

Kombinasi Convolutional Neural Network dengan Extreme Learning Machine untuk Prediksi Usia Berdasarkan Citra Wajah

Ismar Apuandi¹, Ema Rachmawati², Gamma Kosala³

^{1,2,3}Fakultas Informatika, Universitas Telkom, Bandung

¹ismarapuandi@students.telkomuniversity.ac.id, ²emarachmawati@telkomuniversity.ac.id,

³gammakosala@telkomuniversity.ac.id

Abstract

Age prediction based on the facial image is a task to estimate a person's age by utilizing the information or attributes contained in a facial image. Age prediction is an exciting field because its implementation can be utilized in various applications. Currently, the method that is widely used to solve problems in the case of age estimation is the Convolutional Neural Network (CNN) method. However, this technique comes with a drawback, which is the high computational cost in terms of time due to the use of the backpropagation algorithm, which impacts the length of the training process. A different approach is introduced in this study to tackle the issues with the traditional age estimation method. To address the limitations of the backpropagation method, this study employs the Extreme Learning Machine (ELM) algorithm as a fully-connected layer on two CNN architectures, ResNet50 and VGG16. The proposed method was tested using the UTKFace dataset and showed faster training times than the backpropagation method. The results also indicate that the proposed method can achieve a comparable age classification performance compared to current state-of-the-art methods.

Keywords: age prediction, convolutional neural network, extreme learning machine, *backpropagation*