Guest editorial

Computational human performance modelling for human-in-the-Loop machine systems

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Abstract. This special issue of the Journal of Intelligent & Fuzzy Systems contains selected articles of computational human performance modelling for human-in-the-loop machine systems.

Keywords: Computational Intelligence, Human automation, cyber physical system, Artificial Intelligence, System design

1. Introduction

In many complex human-in-the-loop systems, humans often represent the greatest source of variability in overall system performance. For this reason, the field of human performance modeling has developed to describe and quantify various types of human behavior as well as provide a basis for predictions of performance under specific task circumstances. Although many forms of models have emerged in the literature, including qualitative, quantitative, mathematical and computational, the latter form has substantial utility for application in systems design and engineering as well as real-time control applications to support safety and performance.

The large-scale integration of heterogeneous IoT devices to manage and control a wide variety of sensors and settings will hugely increase the attack surface, the scope for misconfigurations, and hence unsafe or conflicting behavior of various devices and subsystems, which in turn can place the human in

unsafe and hazardous situations, both mentally and physically. It is still unclear how to design optimized relationships between people and machines in a scalable manner, how to design triggers for proactive engagement and disengagement, and how to handle the consequences of implied actions. For example, when the system misbehaves as a result of erroneous data, it is important to have real-time rules that can guarantee a fail-safe state for the human in the loop machine system. The verification of operations in a large human in the loop machine system can be very complex due to the evolving nature of human-in-the-loop networks both in terms of physical aspects and operational environment. Therefore, understanding the semantics of human machine system and the context of control behavior is critical to dispose incorrect configurations and build a proactive resilience and a reactive defense against evolving threats.

We get 316 submissions from overall the word. Thanks for the reviewers' kindly work, we accept 50 papers from all the 316 submissions. All the included contents were anonymously reviewed by experts to maintain academic excellence and integrity. We wish to thank all, including authors, reviewers, and all the

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other participants, who have directly and indirectly contributed to the release of this special issue by their engagement Now we will introduce the accepted 50 papers briefly.

Intelligent data analysis and data mining technologies are widely used in many domains and applications. In this special issue, we accept 19 papers which focused on the intelligent data analysis and data mining technologies. Article [13] studies the link prediction methods in online education and establishes appropriate models for online education. In the research, through improved analysis of traditional algorithms, an improved neural network path sorting algorithm based on path sorting method is proposed. At the same time, we use the path sorting algorithm based on random walk model and neural network-path sorting algorithm to realize the link prediction problem in the online learning knowledge base. In addition, the performance analysis of the algorithm is carried out by contrast method, and the performance comparison analysis is carried out by combining various common traditional recommendation algorithms with the research algorithm of this study. Article [15] show that the application of corpus in College English vocabulary teaching can promote students autonomous use of corpus in English vocabulary learning. The simulation experiment improves the performance of the system by choosing parameters, and the classification accuracy is more than 90%. Corpus can enable students to learn real and natural language and master natural collocation. At the same time, corpus can help students understand the semantic and pragmatic norms of words in communication and recognize the characteristics of register variants. Future research can use Map-reduce technology to accelerate the training process, save training time and test more hyperparameters. Article [17] study the learning behavior data of MOOC users to achieve analysis, clustering and prediction of user scores. At the same time, this paper attempts to apply the conclusions to the performance prediction module and hopes to find out the information that is ignored by the user during the learning process and the hidden learning rules, so that each user can be provided with personalized guidance and improve the efficiency of learning. Through comprehensive research and analysis of users, this paper assists users to form personalized learning on the basis of personalized service. Article [19] proposed the fuzzy mathematics and machine learning algorithms application in educational quality evaluation model. Machine learning method has been well applied in complex problems

such as classification, fitting, pattern recognition and so on. It can be used to realize a more comprehensive, reasonable and effective evaluation of the classroom teaching quality of university teachers. The simulation results show that the model can well express the complex relationship between the teaching quality evaluation index and the evaluation results. The theoretical values of the evaluation results are in the corresponding confidence interval, which proves that the machine learning algorithm has good reliability for different teaching quality evaluation problems.

