AI and Human Sentiment Analysis with Cultural Aspect

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Sentiment analysis is a valuable tool for stakeholders interested in public opinion, which can have a significant impact on the prosperity of their respective sectors (stocks, governmental organizations, companies dependent on the supply of special goods, etc.) (Sánchez-Rada & Iglesias 2019). The research reveals how people express their opinions and vent emotions on social media, especially when commenting on popular news. News is a domain typical for the negativity bias, more attention is paid to what can potentially harm than to the positive (Robertson et al. 2023, and Hordiienko & Joukl 2023). The aim is to find how well current AI models (large language models) understand this type of material full of neologisms, emojis, culture-specific humor, jargon, non-normative vocabulary, irony, or sarcasm (Wankhade et al. 2022, and Hung & Alias 2023). The objectives of the study are to test the capabilities of these models to understand specific linguistic features (general sentiment analysis of online comments in two Slavic languages), to identify the reliability of the results of machine sentiment analysis, and to compare with the results of an expert assessment of the comments' tone on popular news by Ukrainian and Czech speakers. Comments were collected from X (formerly Twitter) and Telegram from posts that reached a high level of popularity. The research methods were not only three machine learning classifiers based on artificial intelligence XLM-RoBERTa, ChatGPT-3.5 and Zephyr 7B, but also evaluation of comments by manual classification of Czech and Ukrainian culture carriers. The models automatically detect the sentiment of each comment, while human raters are tasked with making judgements on whether the comment has a positive, neutral or negative sentiment (Shamantha, Shetty & Rai 2019). The results of the tone of the models' comments and the expert evaluation are compared to each other. Therefore, the study provides an empirical comparison of the reliability of the use of artificial intelligence, taking into account the cultural aspect.

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