

Abstract

Recent events such as the COVID-19 pandemic and the conflict in Ukraine have demonstrated that disinformation has reached unprecedented levels. The proliferation of disinformation methods and their increasingly sophisticated concealment techniques have highlighted the need for more powerful tools for detecting it. The main aim of this study is to examine how various natural language processing methods influence the accuracy of fake news detection. We apply a wide range of models to the LIAR dataset introduced by Wang (2017) that consists of 12,800 manually labeled texts collected from POLITIFACT.COM. We investigate how the use of various embedding methods (GloVe, Word2Vec, BERT, RoBERTa, GPT-2) and classification algorithms (Logistic Regression, KNN, SVM, Random Forest, XGBoost, Neural Network) impacts the performance of the models. It appears that the combination of GloVe embeddings with a neural network is the best-performing model. Employing statistical tests, we demonstrate that the choice of embedding method does not exert a significant influence on the performance of the model, while confirming that the selection of the classification method significantly affects its efficacy.

Keywords

fake news detection, NLP, embeddings, classification, machine learning, neural networks

Thesis domain (Socrates-Erasmus subject area codes)

14.3 Economics

Tytuł pracy w języku polskim

Czy powinieneś się przejmować jakich narzędzi użyć do wykrywania fałszywych wiadomości?
Studium porównawcze najnowocześniejszych metod embeddingu i algorytmów klasyfikacji