Article [25] introduces the concept of risk into the study of urban waterlogging problems, combines advanced computer simulation methods to simulate different conditions of rainwater systems, and conducts urban waterlogging risk assessment. Because the phenomenon of urban waterlogging is vague, it is affected by a variety of factors and requires comprehensive evaluation. Therefore, the fuzzy comprehensive evaluation method is very suitable for solving the risk evaluation problem of urban waterlogging. In order to improve the scientific of drainage and waterlogging prevention planning, sponge cities should gradually establish rainwater impact assessment and waterlogging risk evaluation systems, comprehensively evaluate the current capacity of urban drainage and waterlogging prevention facilities and waterlogging risks, draw a map of urban rainwater and waterlogging risks, and determine the risk level. At the same time, delineate drainage and waterlogging prevention zones and risk management zones to provide effective technical support for the formulation of drainage and storm waterlogging prevention plans and emergency management. Article [26] introduces the basic theoretical knowledge of data mining and the application status of data mining technology in education field. Secondly, this paper establishes a student performance database and uses data mining technology to carry out in-depth mining of the established performance database. Finally, the mining results are analyzed, and the factors affecting students' academic performance are obtained. These analysis results have important reference value for the future improvement of teaching work in colleges and universities. Article [28] uses the particle swarm image recognition and deep learning technology to process the intelligent classroom video teaching image and extracts the classroom task features in real time and sends them to the teacher. In order to overcome the shortcomings of the premature convergence of the standard particle swarm

optimization algorithm, an improved strategy for multiple particle swarm optimization algorithms is proposed. In order to improve the premature problem in the search performance algorithm of PSO algorithm, this paper combines the algorithm with the useful attributes of other algorithms to improve the particle diversity in the algorithm, enhance the global search ability of the particle, and achieve effective feature extraction. The research indicates that the method proposed in this paper has certain practical effects and can provide theoretical reference for subsequent related research. Article [29] established a word stress recognition model. The model can accurately recognize the stressed syllables in the words and calculate the fundamental frequency change trajectory of the language tones using the fundamental frequency scaling function. According to this trajectory and using the time domain fundamental frequency synchronization superposition algorithm to modify the fundamental frequency parameters in the DIVA model motion instruction, the spoken language learner can master the rhythm in the spoken language. In addition, this study sets up experiments to study the effects of the model. The results show that the stress recognition model established in this paper has good reliability and stability. Article [31] studies the information cognition characteristics and operational behavior of mobile terminals and introduces the concept of legibility into the field of information presentation research. Moreover, this study carried out the classification research and feature analysis of information presentation legibility and explored the interaction between reading experience and the legibility of information presentation. In addition, this study studied the performance of the algorithm by experimental analysis. The results show that the research model has certain effects in the difficulty recognition of English text.

Article [34] makes quantitative analysis of enterprise chain risk based on SVM algorithm and mathematical fuzzy set. Support vector machine (SVM) is a machine learning method, has strong generalization ability and accuracy. By analyzing dexterity affects the normal operation of the supply chain risk factors, we use simulated annealing - mathematical fuzzy of the risk evaluation, it indicates that the model in risk assessment is applicable through empir-ical research. According to the data obtained, the simulated annealing - support vector machine evaluation model were trained and tested; the explanation on the choice of kernel function of the process of construction of the evaluation model,

the parameters of the model to determine some key problems.

