

ABSTRAK

PERAMALAN VOLUME PENUMPANG KERETA API DI PULAU JAWA-SUMATERA DENGAN METODE JARINGAN SYARAF TIRUAN *BACKPROGATION*

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Transportasi merupakan sarana perkembangan yang penting dan strategis dalam memperlancar roda perekonomian dan kelancaran aktitivas masyarakat. Kereta api merupakan transportasi dengan multi keunggulan komparatif seperti hemat bahan bakar, energi, rendah polusi, bersifat massal, adaftif dengan tugas pokok, dan fungsi mobilisasi arus penumpang kereta api dan barang. Hal lain yang tidak kalah pentingnya akan kebutuhan kenyamanan, keamanan, dan kelancaran pengangkutan. Penelitian ini bertujuan membantu pihak PT. Kereta Api dalam meramalkan volume penumpang kereta api, sehingga PT. Kereta Api dapat melayani penumpang kereta api secara maksimal. Pada penelitian ini menggunakan metode Jaringan Syaraf Tiruan *Backpropagation* untuk meramalkan volume penumpang kereta api yang akan menggunakan jasa kereta api di pulau Jawa-Sumatera. Data *time series* volume penumpang kereta api di Sumatera-Jawa pada periode 2006-2014 digunakan untuk data masukan, *training* dan data *testing* yang akan menghasilkan bobot. Jaringan Syaraf Tiruan *Backpropagation* yang dilatih dapat meramalkan volume penumpang kereta api satu bulan ke depan. Tetapi tingkat akurasinya berbeda-beda. Persentase akurasi tertinggi adalah 91,3012% dan terendah sebesar 66,2031%. Akurasi tertinggi dengan Jaringan yang memiliki 12 lapisan masukan, 12 lapisan tersembunyi, 1 lapisan keluaran, persentase data latih 50%, nilai *learning rate* 0,5, dan *momentum* 0,8.

Kata Kunci: peramalan, *backpropagation*, penumpang, kereta api.

ABSTRACT

FORECASTING VOLUME OF PASSENGER IN JAVA-SUMATRA USING BACKPROGATION NEURAL NETWORK

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Transportation is important for development and strategic to facilitate the activity of economy and society. The train is a transportation which has multi comparative advantages such as saving of fuel, energy, low pollution, massive, adaptive with the basic tasks and has important use for mobilize passengers and goods. Another thing that isnot less important are need of comfort, security, and the smooth transport. This study aims to help the PT. Kereta Api in predicting the number of passengers, so that the passengers of PT. Kereta Api can be served optimally. This study using Backpropagation Neural Network to predict the volume of passengers who use the services of the train at the station of Java-Sumatra. Time series data of train passengers in Sumatra-Java in the period 2006-2014 is used to input the data, training and testing of data that will result in weight. Backpropagation Neural Networks which has trained can predict the number of passengers a month ahead. But it has the different levels of accuracy. The highest percentage of accuracy is 91.3012% and the lowest is 66.2031%. The highest accuracy with the Network that has 12 input layer , 12 hidden layer, one output layer, the percentage of training data 50%, the value of learning rate of 0.5, and 0.8 momentum.

Keywords: forecasting, backpropagation, train passengers.