

INTISARI

PERBANDINGAN EKSTRAKSI CIRI *LOCAL BINARY PATTERN* & *HISTOGRAM OF ORIENTED GRADIENT* PADA PENGENALAN HURUF DALAM PENERJEMAHAN KATA

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Perkembangan teknologi mengalami kemajuan yang sangat pesat didalam berbagai hal. Salah satu perkembangan teknologi dewasa ini adalah *optical character recognition (OCR)* pada pengolahan citra digital. *Optical character recognition* merupakan salah satu metode yang dapat mengenali karakter huruf untuk bisa dipahami secara elektronik menggunakan perangkat lunak. Tahapan pengenalan huruf secara umum dilakukan melalui proses pengolahan citra untuk mendapatkan ciri yang membedakan masing-masing karakter. Setiap ciri yang didapatkan selanjutnya dijadikan dasar klasifikasi yang membedakan setiap karakter huruf. Tahapan ekstraksi ciri dapat dilakukan melalui pendekatan tekstur maupun histogram, namun belum diketahui pendekatan yang paling sesuai untuk melakukan pengenalan huruf.

Implementasi perbandingan metode ekstraksi ciri pada penelitian ini menggunakan dataset Chars74k dan dataset yang diakuisisi menggunakan kamera. Selanjutnya setiap citra yang digunakan untuk pelatihan ataupun pengujian akan diperbaiki melalui tahapan prapengolahan dan dilakukan ekstraksi fitur dengan membandingkan metode *local binary pattern (LBP)* dan *histogram of oriented gradient (HOG)* serta metode klasifikasi jaringan saraf tiruan *backpropagation*.

Kemampuan sistem diuji dalam hal pengenalan karakter menggunakan jaringan saraf tiruan *backpropagation* yang kemudian dilanjutkan dengan penerjemahan. Setelah penelitian dilakukan, didapatkan hasil rekognisi terbaik dengan penggunaan ekstraksi ciri HOG yang menghasilkan akurasi pengenalan data latih sebesar 93,23% serta akurasi penerjemahan terbaik sebesar 60,84%.

Kata kunci— *local binary pattern, histogram of oriented gradient, backpropagation*

ABSTRACT

COMPARISON OF FITUR EXTRACTION LOCAL BINARY PATTERN & HISTOGRAM OF ORIENTED GRADIENT IN CHARACTER RECOGNITION FOR WORD TRANSLATION

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Technological developments have progressed very rapidly in various ways. One of the technological developments today is optical character recognition (OCR) in digital image processing. Optical character recognition is one method that can recognize letter characters to be understood electronically using software. The stages of letter recognition are generally carried out through the image processing process to get the characteristics that distinguish each character. Each characteristic obtained is then used as a basis for classification that distinguishes each character of the letter. Fitur extraction can be performed based on texture or histogram, yet the best method is still can't to be undetermined.

The coparison of feature extraction is implemented using 2 kind of dataset. The first one is Chars74k and the other is character images took by using smartphone camera. Every image will be enhanced trough preprocessing and than 2 models of fitur exstraction which are LBP and HOG comparison will be implemented. Every fitur of the character images will be extracted and used as the input for neural networks backpropagation as the classifier.

As the network is trained, the ability of the system is tested in character recognition and word translation formed by recognized characters before as well. The final result of character recognition show that the second extraction method wich is HOG is better than LBP with average training image recognition 93,23% and 60,84% as the best translation result.

Keywords— *local binary pattern, histogram of oriented gradient, backpropagation*