Article [37] analyzes the research status and existing problems of handwritten character recognition, analyzes the model, and adopts multiple modules for automatic English recognition. In addition, the system is built on the basis of algorithms and model support, which makes fuzzy English recognition intelligent. Finally, in order to study the algorithm and model performance, the fuzzy English recognition is carried out through experiments. The research shows that the model constructed in this paper has certain recognition effect, which can be applied to practice, and can provide theoretical reference for subsequent related research. Article [39] analyzes the factors and characteristics of the main road of the system, proposes the traffic coordination control of the main road based on the delay model, and carries on the statistical simulation to the actual traffic data, develops the basic theory of the traffic coordination control which is more effective than the traditional timing control strategy. Compared with the traditional model, the algorithm considers the waiting time of the red light at the intersection. For the congested road section, it can better calculate the travel time of the vehicle, making the results more accurate and more applicable. The results of this study can provide a strong theoretical basis and prediction scheme for the traffic management and control of the road network in the target area. Article [43] decomposes data into training data and test data based on normalization and principal component extraction. Finally, this study conducted a comparative analysis of the algorithm performance analysis of this study. The research results show that the proposed algorithm has certain effects, and it meets the forecasting requirements in terms of convergence speed and prediction accuracy and can provide theoretical reference for sub-sequent related research. Article [48] analyze the maker space index system based on machine learning and intelligent interactive system. As a comprehensive innovation and entrepreneurship platform, mass innovation space has the characteristics of both existing entrepreneurship service system and knowledge innovation driven. Through the index score calculation, the related evaluation system is constructed, the final score of social support system is 61.4.Multi-factor performance evaluation system based on machine learning and artificial intelligence this paper reveals the development and change law of maker space, and provides theoretical basis for the future operation and decision-making of maker

space. Article [1] The Colorectal cancer leads to more number of death in recent years. The diagnosis of Colorectal cancer as early is safe to treat the patient. To identify and treat this type of cancer, Colonoscopy is applied commonly. The feature selection based methods are proposed which helps to choose the subset variables and to attain better prediction. An Imperialist Competitive Algorithm (ICA) is proposed which helps to select features in identification of colon cancer and its treatment. Also K-Nearest Neighbor (KNN) classifier is used to retain a minimal Euclidean distance between the feature of query vector and all the data in the nature of prototype training. Experimental results have proved that the proposed method is superior when compared to other methods in its metrics of performance. Better accuracy is achieved by the proposed method. Article [2] Objective of this study is to examine the effect of artificial intelligence, information system risk management and corporate entrepreneurship on business performance of Korean banks.

Article [3] the impact of compliance to shari'ah principles on the capital structure for Malaysian firms. Examination of impact of compliance is based on the classification by the Securities Commission of Malaysia. Given that the literature on adjustment tends to ignore non-linear models, the current study utilizes generalized Regression Neural Network (GRNNs). Article [4] the objective of the current study is to investigate the factors which limits the implementation of IoT.

Fuzzy theoretical have been widely used in image processing, we select 9 papers which focused on fuzzy theoretical based image processing. Article [11] analyze the evaluation method of sponge city potential based on neural network and fuzzy mathematical evaluation. After training, the BP neural network model can effectively evaluate the potential of the sponge city, and based on the input of special information on rain conditions, it can analyze and calculate the flood risk level. It can be seen that this network model has a high mapping capability and can be correctly classified. Therefore, it is feasible to use BP neural network to solve the real-time classification of flood risk. The sponge city potential method and underground drainage system proposed in this paper can provide a reference for promoting sponge city construction. Article [12] introduces the DNN adaptive technique based on KL divergence regularization to adapt the acoustic model. Finally, this paper uses the experimental contrast method to compare and analyze the algorithm

of this research with the traditional algorithm. The research shows that the recognition ability of the algorithm for confusing phonemes is improved than that of traditional algorithms, and this conclusion provides a powerful result for the introduction of error correction algorithms into education networks. By using the platform of autonomous learning center, students can improve their English level by completing the tasks chosen by teachers or by themselves and through training. Article [27] improves the traditional machine learning algorithm, and combines the particle optimization algorithm with the support vector machine to realize the effective recognition of the athlete's physiological state. In addition, through the experimental method combined with the contrast method, this paper compares the performance of the improved algorithm with the traditional algorithm and combines the data analysis to analyze the test results. Finally, this study analyzes the effectiveness of the proposed algorithm by example analysis. The research shows that the proposed algorithm has better performance than the traditional algorithm and has certain practical significance and can provide theoretical reference for subsequent related research. Article [30] proposes a target detection algorithm and tracking method using neural network algorithm, and applies it to the athlete training model. Based on the Alex-Net network structure, this paper designs a three-layer convolutional layer and two layers of fully connected layers. The last layer is used as the input of the SVM classifier, and the target classification result is obtained by the SVM classifier. In addition, this article adds SPP-Layer between the convolutional layer and the fully connected layer, enabling the same dimension of the Feature Map to be obtained before the fully connected layer for different sized input images. The research results show that the proposed method has certain recognition effect and can be applied to athlete training. Article [36] proposes to apply the template learning method based on spectral clustering to Action Bank, which replaces the cumbersome manual selection template step and is easy to generalize to different databases. Moreover, in view of the disadvantage of slow speed of extracting Action Bank features, this paper proposes a fast algorithm for accumulating Action Bank. In addition, this study uses the lookup table method instead of the time-consuming steps of the correlation distance calculation in template matching, which greatly accelerates the time of feature extraction. Finally, this study design experiments to analyze the performance of the algorithm. Through research, it

