ABSTRACT

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DIAGNOSIS OF BREAST CANCER USING ARTIFICIAL NEURAL NETWORK WITH BACKPROPAGATION METHOD

(xiv + 50 pages: 21 images; 12 tables; 5 appendixes)

Based on the World Health Organization (WHO), breast cancer ranks eighth which causes the largest mortality rate in the world. Based on the data from the Ministry of Health of the Republic of Indonesia, breast cancer is at second position after cervical cancer. In Indonesia, more than 80% of cases were found difficult to make treatment efforts because the cases are at an advanced stage.

Prediction of breast cancer is used artificial neural networks backpropagation method by dividing data into two parts, training 70% while testing 30% and for optimizing parameters such as the number of hidden neurons and learning rate to achieve accurate results. This study aims to provide an accurate diagnosis of breast cancer. The method for evaluating the accuracy of Backpropagation is the Confusion Matrix.

From the results of evaluating the accuracy of Backpropagation with Confusion Matrix shows that Backpropagation Neural Network produces a testing value of 94.634% and training of 99.372%.

Keywords: Cancer, Breast Cancer, Artificial Neural Network, Backpropagation, Confusion Matrix

Reference: 20

ABSTRAK

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DIAGNOSIS KANKER PAYUDARA MENGGUNAKAN JARINGAN SARAF TIRUAN DENGAN METODE *BACKPROPAGATION*

(xiv + 50 halaman: 21 gambar; 12 tabel; 5 lampiran)

Berdasarkan World Health Organization (WHO), kanker payudara menempati urutan ke-delapan yang menyebabkan angka mortalitas terbesar di dunia. Berdasarkan data Kementrian Kesehatan Republik Indonesia, kanker payudara menempati urutan kedua setelah kanker leher rahim. Di Indonesia, lebih dari 80% kasus ditemukan sulit melakukan upaya pengobatan karena kasus berada pada stadium yang lanjut.

Prediksi kanker payudara digunakan jaringan saraf tiruan metode *backpropagation* dengan membagi data menjadi dua bagian yaitu *training* sebesar 70% sedangkan *testing* 30% dan untuk optimasi parameter seperti jumlah *hidden neuron* dan *learning rate* agar mencapai hasil yang akurat. Penelitian ini bertujuan untuk memberikan hasil diagnosis yang akurat pada penyakit kanker payudara. Metode evaluasi keakuratan *backpropagation* adalah *confusion matrix*.

Dari hasil evaluasi keakuratan *backpropagation* dengan *confusion matrix* menunjukkan jaringan saraf tiruan metode *backpropagation* menghasilkan nilai *testing* sebesar 94,634% dan *training* sebesar 99,372%.

Kata Kunci: Kanker, Kanker Payudara, Jaringan Saraf Tiruan, Backpropagation, Confusion Matrix

Referensi: 20