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## Editorial

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### Shengjun Wen

Department of Electrical and Electronic Engineering,  
Tokyo University of Agriculture and Technology,  
2-24-16 Nakacho, Koganei, Tokyo, 184-8588, Japan  
E-mail: wensj7062@gmail.com

**Biographical notes:** Shengjun Wen is a Postdoctoral Fellow of Tokyo University of Agriculture and Technology, Japan. He received his BS and MS from Zhengzhou University, China, in 2001 and 2004, and PhD from Tokyo University of Agriculture and Technology, Japan, in 2011. He is also a Lecturer at Zhongyuan University of Technology since 2004. His interest fields include distributed control system, non-linear control and networked control.

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This journal special issue addresses some new schemes and methods for systems modelling and advanced controls from a wide variety of domains. The special issue consists of selected revised and expanded articles from the 2010 International Conference on Modelling, Identification and Control (ICMIC'10) that underwent two rounds of rigorous peer-reviews before being accepted. After the journal review process, five technical contributions of high quality on systems modelling and advanced controls are accepted into this special issue. They are briefly summarised in the following paragraphs.

Shihong Miao et al. presented a paper entitled 'The application of wireless sensor network in feeder automation'. In this paper, a new feeder automation scheme is proposed. By putting up network model and fault analysis, a protection criterion is presented, which references to the adjacent switch state. Finally, to verify the efficiency of this scheme, the simulation result of wireless sensor network is given, where the delay of data transmission and packet loss rate are analysed.

The typical capacity expansion literature has focused on the expansion of equipment capacity, but ignoring the workforce aspect. On the other hand, the manpower literature has only focused on staffing decision. Therefore, 'Capacity planning strategies for an IT service firm with skilled workforce' was developed by Tian He and HongXun Jiang. This paper attempts to unify the two aspects to develop a general model which considers capacity expansion with technical equipments and skilled workforce. A genetic algorithm is applied to solve the non-linear integer programming model. The computational results show effectiveness of the model and algorithm.

In their paper entitled 'Wind speed prediction and error distribution based on rational sample organisation for Elman recursion neural networks', Junfang Li et al. presented a rational and efficient sample organisation method by using Elman recursion neural network (ERNN) for wind speed

prediction. A case study about a Chinese wind farm with historical data is given. The result shows that the prediction model and method are effective for the wind speed prediction. Furthermore, prediction error of wind speed is proved to be Weibull distribution rather than Gaussian distribution for the case.

In their paper entitled 'Simple adaptive control using neural networks with offset error reduction for an SISO magnetic levitation system', Muhammad Yasser and Ikuro Mizumoto presented the implementation of the method of SAC using neural networks with offset error reduction to control a SISO magnetic levitation system. In this paper, the role of neural networks is to compensate for constructing a linearised model so as to minimise the output error. The role of simple adaptive controller is to perform the model matching for the linear system with unknown structures. Finally, the effectiveness of this method is confirmed through experiments for the real SISO magnetic levitation system.

In their paper entitled 'Experimental research on performance of vertical-axis three-hastate wind wheel', Lei Song et al. presented a three-hastate wind wheel for vertical-axis wind turbine. Structure and parameters of the wind wheel are designed. A simplified test model is made similar to the real dimension of the wind wheel. Characteristics of the model are testified in wind tunnel tests. The experimental results show that this type of wind wheel has many advantages such as simple structure, high utilisation efficiency of wind energy, low start-up wind speed, high equipment reliability and good maintainability.

Finally, as guest editor, I would like to acknowledge the job of organisers, participants, authors, referees and sponsors for the help in the development of this conference. I believe that the five papers selected in this special issue are representative of some recent systems modelling and advanced controls.