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Master Degree in Big Data Analytics

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Master Thesis

"Sentiment Analysis Classification in Covid-19 related tweets using Natural Language Processing with Deep Learning Techniques"

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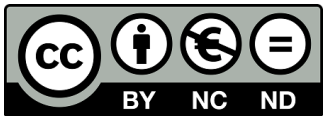

SUMMARY

Due to the globalization of the COVID-19 pandemic, and the expansion of social media influence as the main source of information for many people, there has been a great amount of different reactions surrounding the topic. The WHO has announced in December 2020 that they are currently fighting an "infodemic" in the same way as they are fighting a pandemic'. An "infodemic" relates to the spread of information that is not controlled nor filtered, and can have a negative impact in the society. If not managed properly, an aggressive or negative tweet can be very harmful and misleading for the society. Therefore, the World Health Organization has called for action and asked the academic and scientific community to "commit to finding solutions and tools, ..., to manage the infodemic embedding the use of digital technologies and data science". The goal of this Thesis will be to develop and apply Natural Language Processing models using Deep Learning to classify a collection of tweets that refer to the Covid-19 pandemic. Several simpler and widely used models will be applied first and serve as a benchmark for methods based on Long Short Term Memory (LSTM) and Bidirectional Encoder Representations from Transformers (BERT). Models and prediction scores will be presented. The results and conclusions of the different models and possible further development opportunities will also be discussed.

Keywords: Sentiment Analysis, Natural Language Processing, Machine Learning, Deep Learning, LSTM, BERT, Covid-19, Long Short Term Memory, Classification

DEDICATION

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