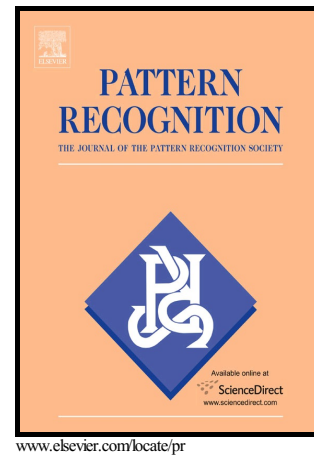


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Facial Expression Recognition with Convolutional Neural Networks: Coping with Few Data and the Training Sample Order

Andre Teixeira Lopes^a, Edilson de Aguiar^b, Alberto F. De Souza^a, Thiago Oliveira-Santos^{a,*}

^a*Department of Informatics, Universidade Federal do Espírito Santo (Campus Vitória), 514 Fernando Ferrari Avenue, 29075910 Goiabeiras, Vitória, Espírito Santo, Brazil*

^b*Department of Computing and Electronics, Universidade Federal do Espírito Santo (Campus São Mateus), BR 101 North highway, km 60, 29932540 Bairro Litorâneo, São Mateus, Espírito Santo, Brazil*

Abstract

Facial expression recognition has been an active research area in the past ten years, with growing application areas including avatar animation, neuro-marketing and sociable robots. The recognition of facial expressions is not an easy problem for machine learning methods, since people can vary significantly in the way they show their expressions. Even images of the same person in the same facial expression can vary in brightness, background and pose, and these variations are emphasized if considering different subjects (because of variations in shape, ethnicity among others). Although facial expression recognition is very studied in the literature, few works perform fair evaluation avoiding mixing subjects while training and testing the proposed algorithms. Hence, facial expression recognition is still a challenging problem in computer vision. In this work, we propose a simple solution for facial expression recognition that uses a combination of Convolutional Neural Network and specific image pre-processing steps. Convolutional Neural Networks achieve better accuracy with big data. However, there are no pub-

*Corresponding author

Email addresses: `andreteixeiralopes@gmail.com` (Andre Teixeira Lopes), `edilson.de.aguiar@gmail.com` (Edilson de Aguiar), `alberto@lcad.inf.ufes.br` (Alberto F. De Souza), `todsantos@inf.ufes.br` (Thiago Oliveira-Santos), (Thiago Oliveira-Santos)

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