can be seen that the algorithm of this study can be applied to athletes' sports retrieval and has certain recognition effects.Article [41] analyze the regression prediction model of competitive sports based on SVM and artificial intelligence. Traditional statistical modeling simply compares existing data between players and compares them between data. Moreover, it is unable to formulate corresponding tactical strategies according to the situation of the opponent, and targeted training to strengthen the level of individual sports skills. By com-paring the effects of several kernel functions on the SVM modeling side, it is found that the RBF kernel function can make the SVM's prediction performance the best when dealing with the speed prediction problem. The experimental results show that this parameter optimization method can significantly improve the performance of the SVM regression machine. The prediction model based on support vector machine can effectively improve the prediction direction. Using artificial intelligence and image capture technology in sports can effectively improve the statistical efficiency and prediction effect of competition.Article [47] analyze the intelligent system design of entrepreneurship education classroom based on artificial intelligence and image feature retrieval. Pyramid pooling is used to transform any size feature map into fixed size feature vector, which is finally sent to the full connection layer for classification and regression. Experimental results show that the algorithm accelerates the convergence of the whole network and improves the detection speed. The education taught by entrepreneurial class is not only to help college students to seek a stable career, but also to help college students develop their own potential, cultivate entrepreneurial awareness, improve entrepreneurial quality and ability. Entrepreneurship education should not only stay in the design of subject courses, but should integrate entrepreneurship education with internet entrepreneurship practice. On this basis, we provide new countermeasures and suggestions for improving the quality and ability of college students in the process of entrepreneurial activities. Article [50] studies the athlete's posture recognition algorithm based on multi-sensor method and completes the whole process from data acquisition to data processing and model algorithm construction and verification. Moreover, this paper designs experiments to verify the model's recognition results for athletes, and discusses the results, and analyzes the advantages and disadvantages of the model in this experiment. In addition, this study takes basketball

action as an example to take identification analysis. The results show that the proposed method has certain practical effects and can provide theoretical reference for subsequent related research.

Deep learning is an important role in artificial intelligent techniques, there are 12 papers are focused on deep learning technologies and applications. Article [14] analyze the dynamic statistical evaluation of safety emergency management in coal enterprises based on neural network algorithms. Neural networks can form any form of topological structure through neurons, so they can directly simulate fuzzy reasoning in structure, that is to say, the equivalent structure of neural networks and fuzzy systems can be formed. This paper constructs the index system based on accident causes, and verifies the scientific rationality of the system. On this basis, according to the specific situation of coal mine emergency management, we design the evaluation criteria of coal mine emergency management capability evaluation index. Because coal mine accidents have the characteristics of complexity, variability and sudden dynamic, it is necessary to adjust and improve the accidents dynamically at any time. The model combines qualitative and quantitative indicators, and can make an overall evaluation of coal mine emergency management capability. It has the characteristics of clear results and strong fitting of simulation results. Article [20] analyze the emergency management system of urban waterlogging based on cloud computing platform and 3D visualization. Collect data through street monitoring and drones, re-analyze the collected images, and screen cities for easy waterlogging. Researchers can rely on the high-performance computing power of the system and the visualized integrated environment to achieve online monitoring and early warning of waterlogging and 3D visual display. The system can provide early warning services in the form of alarms for monitoring results that exceed the threshold, and use mobile agents to send messages to relevant personnel in a variety of ways, providing fast auxiliary decision-making services. The simulation results show that the system has high simulation accuracy and can provide fast and efficient emergency services.

