GUEST EDITORIAL PREFACE

Special Issue on Security and Optimization Techniques for Mobile and Multimedia Computing

Xiaofeng Chen, School of Telecommunications Engineering, Xidian University, Xi'an, China

Fatos Xhafa, Department of Languages and Informatics Systems, Technical University of Catalonia, Barcelona, Spain

Leonard Barolli, Department of Information and Communication Engineering, Fukuoka Institute of Technology, Fukuoka, Japan

Networks of today are going through a rapid evolution. Different kinds of networks with different characteristics are emerging and they are integrating in heterogeneous networks. For these reasons, there are many interconnection problems which may occur at different levels in the hardware and software design of communicating entities and communication networks. These kinds of networks need to manage an increasing usage demand, provide support for a significant number of services, guarantee their QoS, and optimize the utilization of network resources. Therefore, architectures and algorithms in these networks become very complex and it seems imperative to focus on new models and methods as well as mechanisms, which can enable the network to perform adaptive behaviours.

The research area of mobile and multimedia computing has become more important following the recent widespread of mobile ad-hoc networks, wireless sensor networks, wireless mesh networks, cellular networks and vehicular and their applications. The availability of high bandwidth 3G and 4G infrastructures and the pervasive deployment of low cost WiFi infrastructures and WiMAX to create hotspots around the world serve to accelerate the development of mobile computing toward ubiquitous computing. Optimization and security in these networks are considered very important and pose challenging problems.

In this special issue, we invited contributions from the field of optimization and secure algorithms, architectures, schemes and mecha-

nisms for mobile and multimedia computing. We accepted 6 high quality papers based on the review results and the scope of the papers.

In the first paper by Fujioka et al, the authors consider the problem for reconstructing handwriting character fonts based on the dynamic font method. The authors develop a scheme for correctly modifying the stroke order of characters by utilizing the starting point fixation method and dynamic font method. By using the theory of smoothing splines, the authors show that they can reconstruct the character fonts to natural cursive characters even when the stroke order of characters is incorrect. The authors prove the usefulness and effectiveness by experimental studies.

In the second paper by Sakamoto et al, the authors consider the router node placement problem in Wireless Messh Networks (WMNs). The objective is to find the optimal distribution of router nodes in order to provide the best network connectivity and user coverage. The authors apply their implemented WMN-SA simulation system in a realistic scenario of the distribution of mesh clients considering Itoshima City, Fukuoka Prefecture, Japan. From simulation results, they found many insights which are very important for real deployment of WMNs.

In the third paper by Sheng and Yang, the authors present an improved counter-forensic scheme which is based on parameter adjustment. The simulation results show that by using the proposed strategy and combining the chaotic theory, the scheme can erase the quantization artifacts perfectly, even when the compression factor is less than 50.

In the fourth paper by Liu et al, the authors present a local statistical information (LSI) active contour model. Assuming that the distribution of intensity belonging to each region is a Gaussian distribution with spatially varying statistical information, and by defining an energy function, they integrate the entire image domain. Then, this energy is incorporated into a variational level set formulation. Finally, by minimizing the energy functional, a curve evolution equation is obtained. The experimental results on synthetic and real images demonstrate that the proposed model can effectively segment the image with intensity inhomogeneity.

In the fifth paper by Amato et al, the authors present the modeling and designing of a scalable solution that integrates semantic techniques with Cloud and Big Data technologies to deliver context aware services in the application domain of the cultural heritage. The authors provide an original formulation of the problem and an original software architecture that fulfills both functional and not-functional requirements. The also present the technological stack and the implementation of a proof of concept.

In the sixth paper by Wen et al, the authors consider the cooperative communication systems in Fixed DF Mode. The scenario includes multiple source stations, multiple relay stations and multiple destination stations. In order to reduce the computational complexity, a relay selection scheme is proposed. The authors evaluate the proposed scheme by comparing with the exhaustive search method for different situations of the communication systems. The authors show that the proposed algorithm provides an optimal solution.

We hope that this special issue will lead to a better understanding of security and optimization techniques for mobile and multimedia computing. These works, we believe, can be of great interest for the researchers in the multimedia networking field.

As we conclude this overview, we would like to thank all authors for submitting their papers, and greatly thank many reviewers for their review work. We have special thanks to Editors-in-Chiefs of IJMCMC Dr. Ismail Khalil, Johannes Kepler University Linz, Austria and Dr. Edgar Weippl, Secure Business Austria - Security Research, Austria for giving us the possibility to organize this special issue.

Xiaofeng Chen
Fatos Xhafa
Leonard Barolli
Guest Editors
IJMCMC