Using BERT for SQuAD 2.0

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Motivation

• Question answering is an important NLP task. QA systems allow a user to ask a question in natural language, and receive the answer to their question quickly. SQuAD 2.0 is a challenging natural language understanding task. Models preconditioned with BERT achieved better than human performance on SQuAD 1.1 and currently lead on SQuAD 2.0 top performance.

New Technique

• BERT (Bidirectional Encoder Representations from Transformers)
• BERT’s architecture produces a deep bidirectional pretrained contextual representations. BERT is designed to pre-train deep bidirectional representations by jointly conditioning on both left and right context in all layers. As a result, the pre-trained BERT representations can be fine-tuned with just one additional output layer to create state-of-the-art models for a wide range of tasks, such as question answering and language inference, without substantial task-specific architecture modifications.

Related Work

• Add character embeddings to BiDAF (Bidirectional Attention Flow for Machine Comprehension)
• Combining BERT with Bidirectional LSTMs.

Experimental Results

• BiDAF with character embeddings
  Dev NLL: 02.93, F1: 63.73, EM: 60.31, AvNA: 69.82.
• BERTPlusBiLSTM: no result yet

References

Jacob Devlin, Ming-Wei Chang, Kenton Lee, Kristina Toutanova, BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding, Oct 2018