A Deep-Learning System for Culture-Based Emotion Recognition

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Cultural diversity is a critical component of human societies, shaping individuals' behavior, beliefs, and values. Therefore, it is crucial to incorporate cultural backgrounds when developing artificial intelligence (AI) systems capable of interpreting and predicting human emotions. The study of emotionally-aware AI systems, which consider cultural differences, remains a limited area of research, despite its potential for improving human-machine interactions. This research aimed to develop socially and culturally conscious AI systems capable of performing emotion-related tasks accurately. The study utilized the ArtELingo dataset, which consists of 1 million annotations across various cultures and focuses on nine emotions based on Ekman's theory of emotions. The captions in the dataset were used to train the system for emotion-related tasks. The results showed an improvement compared to standard systems, achieving an accuracy of 86 percent for the Arab-cultured system, 92 percent for the Chinese-cultured system, and 86 percent for the standard English dataset. Furthermore, the caption generation task systems received a BLEU-4 score of 87 percent. The development of emotionally-aware AI systems has the potential to enhance communication between humans and machines, leading to more efficient interpretation of emotions. These systems can be used in mental health diagnostic methods, classroom education, and other areas where human emotions is critical. Further research in this area is needed to develop more culturally conscious AI systems and improve human-machine interactions. The study's findings highlight the need for more significant focus on cultural diversity in the development of AI systems, leading to a better understanding and appreciation of cultural differences.

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