

Micro Expression Recognition Using Machine Learning Approach

M. Raghava¹, M. Mani Chandan², M. Sahithi³, M. Hemanth Kumar⁴, M. Aravind⁵

GMR Institute of Technology, Rajam, Andhra Pradesh, India

20341A05B3@gmrit.edu.in¹, 20341A05B4@gmrit.edu.in², 20341A05B6@gmrit.edu.in³

20341A05B7@gmrit.edu.in⁴, 20341A05B8@gmrit.edu.in⁵

Abstract: *Micro-expressions are characterized by short duration and low intensity, hence, efforts to train humans in recognizing them have resulted in very low performances. Automatic recognition of micro-expressions using machine learning techniques thus promises a more effective result and saves time and resources. In this study, we explore the use of Extreme Learning Machine (ELM) for micro-expression recognition because of its fast learning ability and higher performance when compared with other models. Support Vector Machine (SVM) is used as a baseline model and its recognition performance and its training time compared with ELM training time. Feature extraction is performed on apex micro-expression frames using Local Binary Pattern (LBP) and on micro-expression videos divided into image sequences using a spatiotemporal feature extraction technique called Local Binary Pattern on Three Orthogonal Planes (LBP-TOP). Evaluation of the two models is performed on spontaneous facial micro-expression samples acquired from Chinese Academy of Sciences (CASME II).*

Keywords: Extreme Learning Machine, Support vector Machine, Local Binary Pattern, The apex frame, Feature selection, Micro-Expression

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