Editorial

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Biographical notes: Takahiro Hara received his Doctoral (Engineering) from Osaka University, Japan in 2000. Currently, he is an Associate Professor of the Department of Multimedia Engineering, Osaka University. He has published more than 120 international journal and conference papers in the areas of data management, mobile computing and networking. He served and is serving as Program Chair of IEEE MDM'06, 10 and IEEE AINA'09. He served and is serving as PC Member of more than 100 international conferences. He is an IEEE Senior Member and a member of four other learned societies including ACM.

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Recently ad hoc networks and sensor networks have been designed, developed and applied in many applications such as health and cyber infrastructure monitoring, defense against chemical and biological leaks, detection of forest fire, etc. Some of these applications generate large amount of data thus, we are in a time referred as 'information explosion era' here. In the information explosion era, managing data in an environment with limitation on energy consumption, bandwidth, connectivity and frequent

disconnections, poses many challenging issues. This special issue is to address some of these challenges.

In response to the call for papers, we received 24 research papers. All these papers have gone through a strict review process and among them, five high-quality papers were selected for the publication, including two high-quality papers from The First International Workshop on Sensor Network Technologies for Information Explosion Era (SeNTIE2008).

The first paper in this special issue is 'Efficient probabilistic event stream processing with lineage and Kleene-plus' which proposes a query language to support probabilistic queries for composite event detection over probabilistic event streams. The performance evaluation clearly showed that the proposed method outperforms straight-forward query plans. The next paper is 'Towards collaborative data reduction in stream-processing systems' which consider a distributed system to disseminate high-volume event streams to many simultaneous monitoring applications over a low-bandwidth network. The paper provides a suite of heuristic algorithms that ensure data quality (specifically, granularity and timeliness) while collaboratively reduces data. The evaluation shows that group-aware stream filtering is effective in trading CPU time for data reduction when compared with self-interested filtering. The next paper is 'Replica arrangement for location dependent data in consideration of network partition in ad hoc networks'. It proposes a link-aware and density based replica arrangement (LDR) method for dynamically arrangement of replicas of location dependent data that addresses the difficulties encountered by mobile hosts in ad hoc networks when trying to access data on other hosts due to the movement of hosts, obstacles, etc. The performance evaluation showed that the LDR method performs better than other methods when the requesting host is distant from the location where the target data item is associated and the host is moving quickly. The next paper 'Cooperative caching for homogeneous wireless sensor networks' provides an effective caching strategy based on cooperation among various sensor nodes to form larger cumulative cache. In this strategy, node along with its own storage utilises storages of other nodes in a defined zone around it to realise a larger cumulative cache. Simulation results show significant improvements in performance of cooperative cache based data dissemination as compared to data disseminations where non-cooperative or no caching is used. The last paper in this special issue is 'Cognitive networking of large scale wireless systems' which proposes the concept of cognitive networking for large-scale wireless systems, which opportunistically utilises network resources including both spectrum bandwidth and radio availability.

We highly appreciate the effort of all authors in preparing and submitting papers to this special issue. We are very grateful to all reviewers for their time-consuming and meticulous work in judging the papers. We would like to thank Sudip Mishra and Inderscience for helping with the special issue.