algorithms

Editorial

Special Issue "1st Online Conference on Algorithms (IOCA2021)"

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This Special Issue of *Algorithms* is dedicated to the 1st Online Conference on Algorithms (IOCA 2021), which was held completely online from 27 September to 10 October 2021. We received 49 submissions, among which 32 works were accepted for presentation at the conference.

In addition, there was a webinar with three presentations by Prof. Dr. Alberto Pinto (University of Porto, Portugal), Dr. Pietro Oliveto (University of Sheffield, United Kingdom), and Prof. Dr. Bruce Watson (Stellenbosch University, South Africa). This live session was attended by 24 scientists. There was a large interest in the conference, which resulted in 12,184 website views by 5239 unique visitors up to September 2022. Among the accepted works for the conference, there was a strong interest in the field of machine learning and deep learning. Another main focus among the submissions were problems related to graphs and networks.

At the end of the conference, the Best Paper Award was assigned to two papers, namely "Quickest Transshipment in an Integrated Network Topology" by Iswar Mani Adhikari and Tanka Nath Dhamala and "A Hybrid Deep Learning Approach for COVID-19 Diagnosis via CT and X-Ray Medical Images" by Pramodha M, Abullah Y Muaad, Benifa Bibal J.V., Hanumanthappa J., Channabasava Chola, and Mugahed A Al-antari.

After the conference, the authors of the 32 accepted presentations were invited to submit either an abstract with supplementary material or a proceedings paper of about eight pages. This resulted in a Special Issue in the new MDPI journal *Computer Science and Mathematics Forum* [1] which contains six abstracts with supplementary materials and sixteen proceedings papers. This Special Issue is also available as a printed book [2].

In addition, a Special Issue was setup for some extended versions of the papers. After a careful refereeing process, with up to four referees per paper, five works were accepted for inclusion into this Special Issue. Accordingly, we briefly discuss these works in the sequence of their appearance date.

The first paper [3] deals with linear copositive programming problems which constitute a special class of conic optimization problems. Such linear copositive problems are also closely related to semi-infinite programming and semidefinite programming. The authors continue previous investigations and present three new finite regularization algorithms that are based on alternative representations of the feasible set which have been obtained using the concept of normalized immobile indices.

The second paper [4] deals with vibration signal analysis. In particular, the authors describe key algorithms based on a spectral analysis, focused on a digital integrator, the envelope spectrum and cepstrum. Specifically, they first suggest a digital integrator in the frequency domain. This is carried out by combining a fast Fourier transform with digital filtering. In addition, a fast method for the calculation of the envelope spectra and instantaneous frequency is presented. Moreover, a visualized real-time vibration analyzer on a Raspberry-Pi-embedded system was developed and implemented. The presented fault-prognosis system was applied in a water company.

The next paper [5] deals with the development of an intelligent system to enhance the experience of video conversations using a conventional neural network and support-vector-machine-based machine learning models for the classification of the emotional

states and the attention level of the participants in a video conversation. This developed system gives an artificial-intelligence-powered analytics with optimized machine learning systems and had the goal to utilize the neural accelerator chip to enhance emotion- and attention-detection tasks.

The fourth paper [6] deals with medical imaging. The authors derive a new graphical user interface application, called MedicalSeg, for the management of medical imaging based on preprocessing and segmentation. In this way, they created a test platform for comparing segmentation approaches and generated segmented images to create ground truths usable as artificial intelligence tools for future purposes. A performance analysis was also given.

Finally, the last paper [7] presents a supervised machine learning approach to investigate the features of the relationships between the architectural form of tall buildings and their structural response to a conventional seismic load. In particular, six different classifiers are adopted to this aim. This paper shows that some of these classifiers can learn the structural behavior very well and can so help design teams to find better structural solutions.

As the Conference Chair, it is my pleasure to once more thank all authors for their interesting submissions and presentations on a broad spectrum of fields in the development of algorithms, all members of the Program Committee, and all reviewers for their timely insightful reports. My special thanks go to the members of the conference secretariat for the pleasant collaboration before, during, and after the conference. I also hope to receive many interesting submissions for future conferences of this type.

Conflicts of Interest: The author declares no conflict of interest.

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