

## **ABSTRACT**

*Facial recognition systems have become a topic that is often studied in the field of computer vision in recent decades. Face recognition itself consists of detection and classification stages. Both stages are so fast done by humans but it takes a long time for computers. It is this human ability that researchers have sought to duplicate in recent years. facial recognition systems in advertising have the benefit of determining targets by displaying advertisements that are tailored based on the age group and gender of a target. This study aims to detect faces using the Haar algorithm which is then used to classify gender and age based on the detected faces using the CNN algorithm. The classification process carried out will produce gender and age output which will later be used to display appropriate advertisements based on that gender and age. The level of accuracy obtained from the CNN model which is built on the gender dataset produces training accuracy of 97% and testing accuracy of 95%. Meanwhile, in the CNN Model for Age, the accuracy value obtained is 85% for the training model and 10% for the testing model. There was an overfitting in the training process for the age dataset that occurred due to the variation of the data being less diverse. From the CNN prediction results for the detected age and gender, it will be applied to the KNN algorithm to display ads that are appropriate for gender and age.*

*Keywords: Face Recognition, Face Detection, Convolutional Neural Network, Advertising*