

FACIAL EXPRESSION RECOGNITION: A SURVEY AND ITS APPLICATIONS

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Abstract—Automatic facial expression recognition is an important component for efficient human-computer interaction system, and over the past decades, it has become a highly active research area. Numerous algorithms have been proposed in the literature to cope with the problem of face expression recognition (FER). General speaking, current existing FER methods can be categorized into two main groups, i.e., traditional machine learning-based approaches and deep learning-based approaches. Different from other surveys, in this study, we aim to not only comprehensively highlight the differences and similarities of the two approaches above, but also the new trend of hybrid and ensemble learning in FER systems by providing a general framework for each type and review the possible technologies that can be employed in its components. We conduct more specific and detailed competitive performances and experimental comparisons of researches from 2014 to 2020 on widely used datasets. We then extend our survey to our current application scenarios in Vietnam.

Keyword—Facial Expression Recognition, FER applications, Machine learning based, Deep learning based, Hybrid FER systems, Ensemble FER systems, Vietnam E-Government



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