Research on DeepFace Neural Networks and Application in Customer Service Quality Assessment Based on Emotion Recognition

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Abstract: This study investigates the application of the DeepFace neural network for evaluating customer service quality through facial emotion recognition. While traditional service quality assessment relies heavily on subjective surveys, this research proposes an automated, objective framework that analyzes real-time customer emotional responses during service interactions. The DeepFace model, a deep convolutional neural network architecture, was implemented and fine-tuned to classify seven basic emotional states from facial expressions. A custom dataset comprising customer service interaction footage was collected and annotated for training and evaluation. Experimental results demonstrate that the DeepFace-based system achieves high accuracy in emotion classification, with particular efficacy in detecting negative emotions such as anger and frustration, which are critical indicators of service failure. The findings suggest that integrating deep learning-based emotion recognition into service quality monitoring systems provides a reliable, non-intrusive method for capturing genuine customer sentiment. This approach offers significant potential for service industries seeking to enhance customer experience through data-driven, real-time feedback mechanisms, ultimately contributing to improved service delivery and customer satisfaction.

Keywords: DeepFace, emotion recognition, service quality assessment, neural network