

Plagio detectado: 95.45%

**Texto original:** In this paper, a comprehensive survey is provided on deep FER, encompassing algorithms and datasets that offer insights into these intrinsic problems.

**Texto plagiado:** In this paper, a comprehensive survey is provided on deep FER, encompassing algorithms and datasets that offer insights into these intrinsic problems.

**Texto original:** Recent technological developments have enabled computers to identify and categorize facial expressions to determine a person's emotional state in an image or a video.

**Texto plagiado:** Recent technological developments have enabled computers to identify and categorize facial expressions to determine a person's emotional state in an image or a video.

**Texto original:** This process, called "Facial Expression Recognition (FER)", has become one of the most popular research areas in computer vision.

**Texto plagiado:** This process, called "Facial Expression Recognition (FER)", has become one of the most popular research areas in computer vision.

**Texto original:** In recent times, deep FER systems have primarily concentrated on addressing two significant challenges: the problem of overfitting due to limited training data availability, and the presence of expression-unrelated variations, including illumination, head pose, image resolution, and identity bias.

**Texto plagiado:** In recent times, deep FER systems have primarily concentrated on addressing two significant challenges: the problem of overfitting due to limited training data availability, and the presence of expression-unrelated variations, including illumination, head pose, image resolution, and identity bias.

**Texto original:** Initially, this paper presents a detailed timeline showcasing the evolution of methods and datasets in deep facial expression recognition (FER).

**Texto plagiado:** Initially, this paper presents a detailed timeline showcasing the evolution of methods and datasets in deep facial expression recognition (FER).

**Texto original:** This timeline illustrates the progression and development of the techniques and data resources used in FER.

**Texto plagiado:** This timeline illustrates the progression and development of the techniques and data resources used in FER.

**Texto original:** Then, a comprehensive review of FER methods is introduced, including the basic principles of FER (components such as preprocessing, feature extraction and classification, and methods, etc.)

**Texto plagiado:** Then, a comprehensive review of FER methods is introduced, including the basic principles of FER (components such as preprocessing, feature extraction and classification, and methods, etc.)

**Texto original:** from the pro-deep learning era (traditional methods using handcrafted

features, i.e., SVM and HOG, etc.)

**Texto plagiado:** from the pro-deep learning era (traditional methods using handcrafted features, i.e., SVM and HOG, etc.)

**Texto original:** Moreover, a brief introduction is provided related to the benchmark datasets (there are two categories: controlled environments (lab) and uncontrolled environments (in the wild)) used to evaluate different FER methods and a comparison of different FER models.

**Texto plagiado:** Moreover, a brief introduction is provided related to the benchmark datasets (there are two categories: controlled environments (lab) and uncontrolled environments (in the wild)) used to evaluate different FER methods and a comparison of different FER models.

**Texto original:** The remaining challenges and corresponding opportunities in FER and the future directions for designing robust deep FER systems are also pinpointed.

**Texto plagiado:** The remaining challenges and corresponding opportunities in FER and the future directions for designing robust deep FER systems are also pinpointed.

**Texto original:** Existing deep neural networks and related training strategies designed for FER, based on static images and dynamic image sequences, are discussed.

**Texto plagiado:** Existing deep neural networks and related training strategies designed for FER, based on static images and dynamic image sequences, are discussed.