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Age and Gender Detection

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Abstract: *Facial palsy (FP) is a neurological disorder that affects the facial nerve, specifically the seventh nerve, resulting in the patient losing control of the facial muscles on one side of the face. It is an annoying condition that can occur in both children and adults, regardless of gender. Diagnosis by visual examination, based on differences in the sides of the face, can be prone to errors and inaccuracies. The detection of FP using artificial intelligence through computer vision systems has become increasingly important. Deep learning is the best solution for detecting FP in real-time with high accuracy, saving patients time, effort, and cost. Therefore, this work proposes a real-time detection system for FP, and for determining the patient's gender and age, using a Raspberry Pi device with a digital camera and a deep learning algorithm. The solution facilitates the diagnosis process for both the doctor and the patient, and it could be part of a medical assessment activity. This study used a dataset of 20,600 images, containing 19,000 normal images and 1600 FP images, to achieve an accuracy of 98%. Thus, the proposed system is a highly accurate and capable medical diagnostic tool for detecting FP.*

Keywords: facial palsy; raspberry Pi; real-time; face detection; computer vision system; artificial intelligence Estimating the age, classifying gender, Raspberry Pi 5, learning the depths and breadths of deep learning, facial feature extraction, real-time inference, understanding OpenCV, understanding transfer learning, edge computing, our understanding of embedded AI, smart surveillance tech

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