

Special Issue on Ubiquitous Computing

Guest Editorial

Ubiquitous computing is an important and fast growing research area but the development of ubiquitous computing is still in its infancy, although a few ubiquitous services have been developed and deployed in our daily lives, such as mobile audio/video streaming, mobile e-learning, and remote video surveillance. This fast growing field will emerge as a new research field in near future having interaction with the outer world with the development of numerous interesting ubiquitous applications.

The main aim of this special issue was to collect original research papers that present recent advances and future directions in Ubiquitous environment from theoretical as well as practical point of view. This special issue is a collection of research papers from all aspects of this new emerging field e.g. design, implementation and future aspects as well as challenges and constraints in this field. This special issue contains a diverse collection of high-quality papers authored by eminent academicians and researchers in the field.

In the first paper, Kamal et. al. propose a Location dependent Connectivity guarantee Key management scheme for heterogeneous wireless sensor networks (LOCK) without using deployment knowledge. A pair-wise, group wise and cluster key is generated efficiently for participating nodes. LOCK provides dynamicity by two ways; one by not completely depending upon pre deployed information and other by not completely depending upon location. Scheme is proved to support largest possible network using smallest storage overhead as compared to existing key management schemes.

In the second paper, Rahat et. al. have developed a multi-user location-awareness system by following a user-centred design and evaluation approach. The authors discuss the development of the system that allows users to share informative feedback about their current geographical location. Also the proposed system can be used by various users, for example family members, relatives or a group of friends, in order to share the information related to their locations and to interact with each other.

In the next paper, Sanjay et. al., propose to get the knowledge about the software systems in software reengineering. In the proposed approach, the mapping of domain to the code using the information retrieval techniques and linguistic information, such as identifier names and comments in source code has been used. Moreover, concept of Semantic Clustering has been introduced in this paper and an algorithm has been provided to group source artifacts based on how the synonymy and polysemy is related. Based on semantic similarity automatic labeling of the program code is done after detecting the clusters, and is visually explore in 3-Dimension for discrete characterization.

In the next paper, Manpreet et al. propose resource allocation on grid using ant colony algorithm. The major objective of resource allocation in grid is effective scheduling of tasks and in turn the reduction of execution time. For efficient resource allocation an Ant colony algorithm is proposed, which is one of the heuristic algorithm suits well for the allocation and scheduling in grid environment.

In the next paper, author proposes a channel allocation algorithm for hot spot cells in wireless networks. The proposed scheme presents a new hybrid channel allocation algorithm in which the base station sends a multi-level hot-spot notification to the central pool located at Mobile Switching Station (MSC) on each channel request that cannot be satisfied locally at the base station. This notification will request more than one channel be assigned to the requesting cell, proportional to the current hot-spot level of the cell. When a call using such a borrowed channel terminates, the cell may retain the channel depending upon its current hot-spot level.

In the next paper, Meenu Kumari et. al. propose a JPEG Compression Steganography & Cryptography using Image-Adaptation Technique. Authors have designed a system that allows an average user to transfer text messages by hiding them in a digital image file using the local characteristics within an image. This paper is a combination of steganography and encryption algorithms, which provides a strong backbone for its security. The proposed system not only hides large volume of data within an image, but also limits the perceivable distortion that might occur in an image while processing it.

In the next paper, Shalini et. al. provides an exhaustive review of machine learning approaches used for Web Services discovery and frameworks developed based on these approaches. A thorough analysis of existing frameworks for semantic discovery of Web Services is also provided in this paper.

Special Thanks

Guest Editors would like to extend sincere thanks to all the people who have contributed their time and efforts in making this special issue a grand success. We are thankful to all the authors who have contributed their papers for this special issue. We are thankful to all the reviewers for providing their valuable suggestions and comments to the submitted manuscripts. We are also thankful to Editor-in-Chief, Prof. ACM Fong, for his encouragement and strong support during the preparation of this special issue.

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Dr. Neeraj Kumar Nehra is working as Assistant Professor in School of Computer Science and Engineering, Shri Mata Vaishno Devi University, Katra(India). He received his Ph.D. in CSE from Shri Mata Vaishno Devi University, Katra(India) and PDF from UK. He has more than 30 publications in reputed journals and conferences including IEEE, Springer and ACM. His research is focused on mobile computing, parallel/distributed computing, multiagent systems, service oriented computing, routing and security issues in wireless adhoc, sensor and mesh networks. He is leading the Mobile Computing and Distributed System Research Group. Prior to joining SMVDU, Katra he has worked with HEC Jagadhri and MMEC Mullana, Ambala, Haryana, India. He has delivered invited talks and lectures in various IEEE international conferences in India and abroad. He has organized various special sessions in international conferences in his area of expertise in India and abroad. He is TPC of various IEEE sponsored conferences in India and abroad. He is reviewer/ editorial board of various journals e.g. Journal of Supercomputing (Springer), International Journal of Network Security (IJNS), Journal of Emerging Trends in Web Intelligence, Journal of Advances in Information Technology, IJCA and many more. He is senior member of ACEEE and IACSIT.

Prof. Pranay Chaudhuri has been the Head of the Department of Computer Science, Mathematics and Physics, University of the West Indies. Professor Pranay Chaudhuri joined the University of the West Indies in June 2000 as Professor of Computer Science. Prior to joining the University of the West Indies, Professor Chaudhuri has held faculty positions at the Indian Institute of Technology, James Cook University of North Queensland, University of the New South Wales and Kuwait University, and is currently professor at Jaypee University of Information Technology, India. Professor Chaudhuri's research interests include Parallel and Distributed Computing, Grid Computing, Self-stabilization and Graph Theory. In these areas, he has extensively published in leading international journals and conference proceedings. He is also the author of a book entitled, Parallel Algorithms: Design and Analysis (Prentice-Hall, 1992). Professor Chaudhuri is the recipient of several international awards for his research contribution