Article [16] introduces the theory of fuzzy mathematics into the evaluation of higher education. By determining the set of evaluation factors and comments, the author constructs the relevant mathematical model and processes the data, thus turning the evaluation problem into the multiplication problem of the fuzzy matrix. Deep learning is a very

active branch of machine learning research in recent years. By increasing the depth and breadth of the model, i.e. increasing the number of operations from the input end to the output end and the number of channels of the model, the scale of parameters of the model is increased, so that the model has the ability to express complex functions. It is appropriate to use deep learning in teaching quality evaluation. The simulation results show that the deep learning model is very effective in dealing with data diversity and extracting complex implicit rules. It can effectively model experts' professional knowledge and experience. Deep neural network has powerful expressive ability, and can effectively extract the deep-seated laws affecting the teaching quality. It can be used as an assistant technology for the evaluation of teaching quality in Colleges. Article [18] The badminton movement speed is fast, and the movement is complicated. Therefore, it is difficult to effectively recognize the athlete's movement through the monitoring level in the competition and training, which makes it difficult for the athlete to effectively improve his skill. In order to effectively improve the training effect and the quality of the athletes, this study uses badminton as the research object, analyzes the sports characteristics research algorithm through literature review, and finds the shortcomings of traditional algorithms. At the same time, this paper combines the actual situation to improve the algorithm and combines GMM and HMM to builds the GMM-HMM model. In addition, this paper uses the Baum-Welch unsupervised learning algorithm for data processing, and based on the learning machine training, the recognition results are obtained. Finally, in order to verify the validity of the model, this study uses the mobile phone badminton action as the data foundation and performs training recognition in the model to summarize the recognition results. The research shows that the algorithm has good performance and can meet the actual needs and can be used as a reference for the subsequent related research corporal punishment theory. Article [21] analyze the enterprise site selection and R&D innovation policy based on BP neural network and GIS system. As a tool for the government to guide, encourage, support and adjust innovation activities and application of achievements, science and technology policy can provide new support for the development of innovation by improving the industrial chain and innovating the industrial structure. Moreover, the quantitative analysis of the entropy weight method and the qualitative analysis of the AHP method are combined to

analyze a number of influencing factors. Based on this, the overlay of various factors is further analyzed, and the maximum eigenvalues of the target layer and the criterion layer and the weights of each index are calculated using MATLAB tools. Therefore, according to the different characteristics of different periods and different fields, the government should formulate science and technology innovation policies to improve the specificity and applicability of the policies. Article [22] analyzes the economic and geographic perspectives, models, and algorithms of supply effectiveness through a literature review. It was found that the research area level needs to be deepened, and the shortcomings of traditional models and algorithms were also found. This article will make full use of the TOPSIS model's methodological advantages in comprehensive ranking, combine the entropy method with the TOPSIS model, and sort the evaluation objects by approaching the optimal solution, so as to more objectively evaluate the rural basic public service supply in the sample counties. Based on the data aggregation algorithm, with the help of spatial analysis methods, Gini coefficient, and Theil index to further study the spatial distribution characteristics of supply. The research shows that the method has good performance and can be used as a reference for the subsequent related research rural basic services theory. Article [24] combines BP neural network to construct an anti-dumping early warning model. In order to predict the longer-term future based on the existing database, the BP neural network should be used to predict the indicators in the existing index database, and then the predicted warning indicator system is used as the input layer to warn the future police. Moreover, this study conducts research on the performance of the algorithm based on the actual case analysis. The research shows that the algorithm has certain effects and can provide theoretical reference for subsequent related research. Article [38] proposed data evaluation and image analysis based on wavelet transform image processing technology and deep learning were used in the study. Moreover, wavelet transform was used to extract the edge, and compared with the results of several other methods for extracting edges, so as to further study and analyze the trend of carbon emissions trading. The fluctuations in the price of carbon emissions trading, the shift of state, and the period of ups and downs are affected by many random factors. Through research algorithms, we can estimate the situation, seize opportunities, and forecast the prospects. In addition, based on the research, this paper obtains

