Editorial

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In this second issue of Computer Science and Information Systems for 2020, we are happy to announce the impact factors of our journal, updated for 2019: the two-year IF has risen to 0.927, and the five-year IF to 0.775. We would like to thank all our productive authors, whose articles in challenging and exciting areas helped attract additional citations which led to the increased impact of our journal. We hope to continue in the same direction and that the current issue will offer our readers more interesting articles in contemporary and emerging research areas.

This issue consists of 16 regular articles. We are grateful for the hard work and enthusiasm of our authors and reviewers, without which the current issue, as well as the publication of the journal itself, would not have been possible.

In the first article, "What makes a board director better connected? Evidence from graph theory," Laleh Samarbakhsh and Boža Tasić study the relationships between network centrality measures of board directors (degree, betweenness and closeness) and external variables depicting their age, gender, and other attributes. The study revealed strong correlations between age and connectedness, in addition to offering other interesting insights into the factors influencing centrality and their mutual relationships.

Dunja Vrbaški et al. in their article "Missing Data Imputation in Cardiometabolic Risk Assessment: A Solution Based on Artificial Neural Networks," explore neural networks as a tool for imputing univariate missing laboratory data during cardiometabolic risk assessment. The proposed neural network approach is compared with other simple baseline methods. Experimental evaluation showed that neural networks outperform other algorithms for a diverse fraction of missing data and mechanisms causing their absence.

"Real-Time Tracking and Mining of Users' Actions over Social Media," by Ejub Kajan et al. presents a system called Social Miner that allows companies to make decisions about what, when, and how to respond to users' actions over social media. The system allows real-time tracking of users' actions such as raising concerns, commenting, and sharing recommendations and answering various questions, including what actions were frequently executed and why certain actions were executed more than others.

In "Land-Use Classification via Ensemble Dropout Information Discriminative Extreme Learning Machine Based on Deep Convolution Feature," Tianle Zhang et al. consider combining convolutional neural networks (CNN) and information discriminating extreme learning machines (IELM) in order to produce a dropout-based ensemble learning method to be applied to remote sensor image classification in the land-use domain. The CNN is used to learn effective and robust features, which are then forwarded to the IELM classifier, with satisfactory results.

"Study of Cardiac Arrhythmia Classification Based on Convolutional Neural Network," authored by Yonghui Dai et al. presents another application of CNNs, in this case studying feature classification of three kinds of electrocardiogram (ECG) signals, includ-

ing sinus rhythm (SR), ventricular tachycardia (VT) and ventricular fibrillation (VF). The article offers two main contributions: insight into the effects of setting different convolution layers of the CNN on arrhythmia data classification, and optimization of classification performance through use of different time periods according to the characteristics of the three kinds of ECG signals.

In "Option Predictive Clustering Trees for Multi-Target Regression," Tomaž Stepišnik et al. propose to learn option trees (decision trees that allow alternative splits) for multi-target regression (MTR) based on the predictive clustering framework – option predictive clustering trees (OPCTs) – representing a kind of "internal" decision tree ensemble. Experimental evaluation show that OPCTs achieve statistically significantly better predictive performance than a single predictive clustering tree (PCT) and are competitive with bagging and random forests of PCTs.

"A Robust Reputation System using Online Reviews" by Hyun-Kyo Oh et al. addresses the issue of bias in buyer reviews caused by intentional attacks from malicious users and conflation between a buyer's perception of seller performance and item satisfaction. The proposed approach decouple the measures of seller performance and item quality, while reducing the impact of malignant reviews.

Arafat Senturk et al., in "Fuzzy Logic and Image Compression Based Energy Efficient Application Layer Algorithm for Wireless Multimedia Sensor Networks," propose an algorithm to minimize energy consumption during image data transmission between sensor nodes in a wireless multimedia sensor network (WMSN) by ensuring the nodes use their most important source. The approach, termed energy-aware application layer algorithm based on image compression (EALAIC), makes use of the top three image compression algorithms for WMSN and decides which one is the most efficient based on three parameters: the distance between the nodes, total node number, and data transmission frequency.

"Variational Neural Decoder for Abstractive Text Summarization," authored by Huan Zhao et al. proposes a variational neural decoder text summarization model (VND) which steps away from a determined internal transformation structure of recurrent neural networks (RNNs). The model introduces a series of implicit variables by combining variational RNN and variational autoencoder, which is used to capture complex semantic representation at each step of decoding. Experimental results show that the proposed model offers significant improvement over the baseline.

In the article entitled "Adaptive E-Business Continuity Management: Evidence from the Financial Sector," Milica Labus et al. focus on business continuity management in organizations that use modern e-business technologies: the Internet, mobile computing, e-services, and virtual infrastructure. The authors define a comprehensive framework for the implementation of an adaptive e-BCM adjustable to changes in the business environment, and evaluate it within three financial organizations.

"Human Activities Recognition with a Single Writs IMU via a Variational Autoencoder and Android Deep Recurrent Neural Nets" by Edwin Valarezo Añazco et al. proposes a human activity recognition (HAR) system that is based on an autoencoder for denoising and recurrent neural network (RNN) for classification with a single inertial measurement unit (IMU) located on a dominant wrist. Experimental results demonstrate significant improvement of accuracy, achieving reliable HAR while relying only on one smart device.

The article "Production of Linked Government Datasets Using Enhanced LIRE Architecture," by Nataša Veljković et al. describes the enhanced LInked RElations (LIRE) architecture for creating relations between datasets available on open government portals. The architecture is improved to be applicable on different open government data platforms using minimal configuration at the data processing layer. Besides evaluating and describing the advantages and disadvantages of the enhanced LIRE system, the article also introduces a LINDAT indicator that reflects the percentage of linked data in the total possible number of linked data on open government data portals.

Chao Wang et al. in their article "Damaged Buildings Recognition of Post-Earthquake High-Resolution Remote Sensing images based on Feature Space and Decision Tree Optimization," propose a method for solving the task described in the title by a combination of potential building object set extraction (only) from post-earthquake data, adaptive decision tree number extraction, selection of spectrum, texture and geometric morphology features, and classification based on the optimized random forest (RF) model.

In "Multi-Agent Cooperation Q-Learning Algorithm Based on Constrained Markov Game," Yangyang Ge et al. tackle the problem of applying reinforcement learning to agents in a multi-agent environment, where agents may fall into unsafe states where it can experience difficulty in bypassing obstacles, receiving information from other agents, etc. This is achieved by adding safety constraints are added to the set of actions, and each agent, when interacting with the environment to search for optimal values, should be restricted by the safety rules, so as to obtain an optimal policy that satisfies the security requirements. A new solution is introduced for calculating the global optimum state-action function that satisfies the safety constraints.

The article "A K-means Algorithm Based on Characteristics of Density Applied to Network Intrusion Detection," by Jing Xu et al. addresses the sensitivity of the K-means clustering algorithm to the initial cluster selection by using density to choose the initial cluster seed. This is achieved through the use of the Kd-tree index structure, coupled with improved Kd-tree nearest neighbor search to prune the search space and optimize the operation for speed.

Finally, "Cognitive Computation on Consumer's Decision Making of Internet Financial Products Based on Neural Activity Data," by Hongzhi Hu et al. addresses the inherently uncertain nature of Internet financial products (possibility of capital loss and liquidity restrictions, and profit as well), by considering consumer's cognition in the decision making of Internet financial products, conducting an EEG-fNIRS experiment, and proposing an effective cognitive computation method based on neural activity data through the BP-GA algorithm.