Telematics and Informatics
Volume 67, February 2022, 101752

Unravelling social media racial discriminations through a semi-supervised approach

Vimala Balakrishnan [a], Kee S. Ng [b], Hamid R. Arabnia [c]

https://doi.org/10.1016/j.tele.2021.101752

Highlights

- Machine learning models were used to detect cyber-racism during COVID19 pandemic.
- Cyber-racism detection based on negative English tweets.
- Random Forest with bagging emerged to be the best detection classifier.
- Top themes of cyber-racism - Eating habit, Xenophobia and Political hatred.

Abstract

The study investigated cyber-racism on social media during the recent Coronavirus pandemic using a semi-supervised approach. Specifically, several machine learning models were trained to detect cyber-racism, followed by topic modelling using Latent Dirichlet Allocation (LDA). Twitter data were gathered using the hash tags Chinese virus and Kung Flu in the month of March 2020, resulting in 7,454 clean tweets. Negative tweets extracted using sentiment analysis were annotated

(Racism, Sarcasm/irony and Others), and used to train several machine learning models. Experimental results show Random Forest with bagging to consistently outperform Random Forest, J48 and Support Vector Machine with an accuracy of 78.1% (Racism versus Sarcasm/Irony) and 77.9% (Racism versus Others). LDA revealed three distinct topics for tweets identified as racist, namely, Eating habit, Political hatred and Xenophobia. Consistent detection performance of the models evaluated indicate their reliability in detecting cyber-racism patterns based on textual communications.

Previous Next

Keywords

Cyber-racism; Machine learning; Topic modelling; Sentiment analysis; Social media

Recommended articles

Cited by (0)

View full text