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Employing Bayesian Artificial Neural Network for Evaluation of Cold Rolling Force

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Abstract : Neural network has been used as a predictive means of cold rolling force in this dissertation. Thus, imposed average force on rollers as a mere input and five pertaining parameters to its as a outputs are regarded. According to our study, feed-forward multilayer perceptron network has been selected. Besides, Bayesian algorithm based on the feed-forward back propagation method has been selected due to noisy data. Further, 470 out of 585 all tests were used for network learning and others (115 tests) were considered as assessment criteria. Eventually, by 30 times running the MATLAB software, mean error was obtained 3.84 percent as a criteria of network learning. As a consequence, this the mentioned error on par with other approaches such as numerical and empirical methods is acceptable admittedly.

Keywords : artificial neural network, Bayesian, cold rolling, force evaluation
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