

**ADIENCE**  
**FOR DISPLAY DIFFERENT ADVERTISEMENTS FOR EACH**  
**AGE GROUP/GENDER BY AUDIENCE.**

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## ABSTRACT

Advertising has become a significant element of our daily lives in the modern world. However, in the advertising sector, presenting irrelevant commercials to the public is a huge issue. This can be detrimental to both the viewer and the advertising organization. If the audience is uninterested in the products or services being offered, advertising resources will be wasted, and the company's reputation will suffer. As a result, it is critical to guarantee that advertisements are relevant to the audience and are shown to the appropriate people at the right time.

One potential answer to the problem of delivering irrelevant adverts to the audience is to use machine learning algorithms, notably Convolutional Neural Networks (CNNs). The adverts can be targeted to the precise gender and age group that is most likely to comprise the audience by employing a CNN model. This method can aid in avoiding undesirable effects for both the audience and the advertising companies or product owners. The CNN algorithm can analyze enormous amounts of data, such as demographic information, to create accurate predictions about the best advertisement for a specific audience.

The model was trained several times and its test accuracy was assessed. This approach was continued until two models obtained a very high level of test accuracy. The gender model had a mean accuracy score of 91%, while the age model had a mean accuracy score of 90%. These results show that employing CNN-based algorithms for picture categorization is a better method.

**Keywords:** Advertisement, Image Processing, Convolutional Neural Network, Age Prediction, Gender Prediction,