Classification and function mapping with fuzzy-neuron networks

葉怡成
Information Management
Computer Science and Informatics
icyeh@chu.edu.tw

Abstract

This paper presents a novel neural network architecture, Fuzzy-Neuron Network (FNN), and examines its efficiency and accuracy in modeling complex classification problems and function mapping problems. The architecture of Fuzzy-Neuron Network is that of a standard back-propagation neural network; however, fuzzy-neurons are added to the network. The network is examined with two classic neural network benchmark tests: two-spirals and six-ring classification problems, and one highly nonlinear function. According to those results, the fuzzy-neurons in the network provide an enhanced network architecture to significantly enhance the networks' performance.

Keyword：neural networks, back-propagation, fuzzy-neuron, two-spirals, function mapping.