language processing (NLP) platform for automated essay feedback
- Specifically for essays from English Language Learners (ELLs)
- Already-existing platforms don't take into account of the English level of the writer
 - Harsh feedback can discourage the learner
 - Skill comparative feedback
- Competition asks for 6 grading criteria
 - Cohesion, Syntax, Vocabulary, Phraseology, Grammar, and Conventions
 - Range from 1.0 to 5.0, at increment of 0.5 points
- Metric: minimize MSE btwn original and predicted grades



Some Possible Users



Wendy Writer

Writing teacher for ESL students but find it hard to grade essays from ~25 students every week.



Lenny Learner

Wants to improve English written skills in his free time but finds it difficult to receive feedback from anyone around him.



Abby Author

Author who writes English learning materials wants to better ways to evaluate examples in the sample essays



Adam Admin

Wants to alternative ways to automate parts of essay grading process so that the school can manage teacher shortages.

NLP Models being Considered

- Some criteria
 - Relatively lightweight - no models with large set of parameters
 - Transformer architecture
 - Accounts for longer-range context using self-attention
 - Recent major development in NLP
- DistilBERT
 - Smaller version of BERT
 - ~60M parameters
- ALBERT
 - ~12-18M

Automated essay scoring using efficient transformer-based language models

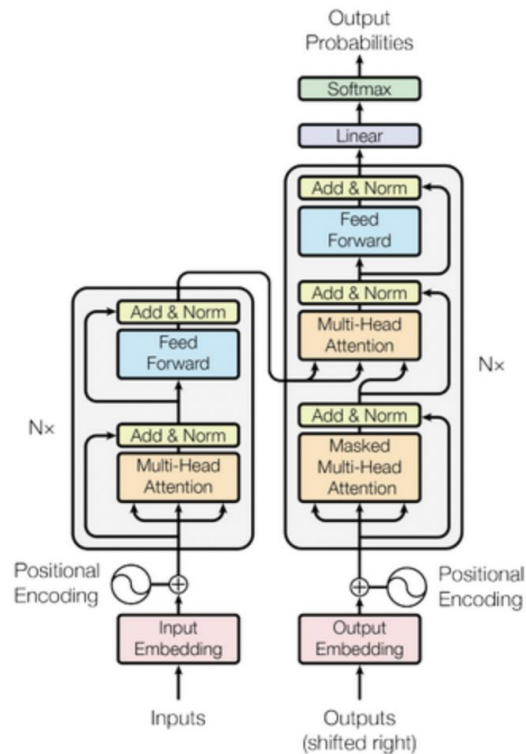
Christopher M. Ormerod, Akanksha Malhotra, and Amir Jafari

Automated Essay Scoring Using Transformer Models

Sabrina Ludwig^{1*}, Christian Mayer¹, Christopher Hansen², Kerstin Eilers³, and Steffen Brandt⁴

Should You Fine-Tune BERT for Automated Essay Scoring?

Elijah Mayfield and Alan W Black



The Transformer – Model Architecture

(Source: <https://arxiv.org/abs/1706.03762>)

Next Sprint Goals:

- More literature review
 - Play around with given data
 - Define direction for each grading criteria
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Questions?