Editorial

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Biographical notes: Sy-Yen Kuo is a Distinguished Professor at the Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan and was the Chairman from 2001 to 2004. He was a Dean of the College of Electrical and Computer Engineering, National Taiwan University of Science and Technology from 2006 to 2009. He received his PhD (1987) in Computer Science from the University of Illinois at Urbana-Champaign. He is an IEEE Fellow. He has published more than 300 papers in journals and conferences, and also holds several patents. His current research interests include dependable systems, mobile computing and quantum computing.

Chang-Fa Yang received his BS Degree from National Taiwan University in 1983 and the PhD Degree from the Ohio State University, Columbus in 1992, in Electrical Engineering. From 1986 to 1992, he was a graduate research associate with the ElectroScience Laboratory. In February 1992, he joined the faculty in the Department of Electrical Engineering, National Taiwan University of Science and Technology (NTUST). He has been a full Professor since 1999 and a Director of the NTUST Wireless Communication and Electromagnetic Compatibility Research Center since 2005. His research interests include wave propagation, antenna design, and electromagnetic compatibility.

Shuo-Yan Chou is a Professor of Industrial Management and the Executive Secretary of the RFID Education and Research Center at the National Taiwan University of Science and Technology. His research interests include demand modelling, supply chain management, intelligent system modelling and application, and geometric algorithms. He is the Editor-in-Chief of the Journal of Chinese Institute of Industrial Engineers. He was a visiting scholar at Hong Kong University of Science and Technology, University of Washington (Seattle) and an Adjunct Professor at Beijing Jiaotong University. He received his PhD in Industrial and Operations Engineering from the University of Michigan in 1992.

Jiann-Liang Chen received his PhD Degree in Electrical Engineering from the National Taiwan University, Taipei, Taiwan in 1989. Since August 1997, he has been with the Department of Computer Science and Information Engineering of National Dong Hwa University, where he is a Professor and Vice Dean of the Science and Engineering College. He is joining the Department

of Electrical Engineering, National Taiwan University of Science and Technology as a full Professor now. His current research interests are in mobile computing, digital home network, telematics applications, and RFID middleware design.

With the rapid advances in radio frequency technologies, future generations of wireless networks will face the challenge of having to provide highly reliable and high-quality end-to-end performance. RFID network technology has been extensively adopted in various applications in recent years. However, electromagnetic, signal collision, security and privacy associated with RFID networks have slowed the adoption of RFID by governments and industry. Factors such as the low-cost and low resource requirements of RFID tags have further increased the difficulties faced by engineers in designing secure and accurate RFID tags, readers and systems. This study in RFID research seeks to develop novel RF techniques, information systems and security mechanisms, and address issues around the application of RFID networks.

Papers that address the various features of RFID systems – data integration, RFID-based multimedia services, industrial security, localisation architecture and surveillance system design – are included in this edition.

Xiaoyong Su, Chi-Cheng Chu, B.S. Prabhu and Rajit Gadh from the University of California, Los Angeles created an RFID data integration framework for an enterprise information system. It exploits a store-and-forward and rule-based subscription integration approach to streamline RFID data integration.

Yi-Wei Ma, Chin-Feng Lai, Chia-Cheng Hu, Ming-Chiao Chen and Yueh-Min Huang from the National Cheng Kung University, Naval Academy and National Taitung University, Taiwan, define RFID-based seamless multimedia services for a smart home, proposing an intelligent home network system that integrates Radio Frequency Identification with an Open Service Gateway Initiative to establish a video access system and household safety monitoring system.

Mario L. Ruz and Francisco Vázquez from the University of Córdoba, Spain, propose an RFID prototype, which provides industrial security features in the manufacturing environment. His is the first study of the application of the RFID technology to industrial security. It presents a design scheme for inductive coupling antennas, considering the geometry and dimensions.

Chieh-Ling Huang, Pau-Choo *Choo* (Julia) Chung and Ming-Hua Tsai from the National Cheng-Kung University and Chang Jung Christian University, Tainan, implement an RFID localisation system using dynamic range adjustment localisation. They develop an algorithm for accurately estimating the position of a moving object based on active RFID. Also, they propose a dynamic range adjustment localisation algorithm to locate a moving object that is associated with a target tag.

I-Cheng Chang, Jia-Hong Yang, Teng-Hsun Chang and Yu-Kai Kao from National Dong Hwa University, Taiwan, define an integrated surveillance system based on RFID and vision tracking techniques, which combines the advantages of vision and RFID technologies. Their experimental results demonstrate that the proposed approach effectively tracks the activities of invaders.

Finally, the editors would like to thank all of the authors for their work and appreciate deep knowledge. The selection of five papers from 13 high-quality submissions is a difficult task. Many other valuable submissions unfortunately had to be rejected because of lack of space. We are most grateful to the authors for their hard work in preparing their manuscripts and implementing the reviewers' suggestions. We would also like to thank the more than 20 reviewers who helped to review and improve the submissions.