Klasifikasi Tulisan Tangan Alfabet Anak Prabalita Menggunakan Metode Support Vector Machine

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Abstract
Writing is an important aspect of literacy and an important learning foundation in addition to reading for children. The main challenge is to handle the unique characteristics and writing styles that are not yet fully formed in children's handwriting. Therefore, technology is needed that can help children learn to write, especially alphabetic characters. This research aims to build a model based on machine learning for recognizing the alphabetic handwriting of pre-toddler children. This research uses the support vector machine (SVM) method and the directional element feature (DEF) feature extraction in grayscale images to effectively classify children's alphabet handwriting. In this study, four kernels in the SVM model were tested. The best results of classification using the linear kernel obtained an average accuracy of 86.33% with a cost optimization parameter of 0. In the use of the RBF kernel, the best average accuracy is 84%, with a cost optimization parameter of 50. With the polynomial kernel, the best average accuracy is 68%, with the cost optimization parameter being 10. In the sigmoid kernel, the best average accuracy is 85.67% with a cost optimization parameter of 50. As a conclusion, the SVM model has proven effective for optimizing handwriting recognition, especially in children's handwriting recognition.

Keywords: Alphabet, Classification, Directional Element Feature (DEF), Machine Learning, Support Vector Machine (SVM)