

UNIVERSITY OF SOUTH FLORIDA

Defense of Master's Thesis

Exploring the Use of Neural Transformers for Psycholinguistics

by

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Deep learning has the potential to help solve numerous problems in cognitive science and education, by providing us a way to model the cognitive profiles of individual people. If this were possible, it would allow us to design targeted tests and suggest specific remediation based on each individual's needs. On the flip side, employing techniques from psychology can give us insight into the underlying skillsets neural networks have acquired during training, addressing the interpretability concern. This thesis explores these ideas in the context of transformer language models, which have achieved state-of-the-art results on virtually every natural language processing (NLP) task. First, we study the ability to generate text from a given prompt using a transformer model. We then explore the use of transformer models for sentiment analysis and named entity recognition. Finally, we discuss the potential for using transformer models in educational settings.