

# **TOON EMOTION DETECTION**

## **ABSTRACT:**

### **I. INTRODUCTION**

An emotion is a mental and physiological state which is subjective and is brought on by changes variously associated with thoughts, feelings, and behavioral responses.[\[1\]](#) Through emotions, the understanding between two people becomes convenient and it also influences the thoughts and behaviors of other people. Emotions also help us make decisions with minimal conscious awareness.

Due to this detection of emotion is so popular, especially in recent times. Some of these researchers include notable researchers like Ekman and Friesen who in their study [\[2\]](#) classified the emotions into six basic expressions of happiness, sadness, disgust, anger, and fear and also stated they are universal in nature. Their research has become the benchmark for evaluation studies in the field of emotion detection. A lot of research has already been done to detect emotions using different techniques. These include emotion detection using text [\[3\]](#), emotion recognition from speech [\[4\]](#), as well as emotion detection from videos and images. The research in the field of emotion detection helps us to collect valuable data like the emotional state of patients [\[5\]](#), response to an advertisement, and even in times of crisis like coronavirus [\[6\]](#).

Facial Emotions are a form of nonverbal communication that conveys both the emotional state and behavioral intentions of an individual. Facial emotion detection can be performed over the facial image data of human beings or animals and this field has been making a buzz in the market in recent times due to advancements in the fields of Artificial Intelligence and Deep Learning. Several techniques have been employed for this task which includes <ask ma'am in how much detail we have to explain>. Facial emotion recognition has many applications in fields such as Medicine, E-Learning, Entertainment, Law, Marketing, etc.

Facial emotion recognition can not only be used to read emotions on the faces of humans but can also be implemented to detect the emotions of animated characters or cartoons. Cartoons are mostly made keeping in mind the entertainment of viewers. Hence they are often filled with various kinds of emotions that are portrayed in various forms by the same character. Hence detecting facial emotion of cartoon characters not only adds an additional layer of difficulty for detection of emotion but these detected emotions can be used in various fields like giving characters in games life-like emotions or using techniques to convert facial emotion from a human's face to animated faces [\[7\]](#). Hence we try and discover various ways to detect emotions of cartoon characters using this paper.