

Special Issue on Networked Digital Technologies

Guest Editorial

In the last few years, digital technologies have emerged as a significant solution to the current issues on processing and managing heterogeneous information in the information dependent society. Digital technologies enable to solve numerous issues which can be invoked across the networks. Digital technologies perform activities from a simple application to a highly complex business and technological processes. Once a Web service is deployed, other applications (and other Web services) can discover and invoke the deployed service.

Despite the advances made in the networked digital environment, progress across the network sectors still need to be accelerated. Realizing this potential, The International Conference on Networked Digital Technologies (NDT 2012) had been organized in April 2012 to address the challenges and issues. The NDT 2012 has gathered individual researchers who are also the world's most respected authorities on network technologies.

After the completion of the NDT 2012, we have selected the top few papers based on the review scores and expected the authors to make a revision of not less than 30%. The revised submissions underwent further review and consequently the top five papers are selected. We then received the revised versions for the special issue.

This special issue from the NDT 2012 comprises five papers focused on the various aspects of Digital Technologies and its applications. Papers were selected on the basis of technical contributions rather than the deployment of other aspects. The papers are organized as follows.

Data handling activities such as data dissemination and transfer are based on well-defined protocols. These protocols have been constantly updated and modified in order to accommodate newer requirements and applications. Dalila Iabbassen and Samira Moussaoui in their paper on, “**Mobile Line Based Data Dissemination Protocol for Wireless Sensor Networks**” have proposed a Client/Server approach using Mobile Agents to aggregate data in a planar architecture of wireless sensor network.

In the next paper on “**Aggressive and Intelligent Self-defensive Network Towards a new generation of semi-autonomous Networks**”, the authors Ali Elouafiq, Ayoub Khobalatte, Wassim Benhallam, Omar Iraqi and Tajeeddine Rachidi have introduced an open-source distributed solution that aims at deploying a semi-autonomous network, which enables internal attack deception through misguidance and illusion. This network AISEN drives attackers to attack decoy machines, which clone victim machines by mimicking their personalities. The solution uses real-time dynamic high-interaction honey-pot generation, and a novel rerouting schema that is both router and network architecture independent, along with a robust troubleshooting algorithm for sophisticated attacks.

Resilience against malicious attacks in wireless sensor networks is a crucial problem. Djallel Eddine Boubiche and Azeddine Bilami in their paper on, “**A Defense Strategy against Energy Exhausting Attacks in Wireless Sensor Networks**” have surveyed different types of denial of sleep attacks and proposed a cross layer energy efficient security mechanism to protect the network from these attacks. The trials they did indicate that the proposal is energy efficient and can significantly reduce the effect of denial of sleep attacks.

Unsupervised learning has considered having impact on the performance of spoken document retrieval system. In the paper on, “**MBNSeg: A Clustering System for Segmenting Malay Spoken Broadcast News**”, the authors Zainab Ali Khalaf and Tan Tien Ping have adapted an automatic speech recognition system to reduce the transcription errors on retrieval performance. In the experimentation, they deployed latent semantic analysis to reduce the impact of synonymous words and to identify the story boundaries within the news segments.

Newer applications incorporating services with the change of context of use and satisfy all users' preferences are found to have impact on pervasive environment. In the paper on, “**Extending UML class diagram notation for the development of context-aware applications**” the authors Mohamed Salah Benselim and Hassina Seridi-Bouchelaghem have produced an UML class diagram extension for representing and modeling context because UML standard notation does not support all aspects of the context of use in an adequate manner. Based on experimental results, they proposed a new contextual model including all new stereotypes by using Star UML software modeling platform.

Hope the papers published in this special issue are incremental and would induce further research in the areas addressed. We express our thanks to the editor of **JETWI** for agreeing to this special issue on Networked Digital Technologies.

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Professor Pit Pichappan has more than 25 years of teaching and research experience in many universities across countries. He has more than 80 reviewed publications and 40 international conference papers to his credit. He is nominated to the Strategy Council of the Global Alliance Panel of the UN ICT Task Force. He is in the editorial board of 8 journals and chaired many conferences. He is nominated as the most eminent national expert to the World Summit Award, Geneva. He has been involved in many research projects and in the review process of many journals. His research interests include data mining, databases, information retrieval and web content management. Presently he is visiting at the School of Information and Electronic Engineering, Zhejiang Gongshang University, China



Dr. Saba Sarasvady from the department of information science of the Amrita University at Coimbatore, India has 40 papers to her credit. She is involved in a three research projects and served as the member of editorial board of 2 journals and 20 conferences. Her research interests include Digital Libraries, Digital Information Management in the networked environment and databases.