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Research On Real Time Emotion Recognition Using Digital Image Processing Using ML

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Abstract: *Face recognition technology has garnered significant attention in recent years due to its wide range of applications in various fields such as security, surveillance, biometrics, and human-computer interaction. This abstract provides a comprehensive overview of the advancements in face recognition image processing techniques, methodologies, and applications. The abstract begins by elucidating the fundamental concepts underlying face recognition, including feature extraction, dimensionality reduction, and classification algorithms. Various approaches such as Eigenfaces, Fisher faces, and Local Binary Patterns (LBP) are discussed, highlighting their strengths and limitations.*
Moreover, recent developments in deep learning techniques, particularly convolutional neural networks (CNNs) and Siamese networks, have revolutionized face recognition by achieving remarkable accuracy and robustness. The abstract delves into the architecture and training procedures of these deep learning models, emphasizing their ability to learn discriminative features directly from raw pixel data. Furthermore, the abstract explores the challenges faced by face recognition systems, such as variations in pose, illumination, expression, and occlusion. Techniques for addressing these challenges, including data augmentation, normalization, and adversarial training, are examined.

Keywords: Machine learning, Emotion detection, Python-based framework, CNN (Convolutional Neural Network).

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