

## Genetic algorithm based wavelet neural network speed controller for spindle motor of DVD-ROM

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### Abstract

This paper presents *Wavelet Neural Network* (WNN) constructed of general neural network employing the wavelet function as the activation function and genetic algorithm based instance and feature selection for setting the initial values of network's parameters to design spindle motor speed controller for DVD-ROM. With the advantages of global search abilities of genetic algorithm and the ability of multiresolution analysis of wavelet theory, the wavelet neural network with genetic algorithm has much factor convergence speed and can be used for controlling the high speed motor. A wavelet neural network controller with genetic algorithm used for controlling a three-phase, nine-slot, twelve-pole spindle motor of DVD-ROM drive has been designed. The experimental results demonstrated the feasibility and effectiveness of the proposed scheme.

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**Keywords :** *Genetic algorithm, wavelet neural network, DVD-ROM.*

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