

Using the Transformer

BERT-based architectures



Learning goals

- Understand the developments of the post-BERT era
- Get to know different self-supervised objectives
- Understand how to tackle BERTs critical shortcomings

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October 2018 - BERT

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February 2019 - GPT2

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Controversial debate about this model, since OpenAI (at first) refuses to make their pre-trained architecture publicly available due to concerns about "malicious applications".

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The use **Permutation Language Modelling** to avoid the discrepancy between pre-training and fine-tuning introduced by the artificial MASK token.

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T5 (Raffel et al., 2019) a complete **encoder-decoder** Transformer based architecture (**text-to-text transfer transformer**).

They approach transfer learning by transforming all inputs as well as all outputs to strings and fine-tuned their model simultaneously on data sets with multiple different tasks.

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March 2020 - ELECTRA

ELECTRA (Clark et al., 2020) introduces a **discriminative pre-training strategy**, allowing for a more efficient use of the pre-training corpus.

Despite requiring two models, the computational costs, for achieving a similar performance, are reduced to this gain in efficiency.

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