
Guest Editorial

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Biographical notes: Kun-Ming Yu received PhD in Computer Science from the University of Texas at Dallas in 1991. From August 1993 to July 1996, he was the Head of and an Associate Professor in the Department of Information Management, Chung-Hua Polytechnic Institute. From 1996 to 2000, he was the Chair of the Department of Computer Science and Information Engineering, Chung-Hua University. He is currently the Dean of the College of Computer Science and Informatics, Chung-Hua University. His research interests include wireless networks, distributed and parallel computing, cloud computing and internet of things.

James Chang Wu Yu received the PhD in Computer Science from National Taiwan University in 1993. Currently, he is a Professor at the Department of Computer Science & Information Engineering, Chung Hua University. His current research interests include graph algorithms and wireless networks. He received best paper awards at *2008 ACM International Conference on Sensor, Ad Hoc, and Mesh Networks*, at the *9th Workshop on Wireless, Ad Hoc and Sensor Networks (WASN 2013)*, and at both 2004 and 2007 Mobile Computing Workshop. He is an Editor of *Ad Hoc & Sensor Wireless Networks: An International Journal*.

Lei Shu received PhD from National University of Ireland, Galway, Ireland, in 2010. Since October 2012, he joined Guangdong University of Petrochemical Technology, China as a full Professor. His research interests include: wireless sensor networks, multimedia communication, middleware, security and fault diagnosis. He has published over 200 papers in related conferences, journals, and books. He had been awarded the Globecom 2010 and ICC 2013 Best Paper Award. He is serving as Editor-in-Chief for *EAI Endorsed Transactions on Industrial Networks and Intelligent Systems*, and Associate Editors for a number of international journals. He is a member of IEEE, IEEE ComSoc, IEEE IES, EAI and ACM.

BikeNet is a mobile sensing system for the cyclists and uses a number of sensors embedded into a cyclist's bicycle to collect quantitative data about the cyclist's rides. Researchers need to design practical distributed and centralised algorithms and to introduce novel theoretical models or evaluation methodologies to challenge various kinds of research problems originated from BikeNet. Although there are a large number of developed network protocols for wireless sensor networks or ad hoc networks, the unique characteristics of BikeNet – such as limited bandwidth capacity, small size and high mobility – lead to considerable challenges in their design.

The special issue is intended to encourage high-quality researches in BikeNet, and push the theoretical and practical research forward for a deeper understanding in the fundamental algorithm, modelling and analysis techniques

of BikeNet. Authors are invited from different countries to submit papers presenting new research related to the theory or practice of BikeNet, including algorithms, modelling, technology and application.

Finally, we selected six papers from all submissions in this special issue. In the first paper entitled 'A wireless navigation and healthcare system for group recreational cycling', an event-based wireless navigation and healthcare system (EWS) for group recreational cycling (GRC) using an ad hoc network with multi-hop protocol to transmit data among devices is proposed. The second paper entitled 'Solving station decision problem in bicycle ad hoc networks' proposed a novel problem called Station Decision Problem for Bicycle Ad Hoc Networks. The next paper entitled 'Implementing a green bicycle alliance using a wireless sensor network' designed three modules to address

issues related to cycling activities, including green power supply, activity and health records, trajectory monitoring and group positioning and immediate safety issues. Another paper entitled ‘SOS: a secure social-aware credit-based stimulating mechanism for BikeNet’ proposed a secure social-aware credit-based stimulating mechanism for BikeNet to encourage the cooperation among nodes while resisting the malicious attacks. The next paper entitled ‘A location-based context-aware service discovery approach for cycling experience’ implemented an SOA-based service discovery and invocation framework by using the XMPP technology and the framework design is presented for bike

riding. At last, a paper entitled ‘An efficient cloud-assisted best-parking algorithm for BikeNet’ proposed an efficient best-parking algorithm for bike networks. Their mechanism efficiently offers bike users route with parking spaces nearby destination.

Each accepted paper has been reviewed by at least three reviewers. We believe that accepted papers provide a good balance of the application of algorithms, theory, technology and applications to BikeNet. Finally, we appreciate the outstanding review work performed by the reviewers of this special issue, as well as the continuous support from Professor Yuh-Shyan Chen, Editor-in-Chief of IJAHUC.