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Emotion Detection in a General Human-Robot Interaction System Optimized for Embedded Platforms

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Abstract : Expression recognition is a field of Artificial Intelligence whose main objectives are to recognize basic forms of affective expression that appear on people's faces and contributing to behavioral studies. In this work, a ROS node has been developed that, based on Deep Learning techniques, is capable of detecting the facial expressions of the people that appear in the image. These algorithms were optimized so that they can be executed in real time on an embedded platform. The experiments were carried out in a PC with a USB camera and in a Raspberry Pi 4 with a PiCamera. The final results shows a plausible system, which is capable to work in real time even in an embedded platform.

Keywords : python, low-cost, raspberry pi, emotion detection, human-robot interaction, ROS node
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