

Editorial

Mirjana Ivanović¹, Miloš Radovanović¹, and Vladimir Kurbalija¹

University of Novi Sad, Faculty of Sciences
Novi Sad, Serbia
{mira,radacha,kurba}@dmi.uns.ac.rs

Before we introduce this fourth issue of Volume 18 of Computer Science and Information Systems, we are very glad to announce the impact factors of our journal, updated for 2020: the two-year IF rose to 1.167, and the five-year IF to 0.974. This is the first time since our journal's inception that we reached an impact factor higher than 1. This achievement certainly cannot be attributed only to the efforts of the editorial team, but all our creative authors whose high-quality articles, in emergent topics in ICT, attracted the citations needed to increase impact. Also, let us not forget the reviewers who recognized the potential of the articles and in many cases helped improve them with their diligent reviews.

This issue contains 10 regular articles and 6 articles in the “Special Section on Pattern Recognition, Optimization, Neural Computing and Applications in Smart City” guest-edited by Mu-Yen Chen, Jose de Jesus Rubio, and Arun Kumar Sangaiah.

The first regular article, “Buffer-Based Rate Adaptation Scheme for HTTP Video Streaming with Consistent Quality” by Jiwoo Park et al. presents a playback buffer model for rate adaptation and proposes a new buffer-based rate adaptation scheme for HTTP-based adaptive streaming (HAS) of video. Experimental results show that the proposed scheme achieves higher video quality than conventional algorithms and can cope with various environments without tuning of configuration parameters.

The second article, “Deep Semi-supervised Learning with Weight Map for Review Helpfulness Prediction” authored by Hua Yin et al. proposes an end-to-end deep semi-supervised learning model with weight map, which makes full use of the unlabeled reviews in the task of review helpfulness prediction. Training is divided into three stages: obtaining the base classifier, iteratively applying weight map strategy on large unlabeled reviews to obtain pseudo-labeled reviews, training on the combined reviews to obtain the re-trained classifier.

“Cooperation and Sharing of Caught Prey in Competitive Continuous Coevolution Using the Predator-Prey Domain” by Krisztián Varga and Attila Kiss presents a simulation of the predator-prey domain (with carnivores, herbivores, and plants) and continuous (not generation based) neuro-evolution to create a complex environment where two forms of competition arise: between predator and prey, but also between individuals of the same species. The simulation sheds light on questions about the importance of cooperation and sharing in such complex competitive environments.

In the article entitled “Using Honeynet Data and a Time Series to Predict the Number of Cyber Attacks,” Matej Zuzčák and Petr Bujok present multiple methods for using real-world time-series data to predict cyber-attacks on home computers, mobile devices, and servers over secure shell (SSH). It focuses on the overall prediction of attacks on the honeynet and the prediction of attacks from specific geographical regions using multiple approaches like ARIMA, SARIMA, GARCH, and Bootstrapping.

Masoud Reyhani Hamedani and Sang-Wook Kim, in “SimAndro-Plus: On Computing Similarity of Android Applications,” propose SimAndro-Plus as an improved variant of the SimAndro state-of-the-art method for computing the similarity of Android applications with regards to their functionality. The proposed method introduces two improvements: (1) it exploits two beneficial features to similarity computation that are disregarded by SimAndro, and (2) to compute the similarity of an app-pair based on strings and package name features, SimAndro-Plus considers not only the terms co-appearing in both apps, but also terms appearing in one app while missing from the other.

“Analysis of Entrepreneur Mental Model and Construction of its Portrait,” authored by Yongzhong Zhang et al. first summarizes three key factors that affect entrepreneurial mental models: prior knowledge, personality characteristics and opportunity perception. Then, methods for the construction of entrepreneur mental portraits are introduced, which include a cluster analysis method and a fuzzy comprehensive evaluation method, providing a meaningful reference for promoting innovation and entrepreneurship education and training.

Jianjun Li and Jia Liao in their article “Research on Influencing Factors of the Development of Cultural and Creative Industries Based on Grey Factor Analysis” study the influencing factors of cultural and creative industries (CCIs) using Grey Factor Analysis and 30 different indexes to empirically analyze the correlation between the influencing factors and the added value of CCIs in the city of Shanghai, highlighting the importance of technology research and development, policy and government financial support, human resources, social culture, cultural consumption environment, cultural industry basis and development status.

The article “Conversational Agent for Supporting Learners on a MOOC on Programming with Java,” by Cristina Catalán Aguirre et al. addresses an important problem in massive open online courses (MOOCs), the lack of personalized support from teachers, by evaluating JavaPAL, a voice-based conversational agent offered on edX for supporting learners on programming with Java. Agent usability, learners’ performance and interviews with users are evaluated and used to determine the helpfulness of JavaPAL.

“Assessing Learning Styles Through Eye Tracking for E-Learning Applications” by Nahumi Nugrahaningsih et al. investigates the possibility to distinguish between visual and verbal learning styles from gaze data. In an experiment involving first year students of an engineering faculty, content regarding the basics of programming was presented in both text and graphic form, and participants’ gaze data was recorded by means of an eye tracker. Results show a significant relation between gaze data and visual/verbal learning styles for an information arrangement where the same concept is presented in both graphical and text formats.

The final regular article entitled “Compensation of Degradation, Security, and Capacity of LSB Substitution Methods by a New Proposed Hybrid n-LSB Approach,” by Kemal Tütüncü and Özcan Çataltaş, proposes a new hybrid n-LSB (Least Significant Bit) eight substitution-based image steganography method in the spatial plane. The previously proposed n-LSB substitution method by the same authors is combined with the Rivest-Shamir-Adleman (RSA), RC5, and Data Encryption Standard (DES) encryption algorithms to improve the security of the steganography as judged by multiple standard criteria.