World Academy of Science, Engineering and Technology
International Journal of Aerospace and Mechanical Engineering
Vol:8, No:06, 2014

Pattern Identification in Statistical Process Control Using Artificial Neural Networks

Authors : M. Pramila Devi, N. V. N. Indra Kiran

Abstract : Control charts, predominantly in the form of X-bar chart, are important tools in statistical process control (SPC). They are useful in determining whether a process is behaving as intended or there are some unnatural causes of variation. A process is out of control if a point falls outside the control limits or a series of point's exhibit an unnatural pattern. In this paper, a study is carried out on four training algorithms for CCPs recognition. For those algorithms optimal structure is identified and then they are studied for type I and type II errors for generalization without early stopping and with early stopping and the best one is proposed.

Keywords : control chart pattern recognition, neural network, backpropagation, generalization, early stopping
Conference Title : ICMAME 2014 : International Conference on Mechanical, Aeronautical and Manufacturing Engineering
Conference Location : New York, United States
Conference Dates : June 05-06, 2014