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Emotion Discrimination of Amusement Based on Three-Dimensional Data of Body Movements

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In a previous study, we clarified that the presence or absence of amusement can be detected by focusing on the variation of movement features of the lip. When a strong emotion is evoked, some body movements are observed in the head and shoulders. Based on these findings, it is possible to quantify human emotion accurately by combining facial expressions, movement of lips, and body movement features. Therefore, we attempted to quantify amusement by acquiring three-dimensional data of head and shoulder movements while subjects were watching emotion-eliciting videos using Microsoft Kinect. In this study, we acquire head and shoulder movements as three-dimensional data and analyze the movements of the body when amusement is evoked. Thereafter, we label amusement and the normal state of a subject while watching the video. We also classify the amusement state and the normal state of the subjects using various machine learning methods (decision tree, random forest, XGBoost, support vector machine, linear, and neural network).

Keywords : Kinect, 3D data of body movement, emotion discrimination, human sensing