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Special Issue Editorial

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1. Introduction

This special issue of the International Journal of Distributed, Emergent and Distributed Systems contains a collection of eight extended papers from the 2018 International Symposium on Innovation in Information and Communication Technology (ISIICT).

ISIICT continues its mission as one of the leading symposia for the presentation of all aspects of ICT, and has established itself as a solid community aiming at high-quality research and offering the platform for advancing and progressing efforts in all areas related to systems, applications and innovations. The objective is to share and exchange ideas, experience, and techniques in the area of ICT and underlying topics including the Internet of Things, Computer Networks, Software Engineering, Natural Language Processing, Energy Efficiency, Cloud and Edge Computing. The conviction that we need to adopt a multidisciplinary approach to link ICT and other technical expertise has been the leitmotif of ISIICT.

The 2018 edition of ISIICT was held in Amman, Jordan. The conference program committee selected 23 regular papers spanning over numerous active and emerging topic areas to be presented at the conference and published in the conference proceedings [1]. The 8 extended papers for this special issue were selected from among all the accepted papers by the special issue guest editors Karim Djemame and Mohamed Bettaz, based on the relevance to the journal and the reviews of the symposium version of the papers. The authors were asked to revise the symposium paper for journal publication and in accordance with customary practice to add 30% new materials. The revised papers again went through the normal journal-style review process and are finally presented to the readers in the present form. We thank the journal editorial board and appreciate the willingness of the authors for the help in organising this special issue.

The eight extended papers in this special issue cover several topics including software reliability and testing, smart cities, vehicular networks and nature-inspired meta-heuristic algorithms.

In “Intelligent Evaluation of Test Suites for efficient and Reliable Software”, the authors propose a methodology for comparing concrete and executable test suites using equivalence classes, therefore contributing to the development of component-based

software. The comparison identifies potential weaknesses in the test suites and provides a mechanism to enrich them. In “Cloud-based Software Services Delivery from the Perspective of Scalability”, the authors address the issue of measurements and metrics for cloud elasticity in the context of cloud-based software services. The metrics are useful in order to support effective measurement and testing of scalability performance of the services from a technical perspective. In Cross-Project Defect Prediction using Data sampling for Class Imbalance Learning: An Empirical Study “”, the authors explore data sampling in Cross Project Defect Prediction (CPDP) which is a trending research area in software engineering. It investigates whether data sampling is effective for improving the predictive performance of the underlying model and which technique of data sampling outperforms in CPDP. In “A scalable mobile context-aware recommender system for a smart city administration”, the authors present a context-aware recommendation approach for a smart city administration with the aim to improve the administrative information sharing and the quality of service offered by adapting them to their context as well as the scalability problem. In “How things communicate? Modelling the Internet of Things (IoT) application Communication”, the authors propose a model for the Internet of Things communication considering Machine-to-Machine communication devices behaviour. The model illustrates the behaviour of Machine-to-Machine up-link communication in a network with multiple-access limited information capacity shared channels and exhibits high accuracy. In “Detecting Sybil Attacks in Vehicular Ad Hoc Networks”, the Hybrid algorithm combining footprint and privacy-preserving detection of abuses of pseudonyms (P2DAP) is proposed to detect the Sybil attacks on Vehicular Ad Hoc Networks. In “Reliability based Dynamic Multicast Group Formation Provisioning Local Adjustment Ensuring Quality of Service Globally in MANETs”, the authors investigate energy levels conservation levels in mobile nodes. A local adjustment model is proposed to preserve mobile nodes battery life by selectively filtering forwarder nodes, contemplating the neighbourhood locally in case of node failure and eliminating flooding at all levels. In “Whale Optimization Algorithm for High-dimensional Small-Instance Feature Selection”, the authors investigate feature selection which is a challenging task in machine learning. Variants of the Whale Optimization Algorithm based on different transfer functions are introduced and used as search strategies in a wrapper feature selection model.

We hope that the readers enjoy this special issue.

References

- [1] K. Djemame and M. Bettaz (Eds.). Proceedings of the 5th IEEE International Symposium on Innovation in Information and Communication Technology (ISIICT’2018), Amman, Jordan, October 2018