

Face Emotions Detection using Image Processing

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Background

What is facial emotion detection?

Facial emotion detection is a field of research that focuses on developing techniques and models to automatically recognize and interpret emotions displayed on human faces.

Background

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The need of this model (Applications)

- Medical usage i.e. monitor one's mental health.
- Business/ Marketing campaigns i.e. getting feedback of customers.
- Security i.e. suspicious individuals spotted in high security areas.
- Classrooms.

Literature Review

1. Ekman and Friesen (1971) pioneered the Facial Action Coding System (FACS).
2. Viola and Jones (2001) introduced the Viola-Jones algorithm.
3. Shan et al. (2009) proposed the Local Binary Patterns (LBP).

Gap Analysis

Since human emotions are multi-dimensional and can be influenced by other modalities, such as voice intonation and textual sentiment. There is a gap in research exploring the integration of multimodal data sources to enhance emotion recognition accuracy. Incorporating voice and text analysis alongside facial expressions can provide a more comprehensive understanding of human emotions and improve overall performance.



Project Methodology

- Computer vision and hearing.
- Using Opencv, PIL and Numpy libraries.
- Supervised learning and usage of labelled data.
- Face Emotion Recognition dataset 2013.
- Haar Cascade Classifier.
- Linear Binary Patterns Histogram (LBPH).
- Giving Input the test image.
- Output image displayed with detected emotion.

Results and their Significance

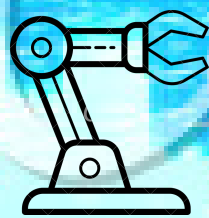
- Five primary emotions are detected such as happy, sad, anger, surprise and neutral.
- An accuracy of 80 percent is achieved, which is considered highly accurate.
- Reliable results.
- Used in real world applications.

Conclusion

- There is room to enhance the model's accuracy and generalizability by incorporating additional techniques, such as multimodal data fusion, ensemble learning, or addressing biases in the dataset.

AI

Thank You!



Canva