

## Editor's Note

**T**HE International Journal of Interactive Multimedia and Artificial Intelligence – IJIMAI (ISSN 1989-1660) provides an interdisciplinary forum in which scientists and professionals can share their research results and report new advances on Artificial Intelligence (AI) tools or tools that use AI with interactive multimedia techniques.

The present volume, June volume, consists of 24 articles of diverse applications of great impact in different fields, always having as a common element the use of artificial intelligence techniques or mathematical models with an artificial intelligence base. As is logical, COVID is present in several manuscripts of this volume, always focused on the prediction and estimation of the presence of the disease. In addition to this expected presence, there are manuscripts of a semantic or syntactic analysis nature as well as works in the field of management and recommender systems. It is also worth mentioning several works in the field of video compression and signal processing. Of course, the Internet of Things and text analysis for several applications could not be missed in this volume. Finally, different manuscripts on usability and satisfaction, investments, solar panels, malware detection, video analysis, audio analysis and learning can also be found in this volume.

Volume begins with the most important topic of the present time, COVID-19. Thus, Prada et al. propose a model for mortality risk prediction whose input is the key aspect of COVID, X-ray images. Their approach is based on convolutional neural networks reinforcing learning with patient aspects such as age and gender. This results in better accuracy than previous models. Following the theme of the previous work, Khattak et al. propose an analogous prediction model based on the input of X-ray images and machine learning and deep learning models as in the previous case. In this case, a model called Multilayer Spatial Covid Convolutional Neural Network is proposed, obtaining a success rate in COVID detection of 98%, thus improving previous analogous proposals.

Switching topics, but without leaving the medical field, the volume continues with an article proposed by Singh et al. whose focus is based on feature extraction using deep learning and machine learning models for arrhythmia classification. Thus, by means of classical techniques such as SVM and LSTM, hit rates very close to 99.5% are obtained in the case of SVMs. It is interesting to analyze the statistical approach to feature extraction presented in this manuscript.

Within the same medical subject, the following article proposed by Hassan et al. presents a medical image segmentation model. Several works focus on problems of classification and estimation of certain features, but in this case, the approach is an earlier step, so that it emphasizes image segmentation, a key aspect in many applications in their early stages such as cancer characterization. Thus, in this manuscript a comparative study of the different existing techniques is carried out in order to obtain conclusions about the suitability of some models or others.

Closing the medical theme, and with a view to all potential users of AI models, García-Peñalvo et al. present the CARTIER-IA platform, which brings artificial intelligence algorithms to non-specialized personnel. One of the objectives of the platform is to provide a usable and user-friendly environment so that algorithms can be applied to image-type data, for example.

Jumping from the medical field to the management field, Gil et al. present a complete review of the capabilities of Machine Learning algorithms in project management. This manuscript has more than 150 references that show the amount of work that exists in the literature

taking advantage of the capacity of this type of models for application in project management.

The business world also includes recommender systems, as this is one of their main applications. Thus, the following manuscript presents a tool based on one of the most widely used multi-criteria decision techniques, PROMETHEE, for the development of an industrial maintenance application. The power of this work presented by Nawal et al. lies in the use of unsupervised models such as the cluster, which allow knowledge to be extracted where there is none a priori, obtaining an accuracy of 90%, a high value for the case of unsupervised models.

However, if we go into the world of software usability, what are the causes that play a crucial role? This is the question posed by Otten et al. in the following manuscript, who carry out a comparative study using two studies that shed light on the answers to this complex question, which is so important for the world of software engineering.

Linking the last two articles related to recommender systems and usability, Bobadilla et al. present a deep learning model capable of predicting fairness in recommender systems. In this work, the authors rely on an initial knowledge of the users' demographic information.