the relevant strategies for carbon emissions trading and value assessment in China. Article [40] uses the mixing model to construct the financial status index, which can model the data of different frequencies and compensate for the defects of the same frequency data modeling to some extent. Moreover, based on principal component analysis and text mining technology, this paper constructs two kinds of sentiment indexes, and studies the influence and prediction of two sentiment indexes on the closing price of stock market. In addition, in the empirical analysis, this paper establishes the GARCH model and BP neural network prediction model and predicts the closing price. Finally, this paper compares the pros and cons of predictive models and sentiment indices. The research shows that the BP neural network model established by using the lag variable of the Web text sentiment index as the input layer variable is more reliable and can be widely used in the stock market. Article [42] analyzes the shortcomings of traditional ISA neural network, combines the sports player's motion recognition requirements to improve the traditional ISA neural network, and builds a sports player motion recognition system based on the improved ISA neural network algorithm. In addition, this paper uses the network data collection method to construct the sports player action video library and takes the basketball project as an example for analysis and identifies it through feature judgment. Finally, this paper builds experiments to perform model performance analysis. The research shows that the recognition rate of basketball action is greatly improved compared with the traditional algorithm model, the results verify that the improved ISA deep network proposed in this paper has significant effectiveness in the field of human behavior recognition research. Article [44] analyzes the employee incentive in supply chain network based on asymmetric information game analysis and fuzzy model. Through the correction of network weight and threshold value, the error function decreases along the gradient direction. The construction and training of the network can be realized by MATLAB. The new function in the software is used to construct the network, and the train function is used to train. This evaluation index system is a multi-level target evaluation system based on asymmetric information game, and its basic principle is to simplify complex problems. Long term effort is bigger when the salesperson's risk averse parameter is more than a certain value or risk averse parameter is less but discount factor is more than a threshold; short term effort is bigger when risk averse parameter and discount fac-

tor is both less. For both information scenarios, the compensation contracts are designed and comparison analyses are conducted. Article [46] analyze the risk assessment of logistics finance enterprises based on BP neural network and fuzzy mathematical model. For logistics companies, it is necessary to determine the ability of logistics companies to engage in logistics finance business, and then to make detailed and accurate grasp of relevant information. The difference between the actual output and the expected output of the training sample is small, so the fitting is completed well, and the parameters of the neural network are further adjusted. The results show that the model has a good ability of learning nonlinear function relations. To sum up, in order to reduce logistics financial risks, we must fully understand the factors that affect logistics financial risks, determine the proportion of risk factors, and then use the fuzzy evaluation method to analyze the financial business risks. Article [5] analyzes the explore one such possible operator using odd and even point (OEP) crossover. The resultant hybrid GA namely OEP crossover based Tabu GA has two tuning factors namely tenure period and OEP crossover probability The tenure period may be a single entity or a group of entities. Article [6] study is to examine the role of artificial intelligence learning to promote entrepreneurship performance with the help of entrepreneurial orientation and strategic entrepreneurship. Moreover, the moderating role of government funding and attitude towards entrepreneurship is also examined.

The application of fuzzy data and interactive system in other fields is also very common, we select 10 papers which focused on fuzzy theoretical application. Article [32] takes rural basic public services as the research object, and analyzes the economic and geographic perspectives, models, and algorithms of supply effectiveness through a literature review. It was found that the research area level needs to be deepened, and the shortcomings of traditional models and algorithms were also found. This article will make full use of the TOPSIS model's methodological advantages in comprehensive ranking, combine the entropy method with the TOPSIS model, and sort the evaluation objects by approaching the optimal solution, so as to more objectively evaluate the rural basic public service supply in the sample counties. Based on the data aggregation algorithm, with the help of spatial analysis methods, Gini coefficient, and Theil index to further study the spatial distribution characteristics of supply. The research shows that the method has good performance and can be

