

ABSTRAK

Rahma, Restu Aulia. 2025. Uji Performa Metode *Backpropagation Neural Network* untuk Peramalan Penjualan Komputer di SITCOMP Situbondo. Tugas Akhir. Program Sarjana. Program Studi Teknik Informatika. Universitas Muhammadiyah Jember.

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Penelitian ini bertujuan untuk menguji performa metode *Backpropagation Neural Network* (BPNN) dalam memprediksi penjualan komputer di SITCOMP Situbondo. Data yang digunakan merupakan data penjualan laptop dari bulan Januari 2020 hingga Januari 2024. Tahapan penelitian meliputi normalisasi data menggunakan metode Min-Max, perancangan arsitektur jaringan saraf tiruan, pengujian performa melalui 31 iterasi (*epoch*), serta evaluasi akurasi model menggunakan *Root Mean Squared Error* (RMSE). Proses pelatihan dilakukan menggunakan *software* RapidMiner, dengan parameter tetap pada *learning rate*, momentum, jumlah hidden layer, dan jumlah neuron. Hasil evaluasi menunjukkan bahwa nilai *Root Mean Squared Error* RMSE terendah diperoleh pada iterasi ke-28, yaitu sebesar 0,162. Nilai tersebut mengindikasikan bahwa model cukup akurat dalam memprediksi data penjualan. Dengan demikian, metode *Backpropagation Neural Network* terbukti efektif digunakan untuk peramalan penjualan komputer pada studi kasus ini.

Kata Kunci: Peramalan Penjualan, Jaringan Saraf Tiruan, *Backpropagation*, RapidMiner, *Root Mean Squared Error*, Laptop

ABSTRACT

Rahma, Restu Aulia. 2025. *Performance Test of Backpropagation Neural Network Method for Forecasting Computer Sales at SITCOMP Situbondo. Undergraduate Thesis. Undergraduate Program. Informatics Engineering Study Program. University of Muhammadiyah Jember.*

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This study aims to test the performance of the Backpropagation Neural Network (BPNN) method in predicting computer sales at SITCOMP Situbondo. The data used is laptop sales data from January 2020 to January 2024. The research stages include data normalization using the Min-Max method, artificial neural network architecture design, performance testing through 31 iterations (epochs), and model accuracy evaluation using Root Mean Squared Error (RMSE). The training process was conducted using RapidMiner software, with fixed parameters on learning rate, momentum, number of hidden layers, and number of neurons. The evaluation results show that the lowest Root Mean Squared Error RMSE value is obtained at the 28th iteration, which is 0.162. This value indicates that the model is quite accurate in predicting sales data. Thus, the Backpropagation Neural Network method is proven to be effective for computer sales forecasting in this case study.

Keywords: *Sales Forecasting, Artificial Neural Network, Backpropagation, RapidMiner, Root Mean Squared Error, Laptop*