

## ABSTRAK

### IDENTIFIKASI DAGING SAPI DAN BABI BERDASARKAN FITUR TEKSTUR CITRA DIGITAL

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Identifikasi citra daging babi dan sapi berdasarkan fitur tekstur citra digital menjadi perhatian khusus penulis oleh karena dua daging tersebut sering dipalsukan. Pengembangan metode identifikasi yang dapat diimplementasikan pada citra yang diperoleh dari peralatan kamera digital *hand phone* di bawah *visible light* yang dikategorikan sebagai *low cost technology* adalah fokus kajian dalam penelitian ini.

Penulis menawarkan metode *Minimum Overlap Probability-Backpropagation Neural Network* (MOP-BPNN) untuk klasifikasi daging babi dan sapi berdasarkan fitur citra digital. Ada empat tahapan penting dalam metode ini: praproses, seleksi fitur, pelatihan dan pengujian. Pada tahapan praproses dilakukan perubahan ukuran citra yaitu dari ukuran 1944 x 2952 piksel menjadi 194 x 259 piksel, konversi RGB ke *grayscale* dan proses filterisasi dengan menggunakan *filter* sobel. Kemudian tahapan ekstraksi, citra digital diekstrak dengan menggunakan fitur tekstur GLCM berdasarkan sudut ketetanggaan 0°. Selanjutnya untuk memperoleh fitur kunci digunakan metode seleksi fitur *Minimum Overlap Probability* (MOP). MOP menseleksi calon fitur terpilih berdasar nilai terkecil dari *overlap* pada masing-masing fitur GLCM dari dua citra digital daging babi dan sapi. Terakhir proses pelatihan dan pengujian data menggunakan *backpropagation neural network*.

Berdasarkan hasil pengujian model MOP didapat fitur terkuat adalah *autocorrelation*, *information measure of correlation 2*, *sum of square variance* dan *contrast*. Fitur terkuat dapat menaikkan akurasi klasifikasi sebesar 15,97% dibanding fitur lainnya. Model MOP-BPNN telah diuji dengan data sejumlah 152 citra digital daging yang terdiri atas: sapi, babi dan kambing. Hasil pengujian model yang dikembangkan mempunyai kinerja dengan akurasi 90,79%.

Kata Kunci : *autocorrelation*, *information measure of correlation 2*, *sum of square variance*, *contrast*, GLCM, *minimum overlap probability- backpropagation neural network*.

## **ABSTRACT**

### **IDENTIFICATION OF BEEF AND PORK BASED ON DIGITAL IMAGE TEXTURE FEATURES**

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The identification of pork and beef based on the feature of digital image texture is special concern to the author because the two flesh are often falsified. The development of identification methods that can be implemented on images obtained from digital camera equipment in hand phones under visible lights categorized as low cost technology is the focus of the study in this research.

The author offers the Minimum Overlap Probability-Backpropagation Neural Network (MOP-BPNN) method for the classification of pork and beef based on digital image features. There are four important stages in this method: pre-process, feature selection, training and testing. In the pre-process stage, resize the image from 1944 x 2952 to 194x259 pixels, RGB to grayscale conversion and filtering process using a sobel filter. Then the extract stages. Digital images is extracted by using GLCM texture feature based on neighboring angle 0°. Furthermore, to obtain the key feature used the Minimum Overlap Probability (MOP) feature selection method. MOP selects the feature candidates based on the smallest value of overlap on each digital image of pork and beef. The last process is training and testing the data using backpropagation neural network.

The result of testing on the MOP model that has been done obtained the strongest features are autocorrelation, information measure of correlation 2, sum of square variance and contrast. The strongest feature can boost classification accuracy by 15.97% over other features. The MOP-BPNN model has been tested with a total of 152 digital images consisting of beef, pork and mutton. The developed model has a performance of 90.79% accuracy.

**Keywords :** autocorrelation, information measure of correlation 2, sum of square variance, contrast, GLCM, minimum overlap probability- backpropagation neural network