And Amazon can also be considered as a recommender system, so the following authors, Kumar et al., propose to work on this platform and propose a predictive system for Amazon product reviews. They propose a Machine Learning model able to rate products by analyzing the text of the different reviews, combining a Bayesian and SVM approach. Investment recommendations are those proposed by Martín et al. in the following manuscript, improving on the more classical approach by introducing dynamic selection mechanisms for the optimal decision rule.

One of the most popular topics at present is the sentimental analysis and emotions, so this issue could not miss a manuscript on this subject. Huddar et al. present a model based on bidirectional LSTMs and tested on contrasted datasets in the literature, improving on the most widely used current models. RNNs are presented to capture the state of the interlocutor in order to estimate his or her sentiment.

Continuing with the model presented in the previous article, the RNN, the next manuscript in this volume is presented by Dhanith et al. and propose an analogous model but in this case applied to the detection of words embedded in the web. Thus, a new method is proposed integrating Adagrad optimized Skip Gram Negative Sampling and RNN.

COVID, sentimental analysis and text analysis are presented in this volume, but Internet of Things could not be left out. Thus, Meana-Llorián et al. in their work present a model that aims to integrate Smart Objects within traditional social networks in such a way that allows the connection between people and objects through them, for example, an object can perform an action based on a post on Twitter. This is undoubtedly a new approach with a long way to go.

After the medical field, one of the most sought-after fields for Artificial Intelligence models is the field of engineering. Thus, Rezk et al. present a model based on particle swarm to solve the optimization problem in solar panels. The presented model perfectly balances the two main qualities of a social adaptative algorithm, exploration and exploitation, thus obtaining optimal results.

Within engineering, we can find the new topic of 5G. Here we find the work presented by Gupta et al. where they propose a classifier based on an architecture composed of different models such as

SVM and boosted trees. In this way, a model capable of predicting propagation loss, an important parameter in network planning, is built.

Within the family of social adaptation algorithms, such as the one presented in the previous works based on particle swarm, is the bee colony algorithm. The following manuscript proposed by Shareduwan et al. presents this model combined with RBF to demonstrate its power against classical metaheuristic models. The results obtained support the proposal put forward.

Changing to the world of software, and focusing on the mobile world, the next manuscript proposed by Dhalaria et al. presents a model for detecting malware in Android systems in order to carry out a classification process. Thus, a hybrid approach is proposed that integrates the analyzed characteristics, thus obtaining good results.

We are in the digital age of data generation and consumption, and in most cases, data is generated via video feeds. Therefore, Ebadi et al. present a new approach to video data compression, which is undoubtedly a problem within a software platform due to the high computational requirement. An iterative approach based on classical spline and least squares theories but applied within the video space is presented.

Given the topic of image-type data, what role does virtual reality play? This question is answered in the manuscript presented by Galán et al. by proposing a rigorous comparative study within virtual reality. The results show that the way images are presented influences the user's perception.

Previous manuscripts have presented approaches for the processing of video signals, but the following manuscript presented by Arronte et al. proposes the analysis of audio data. Specifically, a model based on LSTM and CNN for the classification of the motivational pattern of a song is presented. Thus, a model with an architecture that combines the two methodologies, CNN for feature extraction and LSTM for exploiting the song sequencing, is proposed.

One of the topics of the IJMAI magazine is based on learning. Thus, Tlili et al. present a smart collaborative educational game for teaching English vocabulary using learning analytics. The results presented in an experimental group versus a control group support the new model presented.

Learning is an important topic, but teamwork can be framed within it, and therefore, the following manuscript presented by Conde et al. proposes a study of the effects of individual use of Telegram on the competence of teamwork development. Therefore, the use of this communication vehicle is evaluated, using learning metrics, within a team structure, analyzing its impact with significant results.

Volume finishes with the line of education and the last manuscript presented by Cervantes-Perez et al. proposes a new approach to adaptive navigation control based on the Bayesian approach. This is a new approach as they propose to replace Bloom's taxonomy with Marzano's taxonomy.

Javier Martínez Torres  
Managing Editor  
University of Vigo