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BOOK OF ABSTRACTS

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Classification of Facial Expressions Under Partial Occlusion for VR Games

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Facial expressions are one of the most common way to externalize our emotions. However, the same emotion can have different effects on the same person and has different effects on different people. Based on this, we developed a system capable of detecting the facial expressions of a person in real-time, occluding the eyes (simulating the use of virtual reality glasses). To estimate the position of the eyes, in order to occlude them, Multi-task Cascade Convolutional Neural Networks (MTCNN) were used. A residual network, a VGG, and the combination of both models, were used to perform the classification of 7 different types of facial expressions (Angry, Disgust, Fear, Happy, Sad, Surprise, Neutral), classifying the occluded and non-occluded dataset. The combination of both models, achieved an accuracy of 64.9% for the occlusion dataset and 62.8% for no occlusion, using the FER-2013 dataset. The primary goal of this work was to evaluate the influence of occlusion, and the results show that the majority of the classification is done with the mouth and chin. Nevertheless, the results were far from the state-of-the-art, which is expect to be improved, mainly by adjusting the MTCNN.

A Rule Based Procedural Content Generation System

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This paper introduces new ways and experimental results of procedural content generation (PCG) for natural objects (such as terrain, biomes, river, and vegetation), with special attention to the game design and aesthetic visualization. Our solution allows us to define a set of rules to control the content generation in order to meet the requirements of game design and level design teams. In this paper we focused on the content generation for natural environments and used the PCG in 3rd person open-world adventure game implemented in Unity. A playtesting has been done and the results are analyzed.
