Title: Applications of Computational Intelligence to Condition-Based Maintenance

Abstract: Condition-based maintenance (CBM) is known as an important tool for running a plant or factory in an optimal manner. Although developments in recent years have allowed some types of equipment to be observed by measuring simple values such as temperature, pressure etc., it is often not trivial to turn this measured data into actionable knowledge about the health of the equipment. This talk will discuss various challenges to the use of CBM and present our recent work on applying data-driven based computational intelligence technologies to CBM without the need of relying on physical domain knowledge. Experimental results obtained from a few case studies, such as robust prognostic, tool condition monitoring and automated surface inspection, will also be analyzed and discussed.
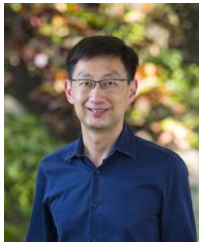
Bio: Kay Chen TAN (SM'08-F'14) received the B.Eng. (First Class Hons.) degree in electronics and electrical engineering and the Ph.D. degree from the University of Glasgow, Glasgow, U.K., in 1994 and 1997, respectively. He is a Full Professor with the Department of Computer Science, City University of Hong Kong, Hong Kong. He has published over 200 refereed articles and six books. Dr. Tan is the Editor-in-Chief of the IEEE Transactions on Evolutionary Computation, was the Editor-in-Chief of the IEEE Computational Intelligence Magazine from 2010 to 2013, and currently serves as the Editorial Board Member of over 10 journals. He is currently an elected member of IEEE CIS AdCom and a Changjiang Chair Professor in China.