

Editorial from the Editor-in-Chief

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On behalf of the Editorial board, we welcome you to the twenty first issue of the EAI Endorsed Transactions on Context-Aware Systems and Applications. In this issue, we present four selected papers that span various aspects of context-aware systems and applications.

This issue 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 themes of context-awareness as follows:

Paper 1 by M. Leghari, L. D. Dhomeja and S. A. Memon [2] reports that a smart home is a context-aware system that adapts itself autonomously in response to context to satisfy user needs and to improve safety, security, resource use, etc. On the one hand, software autonomy serves the basic purpose of pervasive computing by reducing interaction with the users, easing the use of the system, and reducing the user distraction. On the other hand, it takes control away from the users of the applications, making users feel loss of control over their contextaware applications. The situations including applications may not behave as expected, user preferences may change over time or users may want to add new behaviors, etc, may arise and require smart home users to interact with the applications to control their behavior. This research addresses this issue and proposes an approach, which would provide a wider support of user control by exposing and manipulating (1) application parameters, (2) adaptation logic(s) thus allowing users to add new behaviors. Using this approach a complete system is developed in order to see its effectiveness; furthermore the system is tested on three different context aware

applications and a preliminary usability study is done to evaluate the system effectiveness.

Paper 2 by Hai Thanh Nguyen, Hoang Thanh Huynh, Toan Bao Tran and Hiep Xuan Huynh [3] reports that medical images are valuable sources for disease diagnosis. Besides, advancements in deep learning in recent years have been supporting disease diagnosis methods based on images to obtain numerous achievements. However, deep learning algorithms still work as a black-box so it is difficult to interpret output from these algorithms. In this study, authors propose a convolutional network architecture to classify Chest X-ray images as well as apply explanation approaches for trained models to support disease diagnosis. The proposed method provides insights in medical images to support Pneumonia diagnosis.

Paper 3 by Adisak Sangsongfa, Nopadol Am-Dee and Payung Meesad [4] presents that the objective of this research is to propose a deep learning based-prediction model for pineapple sweetness. In this research, authors use a Convolutional Neural Network (CNN) to predict sweetness of pineapples from images. The dataset contains 4,860 pineapple images for training. Based on the CNN designed it is found that the best image size is 300×300 pixels resized to 30×30 pixels. The classification accuracy of training and testing are 72.38% and 78.50%, respectively. In addition, the root mean square error values for training and testing are 0.1362 and 0.1156, respectively. When developed as a mobile application, the accuracy of the application is 80.15%, the root mean square error value is 0.0156 and the reliability is 95.00%.

Paper 4 by J.L.E.K Fendji, M.V.K. Yakam and M.D. Fendji [1] reports that the Vehicle Routing Problem consists in finding a routing plan for vehicles of identical capacity to satisfy the demands of a set of customers. Time window constraints mean that customers can only be served within a pre-defined time window. Researchers have intensively studied this problem because of its wide range of applications in logistics. In this paper, authors tackle

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the problem on an economical point of view with a focus on capital expenditure (CAPEX), where the minimization of the number of vehicles is more important than the total traveling distance. This customization finds its applications in scenarios with limited CAPEX or seasonal/temporary operations. In these cases, the CAPEX should be minimized as much as possible to reduce the overall cost of the operation, while satisfying time window constraints. Authors provide an Ant Colony Optimization-based Tabu List (ACOTL). Authors test the proposed approach on the well-known Solomons benchmarks. Authors compare experiments results to Dynamic Programming on small size instances and later to the best-known results in the literature on large size instances. ACOTL allows to reduce the number of vehicles used sometimes up to three units, compared to the best-known results, especially for instances where customers are geographically in clusters randomly distributed with vehicles of low or medium charges.

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

We hope you will find this twenty 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. He finished his PhD dissertation with the title of “Formal Aspects of Dynamic Reconfigurability in Reconfigurable Computing Systems” at LSBU where he was

affiliated with the Center for Applied Formal Methods (CAFM) at the Institute for Computing Research (ICR). At present, he is an Associate Professor of Nguyen Tat Thanh University (NTTU) to take on the responsibility of a senior research scientist. He has been author or co-author of many refereed contributions published in prestigious journals, conference proceedings or edited books. He is editor of three books titled, “Autonomic Networking-on-Chip: Bio-Inspired Specification, Development and Verification” (CRC Press, 2012), “Formal and Practical Aspects of Autonomic Computing and Networking: Specification, Development and Verification” (IGI Global, 2011) and “Nature-Inspired Networking: Theory and Applications” (CRC Press, 2018). 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 series. His research interests center on all aspects of formal methods in computing, context-awareness, nature of computation and communication, and applied categorical structures in computer science.

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