INTISARI

IDENTIFIKASI VARIETAS BERAS MENGGUNAKAN CIRI GEOMETRI DAN *NEURAL NETWORK*

Oleh :

Wahyu Sri Mulyani

17/418671/PPA/05455

Indonesia memiliki banyak varietas pangan salah satunya adalah varietas beras. Masing-masing varietas beras memiliki ciri fisik yang dapat dikenali melalui warna, tekstur, dan bentuk. Berdasarkan ciri fisik tersebut, beras dapat diidentifikasi menggunakan pendekatan metodologi *Neural Network* diantaranya *Learning Vector Quantization* dan *Backpropagation*. Penelitian dengan menggunakan 12 fitur memiliki hasil yang belum optimal. Penelitian ini mengusulkan penambahan fitur geometri dengan algoritma *Learning Vector Quantization* dan *Backpropagation* yang digunakan secara terpisah.

Pecobaan menggunakan data 9 varietas beras yang diambil dari beberapa daerah di Yogyakarta. Akuisisi beras dilakukan menggunakan kamera Canon D700 dengan lensa kit dan perbesaran maksimum 55 mm. Pembagian data dilakukan untuk pelatihan dan pengujian serta dilakukan pembagian data sesuai dengan kualitas bentuk beras. Praproses data dilakukan sebelum ekstrasi fitur dengan proses segmentasi metode *thresholding trial and error*. Evaluasi dilakukan dengan membandingkan hasil penambahan 6 fitur geometri dan sebelum dilakukan penambahan fitur geometri.

Hasil pengujian menujukan bahwa penambahan 6 fitur geometri memberikan kenaikan nilai akurasi. Hal tersebut dibuktikan dengan algoritma *Backpropagation* menghasilkan kenaikan akurasi sebesar 0,5% dan algoritma LVQ 23,5%.

Kata Kunci : Pengolahan Citra, Varietas Beras, *Ciri Geometri, Learning Vector Quantization, Backpropagation*

ABSTRACT

IDENTIFICATION OF RICE VARIETY USING GEOMETRIC FEATURES AND NEURAL NETWORK

by :

Wahyu Sri Mulyani

17/418671/PPA/05455

Indonesia has many food varieties, one of which is rice varieties. Each rice variety has physical characteristics that can be recognized through color, texture, and shape. Based on these physical characteristics, rice can be identified using the Neural Network methodology approach including Learning Vector Quantization and Backpropagation. Research using 12 features has not optimal results. This study proposes the addition of geometry features with Learning Vector Quantization and Backpropagation algorithms that are used separately.

The trial uses data from 9 rice varieties taken from several regions in Yogyakarta. The acquisition of rice was carried out using a camera Canon D700 with a kit lens and maximum magnification, 55 mm. Data sharing is carried out for training and testing, and the training data was sharing with the quality of the rice. Preprocessing of data was carried out before feature extraction with the trial and error thresholding process of segmentation. Evaluation is done by comparing the results of the addition of 6 geometry features and before adding geometry features.

The test results show that the addition of 6 geometry features gives an increase in the value of accuracy. This is evidenced by the Backpropagation algorithm resulting in increased accuracy of 0,5% and 23,5% the result of the LVQ algorithm.

Keywords : Image Processing, Rice Varieties, Geometric Feature, Learning Vector Quantization, Backpropagation