An Efficient Self-Organizing Neural Network for Water Quality Prediction

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Abstract
Predicting water quality in the wastewater treatment process can provide a basis for water treatment plant management decisions to minimize microbial risk and optimize the treatment operation. In many practical situations, however, it is difficult to predict accurately the quality of the water in the treatment process due to a lack of knowledge of the parameters used in modeling the process, or the presence of disturbances to the system. In this seminar, I will talk about an efficient self-organizing neural network model for water quality prediction. First, I will introduce the background and significance of the wastewater treatment process. Then, I will focus on the main contributions developed by us: measurable characteristic variables selection, self-organizing model, and an intelligent integrated system. Finally, I will conclude the principal results and point out some future research directions.

About the Speaker
Dr. Honggui Han received the PhD degree in the College of Electronic and Control Engineering, Beijing University of Technology, China in 2011. He is currently an Associate Professor in the College of Electronic and Control Engineering, Beijing University of Technology, China. Since December 2013, he has been a HongKong Scholar in the Department of Mechanical and Biomedical Engineering, City University of Hong Kong, China. His current research is in the areas of intelligent modelling, control and optimization for wastewater treatment processes. He has published about 30 papers in renowned international journals including IEEE Transactions. He received the National Excellent Doctoral Dissertation Award Nomination and Beijing Nova in 2013, and the 1st Prize of Natural Science Award from the Ministry of Education, China in 2011. He is serving as an Associate Editor for the International Journal of Neural Networks.

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