
Editorial

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1 Introduction

This special issue of *International Journal of Systems Control and Communications (IJSCC)* presents 10 original papers, which are extended versions of selected papers from the 5th International Symposium on Neural Networks (ISNN2008), September 24–28, 2008, Beijing, China. This prestigious annual conference is organised by Professor Ying Tan, Professor Jinde Cao, and Professor Wen Yu.

The contributions of this issue reflect the well known fact that ISNN traditionally covers a broad variety of techniques employed for control, time-delay and wireless systems using neural networks. Based on the recommendation of conference organisers and the reviews of conference papers, a number of authors were invited to submit an extended version of their papers to this special issue. All invited articles were thoroughly reviewed once more by at least two independent experts and finally, 10 papers were accepted for publication in this special issue.

2 Focus on this special issue

Papers were selected on the thoroughness of techniques employed rather than the basis of fundamental ideas/concepts. In this special issue the following 11 papers are included.

- 1 In the paper ‘Novel robust stability criteria for interval Cohen-Grossberg neural networks with time-varying delays’ by Xiaolin Li, a criterion expressed in terms of Linear Matrix Inequality (LMI) is proposed for Cohen-Grossberg networks with time-varying delays.
- 2 In the paper ‘Equalisation of a wireless ATM channel using a pruned recurrent neural network’ by Dong-Chul Park, a genetic-algorithm based pruning scheme is proposed for the Complex Bilinear Recurrent Neural Network (CBLRNN) and then applied to the equalisation of wireless ATM channels.
- 3 In the paper ‘Stability analysis of generalised Neural Networks with mixed time-varying delays’ by Yuanyuan Wu, Yuqiang Wu and Yonggang Chen, a global exponential stability criterion is proposed for recurrent neural nets with mixed discrete and distributed delays.

- 4 In the paper ‘Robust stability analysis for uncertain stochastic neural networks with mixed time-varying delays’ by Yonggang Chen and Tiheng Qin, a method is proposed to investigate the robust exponential stability for a class of uncertain stochastic neural networks with discrete and distributed time-varying delays.
- 5 In the paper ‘Passivity analysis of neural networks with discrete and distributed delays’ by JianXi Yang, QianKun Song and JianTing Zhou, by constructing proper Lyapunov-Krasovskii functional and employing a combination of the free-weighting matrix method and inequality technique, a new delay-dependent criterion for the passivity of the addressed neural networks is established.
- 6 In the paper ‘Exponential stability of delayed Cellular Neural Networks with large impulses’ by Li Sheng and Huizhong Yang, The problem of the exponential stability for a class of delayed cellular neural networks which are subject to large impulses is considered.
- 7 In the paper ‘An analysis of global exponential stability of neural networks with reaction-diffusion terms and distributed delays’ by Zhenjiang Zhao, Deqian Xue and Qiankun Song, a class of neural networks with reaction-diffusion terms and distributed delay is investigated.
- 8 In the paper ‘Online Controller Area Network message scheduling: analysis, implementation and applications’ by Mu-Song Chen and Hao-Wei Yen investigates an online Message Scheduling Controller (MSC), which is realised by the Radial Basis Function (RBF) network.
- 9 In the paper ‘Dynamic behaviour study of Delayed Discrete Hopfield Neural Networks’ by Run-Nian Ma, Hua-Feng Guan, Guo-Qiang Bai and Sheng-Rui Zhang, the stability of discrete Hopfield neural networks with delay is studied.
- 10 In the paper ‘Neuro-PID controller design for Networked Control Systems with non-linearity and random delays using Fisher information’ by Jianhua Zhang and Hong Wang, a novel controller is proposed for networked control systems with random delays and nonlinearity using BP neural networks and Fisher information.

The editors wish to thank Professor Ge Guo (Editor-in-Chief of IJSCC) for providing the opportunity to edit this special issue on “Analysis and Control of Time-Delay and Wireless Network Systems: Selected Papers from the 5th International Symposium on Neural Networks”. The editors wish also to thank the referees who have critically evaluated the papers within the short stipulated time. Finally, we hope the reader will share our joy and find this special issue very useful.