used as a reference for the subsequent related research rural basic services theory. Article [23] analyze the economic function data and entrepreneurship analysis based on machine learning. The support vector pair is very sensitive to the choice of parameters, and the parameters obtained using the genetic algorithm will greatly improve the accuracy of the model prediction. When using the genetic algorithm to find parameters, the cv method is used for verification. By applying big data technologies and platforms, it can provide strong data support to establish entrepreneurship education; integrate and integrate various types of innovation and entrepreneurship data, improve the quality of data collection. At the same time, through big data mining and analysis, accurately determine market demand hotspots and innovate on and entrepreneurship trends, and promote scientific planning of innovation and entrepreneurship strategies. The research results show that this research model can be applied to actual projects in the future, and help investors better understand the changes of market economy. Article [33] applied the advantages of cloud computing to the development and implementation of entrepreneurship education online education platforms. In terms of curriculum setting, colleges and universities should add and improve sustainable entrepreneurship courses. Education departments should optimize the curriculum system of entrepreneurship education, improve the structure of students' entrepreneurship knowledge, and take corresponding measures to achieve the positive development of sustainable entrepreneurship education. At the same time, the overall architecture, functional modules and details of the cloud-based online education platform were further explored, which provides a more complete theoretical basis for the research and design of the platform. Through comparative experiments, the research shows that the proposed algorithm has certain effects. Article [35] analyze the central urban open space system and green economy planning based on spatial clustering algorithms and ahp model. The results shows that the difference on green open space is much more easily becoming bigger in fast urbanization. This is also the key to improve the quality of regional urban open space at present. By analyzing the spatial pattern of urban open space system at different times by ArcGIS. We found that, in the late period of rapid urbanization, spatial differentiation is more obvious. Under the guidance of landscape, the research on the integration strategy of the open space in the compact urban center will help to establish the integration sys-

tem of the open space in the compact urban center and enrich the dimension of urban landscape design. At the same time, this research realizes the intensive utilization of the space in the urban center. Article [45] combines machine learning algorithms to analyze the pressure source of athletes' stadium. In terms of data collection, it is mainly obtained through questionnaire survey and interview form, and it is used as experimental data after passing the test. In order to improve the performance of the algorithm, this paper combines the known K-Means algorithm with the layering algorithm to form a new improved layered K-Means algorithm. At the same time, this paper analyzes the performance of the improved hierarchical K-Means algorithm through experimental comparison and compares the clustering results. In addition, the analysis system corresponding to the algorithm is constructed based on the actual situation, the algorithm is applied to practice, and the user preference model is constructed. Finally, this article helps athletes find stressors and find ways to reduce stressors through personalized recommendations. The research shows that the algorithm of this study is reliable and has certain practical effects and can provide theoretical reference for subsequent related research. Article [49] proposed Image hashing technology can convert image data of arbitrary resolution into a binary code sequence of tens or hundreds of bits through a hash function. In view of this, based on the image content characteristics, this study improved the traditional hash function and proposed a hash method based on bilateral random projection. At the same time, the projection vectors are acquired in the low-rank sparse decomposition process of the image data matrix, and the projection vectors are group orthogonalized. In addition, this study designed contrast test to carry out research and analysis on the effectiveness of the algorithm. The results show that the proposed algorithm works well and can be applied to practice and can provide theoretical reference for subsequent related research. Article [7] This article investigates the VGRF signals (left and right) semblance nature among PD patients and control subjects as a function of time and possibility of reconstructing dual tasking VGRF signal from normal walking VGRF signals using radial basis function (RBF) based artificial intelligence. Article [8] presents an approach for interference measurement and interference mitigation in point to point network. The nodes are distributed in the network and interference is measured by grouping the nodes in the region of a specific diameter. Article [9] is to

examine the economic impact of AI adoption in the region of ASEAN. To achieve this objective, structural questionnaire was developed for the various industry experts in targeted region. Article [10] focus on high degree of autonomy, which is a must for social robots and autonomous exploration and unknown environments is used along with proper algorithm so that robot can adapt to unknown environments.

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