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ACL Paper Summary

The title of the paper is called *Contextual Representation Learning beyond Masked Language Modeling*. There are five authors for the paper, which are Zhiyi Fu, Wangchunshu Zhou, Jingjing Xu, Hao Zhou, Lei Li. Zhiyi Fu is affiliated with Peking University. Wangchunshu Zhou and Hao Zhou are affiliated with ByteDance AI Lab. Jingjing Xu and Lei Li are affiliated with the University of California.

In *Contextual Representation Learning beyond Masked Language Modeling*, the paper explains masked language models and its problem with embedded bias. Masked language models, also called MLM's, is a model that will "replace a few tokens in a sentence with the special token [Mask] and ask a neural network to recover the original tokens" (Fu et al., 2702). So, masked language models utilize the other tokens in the sentence to try to predict the words that are replaced as the mask token. The paper explores how the masked language model learns contextual representation. Unfortunately, embedding can influence how the masked language model learns contextual representation. Thus, this can cause the embedding bias, where the masked language model ignores the global semantics in favor of the embedding to learn the contextual representation (Fu et al., 2704). The authors discuss how Token-Alignment Contrastive Objective can be an approach to solve embedding bias.

The authors evaluated their work on the GLUE benchmark (Fu et al., 2705). The authors compared the Token-Alignment Contrastive Objective (TACO) with masked language models on

the BERT models. After comparing TACO and MLM on BERT models, it can be seen that TACO surpases MLM in terms of acceleration (Fu et al., 2706). Furthermore, TACO has “up to 5x speedup on GLUE benchmark” (Fu et al., 2702).

After searching the authors through Google Scholar, I have seen that Lei Li has the most number of citations than the rest of the authors. Lei Li has a total of 9211 citations (Lei Li - Google Scholar).

Citation

Fu, Zhiyi, et al. “Contextual Representation Learning beyond Masked Language Modeling.” *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*, 2022, pp. 2701–2714, https://doi.org/10.18653/v1/2022.acl-long.193.

“Lei Li - Google Scholar.” *Google Scholar*, https://scholar.google.com/citations?hl=en&user=BYXqAlwAAAAJ.