
Editorial

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Biographical notes: Jinli Cao is a Senior Lecturer in Department of Computer Science and Computer Engineering, La Trobe University, Melbourne, in Australia. She obtained a PhD degree in Computer Science from University of Southern Queensland, Australia, in 1997. She has published over 70 research papers in refereed international journals and conference proceedings such as *IEEE Trans. on Distributed and Parallel Processing*, *IEEE Trans. on Knowledge and Data Engineering*, *IEEE Trans. on Systems, Man and Cybernetics*, etc. She has been serving continually for professional research communities as a special editor of journal and conferences PC member.

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The emergence of low-energy and low-cost multimedia devices, such as microphones and cameras, has stimulated the development of Wireless Multimedia Sensor Network (WMSN), which allow applications to access to multimedia contents, e.g. still images, audio and video streams. The various requirements of multimedia objects also pose new and unique challenges on how to energy-efficiently query,

process, transfer, and store voluminous multimedia objects in-network, since most multimedia sensors are operated under limited battery power, memory and communication bandwidth.

It is our great pleasure to bring you this special issue on ‘Multimedia Data Applications in Wireless Sensor Networks’, which aims at presenting innovative and

significant researches on data and resource management, distributed storage techniques and studies of energy efficiency on problems and challenges of wireless multimedia sensor networks.

We are deeply grateful for receiving many excellent submissions to this special issue. The review and revision processes for all papers were carried out in a rigorous and thorough manner. The accepted papers fall into various important areas of WMSNs, including mobility, routing, memory management, and compression.

The first paper, 'Mobile multimedia in wireless sensor networks' by Ricardo Silva et al., merged the two important features of WSNs, mobility and multimedia, into considerations, and proposed the new research direction on mobile multimedia sensor networks. A few examples based on mobile body sensor networks are given.

In the second paper, 'Streaming multimedia over WMSNs: an online multipath routing protocol' by Samir Medjah et al., the authors proposed an online routing protocol for facilitating the multimedia streaming over wireless multimedia sensor networks. The proposed AGEM exploits the online multipath capability of the WSN to make load balancing among nodes.

In the third paper, 'Low memory image stitching and compression for WMSN using strip-based processing' by Wai Chong Chia et al., the authors studied the research problem of merging a number of images from a few cameras towards the same field-of-view in wireless multimedia sensor networks. The proposed solution takes the limited memory and computation power of vision nodes

into consideration, which requires the transmission of only one set of images separately to the intermediate node to estimate all parameters.

In the fourth paper, 'Low-memory video compression architecture using strip-based processing for implementation in wireless multimedia sensor networks' by Li Wern Chew et al., the author proposed a very low memory video compression architecture for implementation in a severely constrained hardware environment, e.g. wireless multimedia sensor networks, which employs a strip-based processing technique where a group of image sequences is partitioned into strips and each strip is encoded separately. The authors claimed that even though the proposed architecture requires a much less complex hardware implementation and its efficient memory organisation uses a lesser amount of embedded memory for processing and buffering, it can still achieve a very good compression performance.

Due to the space constraint, we can only include a limited number of papers in this special issue. We trust that the included papers can motivate readers to conduct further researches in both theoretical and practical aspects of the relevant topics.

We would like to express our gratitude to the reviewers who provided the authors with important, timely and constructive feedbacks. We thank all authors who have submitted their papers for consideration for this issue. We also thank Editor-in-Chief of the *International Journal of Sensor Networks*, Prof. Yang Xiao, for providing us this opportunity to organise this special issue.