

ABSTRACT

In today's digital technology era, image processing technology has rapidly developed, including facial recognition and emotion detection. This progress is in the same path with the rapid development of Artificial Intelligence (AI), which is relevant to facial recognition and emotion detection technologies. This research focused on developing an emotion detection system using a Convolutional Neural Network (CNN) that is designed to process two-dimensional data. With this approach, the system is implemented into an Android app. By recognizing a person's emotional expressions, their psychological condition can be assessed with this system. This system can be useful in various ways, like in healthcare for example. Through emotion detection, users can monitor and provide necessary support for patients.

This research successfully developed a program that has the capability for processing two-dimensional data emotion recognition based on facial expressions. This program utilizes Convolutional Neural Network (CNN) model, configured with 256 batch size, 76 epochs, 50% dropout rate and uses the Adam optimizer. The evaluation results of this model result in accuracy of 84%, which is considered good for practical implementation in daily life.

Through this research, it is expected to contribute to the advancement of digital image processing technology by recognizing human facial expressions using CNN approach, implemented in an Android application. This study also aims to inspire further research by utilizing similar technologies in the future.

Keywords: *Android, Convolutional Neural Network, Artificial Intelligence, hyperparameter.*