

DESIGN FEED FORWARD NEURAL NETWORK FOR SOLVING SINGULARLY PERTURBED INTEGRO-DIFFREENTIAL AND INTEGRAL EQUATION

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Abstract

Recently, there has been an increasing interest in the study of singular and perturbed systems. In this paper design fast feed forward neural network to present a method to solve singularly perturbed integro-differential and integral equations. Using a multi-layer having one hidden layer with 5 hidden units(neurons) and one linear output unit the sigmoid activation of each unit is radial basis function and Levenberg - Marquardt (trainlm) training algorithm. Finally The results of numerical experiments are compared with the exact solution in illustrative examples to confirm the accuracy and efficiency of the presented scheme.

Key Words : *Singularly perturbed problems, Volterra integral equations, Volterra integro-differential equations, Feed forward neural network, Levenbrg-Marquardt training.*

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