

Keywords:

Affective Computing; Artificial Intelligence;

Abstract:

'FaceGym' is an innovative development tool incorporating Artificial Emotional Intelligence technologies to teach individuals to imitate, recognize, and generate human emotional and social expressions. In this game we integrated state-of-the-art facial emotion and Action Unit detectors, which are the building blocks of the Facial Acting Code system, to construct a unique self-training platform. The module has promises for a wide range of applications, for example, it can help in training and the quantitative assessment of the facial muscles in the case of physical disorders such as facial paralysis or ALS, as well as can help to overcome impairments originated by developmental disorders, like autism. We worked with neurotypical adolescent subjects. For this case, we could investigate two of the three options listed above, i.e., if FaceGym improves their abilities to generate and imitate facial emotions, especially when we include a practice session between exercises. We have demonstrated that the models utilized in our application can provide real-time feedback for measuring emotional and action unit values. Our experiment indicates – in agreement with the literature – that adolescent girls had the most difficulty in expressing anger out of the six basic emotional expressions. Given our studies, we see ways to improve the experimental design. We present our observations and findings using statistical and machine learning methods such as correlation tests and PCA to connect the user-produced results with their personality traits. These preliminary studies justify the increase of the population to raise the level of significance further.