Welcome message from the Editor-in-Chief

Phan Cong Vinh*

Faculty of Information Technology at Nguyen Tat Thanh University, 300A Nguyen Tat Thanh street, Ward 13, District 4, Ho Chi Minh City, Vietnam

On behalf of the Editorial board, we welcome you to the inaugural issue of the ICST Transactions on Context-Aware Systems and Applications. We are delighted to launch this new transactions journal after a preparatory process that has received encouraging support from the Editorial Board and from ICST/EAI.

This issue, with five papers, will serve as a reference material for researchers, scientists, professionals and students in computer science and computer engineering as well as developers and practitioners in computing and networking systems design by providing them with state-of-the-art research findings and future opportunities and trends. These papers include some recent advances in context-awareness reflected in this issue. In particular, the issue covers various aspects of context-awareness as follows:

Paper 1 by Vangalur Alagar, Mubarak Mohammad, Kaiyu Wan and Sofian Alsalman Hnaide proposes a component-based architecture for a Context-aware Framework in which context, awareness capabilities, reactions, and adaptations are formally dealt with. Two formal languages are designed to express context situations and express workflow policies, which respectively lead to a context reasoner and to enforce adaptations. With these formalisms and a component design that can be formalized, this work fulfills a formal approach to construct context-aware applications. Two case studies are explained, of which one is a proof-of-concept case study from service-oriented domain. It is fully implemented to illustrate the expressiveness of the framework design and robustness of its implementation.

Paper 2 by Thuy Ngoc Nguyen and An Te Nguyen proposes recommender systems are designed to help users alleviate the information overload problem by offering personalized recommendations. Most systems apply collaborative filtering to predict individual preferences based on opinions of likeminded people through their ratings on items. Recently, context-aware recommender systems (CARSs) are developed to offer users more suitable recommendations by exploiting additional context data such as time, location, etc. However, most CARSs use only ratings as a criterion for building communities, and ignore other available data allowing users to be grouped into communities. This paper presents a novel approach for exploiting multi-criteria communities to provide context-aware recommendations. The main idea of the proposed algorithm is that for a given context, the significance of multi-criteria communities could be different. So communities from the most suitable criteria followed by a learning phase are incorporated into the recommendation process.

Paper 3 by Luis G. Montané-Jiménez, Edgard Benítez-Guerrero and Carmen Mezura-Godoy reports that a Context-Aware Groupware System (CAGS) enables the members of a team to communicate, cooperate and coordinate their activities to achieve a common goal, by providing them tools that are aware of their current execution context and adapt accordingly. CAGS can be found in several domains such as entertainment, particularly Collaborative First-Person-Shooter (FPS) video games. In CAGS, the means of collaboration traditionally provided to users (e.g. text and audio messaging) are not necessarily adequate: for instance, in a FPS, messages can distract the gamer due to the speed of the game. This paper reports a study that, for Collaborative FPS, identifies advantages/disadvantages of current means of collaboration and social behaviors that arise when players interact face-to-face or remotely. Based on this study, a context-aware conceptual model and architecture are proposed for CAGS aimed to improve user collaboration.

*Corresponding author. Email:pcvinh@ntt.edu.vn

EAI
European Alliance
for Innovation

1

EAI Endorsed Transactions
on Context-Aware Systems and Applications
01-09 2014 | Volume 1 | Issue 1 | e1

Paper 4 by Minoru Nakayama and Naoya Takahashi reports that to determine the possibility of predicting viewer's internal states using the hidden Markov model, several features of eye movements are introduced to the model. Performance is measured using the data from a set of eye movement features recorded during recall tests which consisted of observations of three levels of task difficulty. The features are the temporal appearances of fixations and saccades, and combinations of eight viewed directions during long and short eye movements. As a result, features of long eye movements, such as saccade information, contributed to prediction accuracy. Also, this prediction accuracy is regulated by the difficulty of the task.

Paper 5 by Nguyen Kim Quoc, Vo Thanh Tu and Nguyen Thuc Hai considers that existing control mechanisms at the network nodes have a good active and very effective at each local router, but they do not still strong enough to control nonlinear and dynamical behavior of networks. Therefore, the control system requirements must be designed to be flexible to fully grasp the important status information of the variation and intelligent control methods to control network congestion in nonlinear networks. To solve this problem, the paper proposes a solution combined fuzzy reasoning with neural network control put on active queue management mechanisms at the network nodes.

For the preparation of this first issue we would like to acknowledge the work of all our Editors, reviewers and authors who have positively supported this publication initiative. We will be happy to receive from our readers any suggestions, including possible proposals for future special issues, which may contribute to further maintain the high scientific quality and relevance of this journal.

We hope you will find this first issue provoking for your research in the field of context-awareness and being useful to your future work.

About the Editor-in-Chief

Phan Cong Vinh received a PhD in computer science from London South Bank University (LSBU) in the United Kingdom, a BS in mathematics and an MS in computer science from Vietnam National University (VNU) in Ho Chi Minh City, and a BA in English from Hanoi University of Foreign Languages Studies in Vietnam. He finished his PhD dissertation with the title Formal Aspects of Dynamic Reconfigurability in Reconfigurable Computing Systems supervised by Prof. Jonathan P. Bowen at LSBU where he was affiliated with the Centre for Applied Formal Methods (CAFM) at the Institute for Computing Research (ICR). He joined research with Dr. Tomasz Janowski at the International Institute for Software Technology (IIST) in Macao SAR, China, as a fellow in 2000. At present, he is a member of Nguyen Tat Thanh University (NTTU) to take on the responsibility of an IT Faculty's Head. He has been author or co-author of many refereed contributions published in prestigious journals, conference proceedings or edited books. He is the author of a book on computing science titled "Dynamic Reconfigurability in Reconfigurable Computing Systems: Formal Aspects of Computing" (2009); editor of two titles, "Autonomic Networking-on-Chip: Bio-Inspired Specification, Development and Verification" (CRC Press, 2012) and "Formal and Practical Aspects of Autonomic Computing and Networking: Specification, Development and Verification" (IGI Global, 2011); editor of Special Issues, "Context-Awareness of Mobile Systems: Models, Algorithms and Applications" (Springer MONET, 2012 (indexed in SCIE)) and "Advances in Autonomic Computing: Formal Engineering Methods for Nature-Inspired Computing Systems" (Springer TCS, 2012). He has served on many conference program committees and has been general or technical (co)chair and (co)organizer of several international conferences such as ICCASA and ICTCC. His research interests center on all aspects of formal methods, nature of computation and communication, and applied categorical structures in computer science.