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CS4395 ACL Paper Summary

Feeding What You Need by Understanding What You Learned by Xiaoqiang Wang, Bang Liu, Fangli Xu, Bo Long, Siliang Tang, and Lingfei Wu

The problem that this paper was approaching is that machines aren't always able to comprehend a text passage and answer questions along with it like humans are able to. Previous research related to Machine Reading Comprehension (MRC) have found that the machine needs to be fed a large corpus in order to perform such tasks. However with a deep enough understanding of model capabilities and data properties, MRC can be sufficient without the need of a large corpus. The title of the paper essentially suggests that the training process of a model can be improved by first having a deep understanding of what the model has already learned. However in order for the machine to know its own learning capabilities, the work presents a competency assessment to help in evaluating MRC capabilities. The goal of the author's work is to improve learning efficiency when training or feeding knowledge to these models. To improve learning efficiency, the process is to be selective with what kind of information it is feeding. The paper discusses a real life example where a college student may perform primary school exercises very easily but will not gain knowledge from doing so and on the contrary a primary school student would not be able to do college problems because of the gap in knowledge. So with machines, data needs to be fed where it's not too difficult or too easy for machines to comprehend and information that is irrelevant isn't being inputted either. The unique contributions of this paper proved that the amount

of training data can be reduced and still be able to achieve great results. The authors' work or Feed What You Need method has shown to be effective in NLP related tasks. The authors evaluated their work by running an experiment and comparing their results to other state of the art methods and beat them in accuracy and efficiency. The experiment was performed on four benchmark datasets that verified their work. According to Google Scholar, Bang Liu is the author with the most citations among the authors of this paper. His work on natural language processing and machine learning has made important contributions to the field, including the development of neural network-based models for text classification and sentiment analysis. His work has also explored the use of deep learning for natural language processing tasks and has advanced our understanding of how neural networks can be used to model human language processing.