

Editors:

S. Chen, Nikos Mastorakis, Francklin Rivas-Echeverria, Valeri Mladenov



RECENT RESEARCHES IN MULTIMEDIA SYSTEMS, SIGNAL PROCESSING, ROBOTICS, CONTROL AND MANUFACTURING TECHNOLOGY

**11th WSEAS International Conference on ROBOTICS, CONTROL
and MANUFACTURING TECHNOLOGY (ROCOM '11)**

**11th WSEAS International Conference on MULTIMEDIA SYSTEMS
& SIGNAL PROCESSING (MUSP '11)**

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Preface

This year the 111th WSEAS International Conference on ROBOTICS, CONTROL and MANUFACTURING TECHNOLOGY (ROCOM '11) and the 11th WSEAS International Conference on MULTIMEDIA SYSTEMS & SIGNAL PROCESSING (MUSP '11) were held in Venice, Italy, March 8-10, 2011. The conferences remain faithful to their original idea of providing a platform to discuss robotics materials, human-robot interfaces, space and underwater robots, telerobotics, cybernetics, hybrid systems, real-time control, human-machine systems and cybernetics, unmanned vehicles, mechatronics, adaptive filters, array signal processing, cyclostationary signal analysis, multidimensional systems, machine vision, image coding, real time system estimation, satellite signals processing etc. with participants from all over the world, both from academia and from industry.

Their success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of these conferences are published in this Book that will be indexed by ISI. Please, check it: www.worldses.org/indexes as well as in the CD-ROM Proceedings. They will be also available in the E-Library of the WSEAS. The best papers will be also promoted in many Journals for further evaluation.

Conferences such as these can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors

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Plenary Lecture 1

Design of Neural Predictor for Noise Analysis of Cooling System



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Abstract: In this study, a procedure of testing and evaluation on the noise quality of cooling system is presented. Both the experimental analysis of cooling system and the simulation analysis of noise parameters using Neural Network (NN) are implemented. An Intelligent Data Acquisition and a microphone are used to measure the system noise. Different types of NN are used to investigate the noise parameters. The results show that Radial Basis Neural Network (RBNN) gives superior performance for predicting the noise of cooling system.

The main purpose of this investigation is to obtain the robust and adaptive neural network predictor. The noise analysis of cooling system has been examined by using fourth types of artificial neural networks. The result obtained show that RBNN has superior prediction for adapting noise parameters of the cooling system. The structure of an RBNN is unusual in that the constitution of its hidden units is entirely different from that of its output units. RBNN with radial-basis function and fast convergence properties has also great possibility in real-time prediction and analyze noise.

Brief Biography of the Speaker: Prof. Yildirim was born in NEVSEHIR. Prof. Yildirim received his Dip. Eng. Degree and MSc Degree from Erciyes University, KAYSERI, TURKEY in Mechanical Engineering. He received his PhD degree from Cardiff University, UK. His research interests include: Artificial Neural Networks, System Dynamics and Control, Robot Control, Mechanical Vibrations, Vehicle Suspension Systems analysis and control, mobile robot design and trajectory control. He has authored or co-authored over 80 refereed journal and conference proceeding papers in the above areas. Prof. Yildirim has chaired sessions at several international conferences. He is a frequent paper reviewer for several journals, including Mechanism and Machine Theory, Journal of Sound and Vibration, Mechatronics and IEEE Industrial Electronics.

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