

Given the advancements in technology, numerous experts are focused on creating resource-efficient detection systems for devices while maintaining high accuracy in recognizing specific objects, such as characters. This study involves the development of a system designed to accurately classify images of alphabet letters that are written in children's handwriting. The main objective is to create a robust and efficient system that can effectively recognize and classify the letters in children's handwriting, the system's classification capabilities will contribute to enhancing handwriting recognition technologies which can have various applications in educational tools, automated document processing, and other relevant domains. Convolutional Neural Network (CNN) algorithm is used as a method of making the system, where CNN can recognize letter images without using additional feature extraction algorithms. The research demonstrates that Convolutional Neural Network (CNN) achieve a high level of accuracy in handwriting classification. The results indicate that the CNN model accurately recognizes handwriting, with an impressive accuracy rate of 96% obtained from the training phase. Based on the analysis carried out, the best architectural results is obtained using the proposed scheme for 80%: 20% train validation data and learning rate of 0.001 with the accuracy result 99% obtained from the testing phase.

*Keywords:* classification, images, convolutional neural network, optimizer