

## Title

### **Information Science and Technology vs Smart Grids: *Interplay and Interaction***

## Speaker

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## Abstract

Information Science and Technology (IST) are playing a more and more important role in today's industry and society, which enable critical information needed to be acquired, processed, used and applied fast and effectively. On the other hand, Smart Grids (SGs) as a typical Cyber-Physical System represent electric networks that can intelligently integrate the actions of all users (e.g. generators and prosumers) in order to efficiently deliver sustainable, economic and secure electricity supplies. The recent fast advances in IST have provided a powerful methodology for SG to deal with demand for deeper control, increased cross connectivity, embedded generation, smart metering and using wires as carriers for information transmission. On the other hand, SGs present technical challenges that IST need to address.

In this talk, we will first discuss some recent developments in both SG and IST and then examine potential issues associated with interplay and interaction between them to bring out the best of both fields. We will also touch on potential new thinking paradigms such as Artificial Intelligence to deal with complexity arising from these systems, speculating potential methodologies inspired by the Nature as future smart technologies. A number of real-world cases, including some of our own research projects, will be used as case studies. Finally, we will lay out the potential issues and challenges for future developments.

## Biography



Professor Xinghuo Yu is an Associate Deputy Vice-Chancellor and Distinguished Professor at RMIT University (Royal Melbourne Institute of Technology), Melbourne, Australia. He chairs RMIT Professorial Academy.

He is the President of IEEE Industrial Electronics Society, and a Non-Executive Director of Oceania Cyber Security Centre Limited.

He received BEng and MEng degrees from the University of Science and Technology of China, Hefei, China, in 1982 and 1984, and PhD degree from Southeast University, Nanjing, China in 1988, respectively. He started his professional career in 1989 as a Postdoctoral Fellow with the University of Adelaide, Adelaide, Australia. In 1991, he joined Central Queensland University, Rockhampton, Australia, where, before he left in 2002, he was Chair Professor of Intelligent Systems and Associate Dean (Research) of Faculty of Informatics

& Communication. Since 2002, he has been with RMIT University, where he held various positions such as Associate Dean and Research Institute Director.

His main research areas include control systems engineering, intelligent and complex systems, and smart grids and energy systems. He received many awards and honours for his contributions, including the prestigious 2018 M. A. Sargent Medal from Engineers Australia, the 2018 Australasian AI Distinguished Research Contribution Award from the Australian Computer Society, and the 2013 Dr.-Ing. Eugene Mittelmann Achievement Award from IEEE Industrial Electronics Society. He was named a Highly Cited Researcher in Engineering by Clarivate Analytics (formerly Thomson Reuters) in 2015-2018. He is a Fellow of the IEEE, Engineers Australia, Australian Computer Society, and Australian Institute of Company Directors.