

Guest Editorial – Intelligent systems and their applications

Zeynep Hilal Kilimci, Serdar Solak and Süleyman Eken

Information Systems Engineering, Kocaeli University
Umuttepe Campus, Izmit 41001, Kocaeli, Turkey
{zeynep.kilimci,serdars,suleyman.eken}@kocaeli.edu.tr

International Conference on INnovations in Intelligent SysTems and Applications (INISTA) 2021 aims to bring together the researchers from the entire spectrum of the multi-disciplinary fields of intelligent systems and to establish effective means of communication between them. In particular, it focuses on all aspects of intelligent systems and the related applications, from the points of view of both theory and practice. From around three submitted papers to this particular section, two papers were selected based on the reviews. Each paper was reviewed by at least two reviewers and went through at least two rounds of reviews. The brief contributions of these papers are discussed below.

Keziban Günce Orman, “Dynamic Network Modelling with Similarity based Aggregation Algorithm”. Modeling complex systems correctly allows for the finding of hidden knowledge that cannot be explored using standard approaches. The author concentrated on two fundamentally interconnected problems of dynamic network: determining the appropriate/ideal temporal window size for dynamic network snapshots and obtaining a proper dynamic network model using this size. Experiments were realised on four simple or complex data sets by comparing proposed methodology with baseline approaches. According to experiments, compression ratios can extract more noise-free and informative networks than baseline techniques. Furthermore, the aggregation approach has reduced noise levels even further without jeopardizing the overall and critical properties of the system.

Traian Lavric, Emmanuel Bricard, Marius Preda, and Titus Zahari, “A Low-Cost AR Training System for Manual Assembly Operations”. The authors proposed a low-cost AR training system for a manual assembly process in a boiler-manufacturing factory. They discussed the design and the implementation of the proposed AR authoring tool, dedicated to shop floor experts for capturing assembly knowledge in a one-step authoring process. Further, they presented how the captured information was conveyed and consumed via AR, for training purposes by novice workers. During their long-term case study, they discovered that relying on low-cost visual assets like text, image, video, and predetermined supplementary information, rather than CAD data and animations, was the optimal compromise for addressing industrial difficulties and needs. They performed two field tests in a real-world use-case to test their hypothesis. According to the results of the first field experiment, spatially registered 2D low-cost visual assets are sufficient and effective for transferring industrial production experience to beginner workers via AR. In the second field experiment, they compared a CAD-enhanced instruction set to the original (low-cost-based) to see if there were any advantages to transmitting assembly information using non-animated, registered CAD models.

The guest editors hope that the research contributions and findings in this special section would benefit the readers in enhancing their knowledge and encouraging them to work on various aspects of areas of computer science and information systems.

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