

## Editorial

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This third issue Computer Science and Information Systems in 2022 consists of 11 regular articles and two special sections: “Real-Time Image Processing with Deep Neural Networks and Optimization Algorithms” (9 articles) and “Interactive and Innovative Technologies for Smart Education” (7 articles). We are grateful for the hard work and enthusiasm of our authors, reviewers, and guest editors, without whom the current issue and the publication of the journal itself would not have been possible.

In the first regular article, “Blockchain-based Raw Material Shipping with PoC in Hyperledger Composer,” Hemraj Saini et al. discuss the problems facing the shipping process of raw materials from providers to industry end-users via various intermediaries, and propose a framework based on Blockchain that provides integrity and tamper resistance in the shipping chain. A proof-of-concept in Hyperledger Composed is described, together with a performance evaluation.

The second regular article, “An Innovative Quality Lane Change Evaluation Scheme based on Reliable Crowd-ratings” by Konstantinos Psaraftis et al. tackles the problem of mitigating bias and malicious activity in crowdsourced data in the domain of intelligent transportation systems, when no auxiliary information is available at the individual level. The case study involves a crowdsourced database of lane change evaluations, on which the proposed algorithm is applied to negate the noisy ground truth and improve overall quality.

Ke Sun et al., in their article “COVID-19 Datasets: A Brief Overview” organise the numerous COVID-19 available three categories: time-series, knowledge base, and media-based datasets, thus assisting researchers in focusing on methodology rather than the datasets themselves. Problems pertaining to privacy and quality, as well as the potential of COVID-19 datasets are also discussed.

In “Development of Recommendation Systems Using Game Theoretic Techniques,” Evangelos Sofikitis and Christos Makris use game theory in the design of recommender systems on three levels: (1) interaction of the two aspects, query reformulation and relevance estimation, is modeled as a cooperative game where the two players have a common utility, to supply optimal recommendations, (2) three basic recommendation methods developed using the previous approach (collaborative filtering, content based filtering, and demographic filtering) are combined into hybrid systems using game-theoretic techniques, and (3) methods are combined with the use of a genetic algorithm where game theory is used for the parent selection process.

The article “Effective methods for Email Classification: Is it a Business or Personal Email?” by Milena Šošić and Jelena Graovac presents a comprehensive set of experiments has been deep-learning and classical machine-learning algorithms to differentiate between personal and official written e-mail conversations. A notable contribution of the article

is the extraction of a large number of additional lexical, conversational, expressional, emotional, and moral features, which proved to be very useful for the given task.

“Re-evaluation of the CNN-based State-of-The-Art Crowd-counting Methods with Enhancements” authored by Matija Teršek et al., compares five deep-learning-based approaches to crowd counting, reevaluates them, and presents a novel CSRNet-based approach that introduces a Bayesian crowd counting loss function and pixel modeling. The results show that models based on SFA-Net and DM-Count outperform state-of-the-art when trained and evaluated on similar data, and the proposed extended model outperforms the base model with the same backbone when trained and evaluated on significantly different data.

Matías J. Micheletto et al., in “A Novel Approach for sEMG Gesture Recognition Using Resource-Constrained Hardware Platforms” introduce a novel approach for human gesture classification using surface electromyographic sensors (sEMG) in which two different strategies are combined: (1) A technique based on autoencoders is used to perform feature extraction, and (2) Two alternative machine learning algorithms (namely J48 and K\*) are then used for the classification stage. Experimental results show that for limited computing power platforms the approach outperforms the alternative methodologies.

“Fabric-GC: A Blockchain-based Gantt Chart System for Cross-organizational Project Management” by Dun Li et al. propose Fabric-GC, a Gantt chart system based on Blockchain which facilitates secure and effective cross-organizational cooperation for project management, providing access control to multiple parties for project visualization. Experimental results show that Fabric-GC achieves stable performance in large-scale request and processing distributed environments, where the data synchronization speed of the consortium chain is several times faster than that of a public chain.

In “Efficient Generative Transfer Learning Framework for the Detection of COVID-19,” J. Bhuvana et al. address the problem of the lack of annotated COVID-19 data by using Deep Convolutional Generative Adversarial Networks (DCGAN) to generate synthetic data, and applying Densenet-201, as well as conventional machine learning approaches such as SVM, Random Forest and Convolutional Neural Network (CNN) to detect COVID-19 from X-ray images. Experiments demonstrate that the proposed transfer learning approach based on DenseNet-201 along with DCGAN based augmentation outperforms the state-of-the-art approaches like ResNet50, CNN, and VGG-16.

Silvia Ghilezan et al., in “Federating Digital Contact Tracing using Structured Overlay Networks,” present a comprehensive, yet simple, extension to the existing systems used for digital contact tracing in the COVID-19 pandemic, which enables those systems, regardless of their underlying protocol, to enhance their sets of traced contacts and improve the global fight against the pandemic during the phase of opening borders.

Finally, “Nearest Close Friend Query in Road-Social Networks” authored by Zijun Chen et al. addresses the realization of nearest close friend queries ( $k\ell$ -NCF) in geo-social networks, which aim to find the  $k$  nearest user objects from among the  $\ell$ -hop friends of the query user. Existing efforts on  $k\ell$ -NCF find the user objects in the Euclidean space, while this article studies this problem on road-social networks. Two methods are proposed, one based on Dijkstra’s algorithm, and the other on IS-Label. Experiments on real and synthetic datasets demonstrate the efficiency of the proposed methods.