# Abstract:

Content analysis has always been one of the key methods in communication research. However, with the advent of web 3.0, the data sources for communication content analysis has exponentially grew in volume and complexity. Nowadays, it is common to see the communication take place via textual and audiovisual materials at the same time via digital communication channels. The advances in computational methods, such as dictionary analysis or machine learning, allow researcher to process vast quantities of data. Unfortunately, supervised machine learning methods require considerable amount of effort from researcher to create training datasets, fine tune model their models and focus on one set of communication modal, only to be used in a single research research project. Neural network models, on the otherhand, can circumvent these problems.

In this paper, we experimentally address two promisses of neural network based data representation; multi-modality and context-transferability. Previous studies such as Niu et.al (2017), Wang & Guo (2017) and Kim et al. (2020) have demonstrated the flexibility of embeddings to analyze multimodel data. Similarly, studies such as Grave et al. (2018), Conneau et al.(2017), and Lampe et al.(2017) illustrate embeddings’ capacity to autonomously or semi-autonomously translate between language contexts. To the best of our knowledge, these insights have not been incorporated in to communication science research yet. In this paper we examine these potential in an experimental setting. In the first step of the experiment, we learn a series of [small] multi-modal embeddings with varying parameter normalization for a single context [policy area]. We then compare and contrast the performance of these embeddings to dictionary based classification and to each other in a text-labeling task. In the second step, we test the autonomous and semi-autonomous context translation with anchor words to asses the embeddings performance to translate manually created dictionaries to other contexts for classification tasks. Finally, we conclude with some recommendations for researchers who wants to utilize embeddings in their research.