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Abstract

Applied computing utilizes aspects of computer science to solve problems in several disciplines, including business, politics, education, and the environment. Occupied in this field, it will likely use a range of programming, graphic applications, networking, software engineering and operating systems management skills to collect, analyze, store, and deliver information that will help resolve issues for individuals, companies, and groups. Applied computing is the study of both applied computer science and theoretical. Thought the intersection of information technology, computer science, and business, applied computing focuses on technical computing concepts and the occurrence of skills in organizational leadership and business strategy. It can be classified the applied computing skills and knowledge into (Current programming languages and technology, Software engineering, IT security, Mobile technology, Networking, Operating system management, Graphic applications, Data integration, Distributed systems, Communication, Critical thinking, analysis, and problem-solving, Project management). Feasibly the most defining characteristic of applied computing is the ability to assume critically about how to best use their technical skills to problem solve and make a positive impact on the organization. This special issue of Baghdad Science Journal on applied computing provides an overview of applied computing for Current programming languages and technology, Software engineering, IT security, Mobile technology, Networking, by publishing articles on recent research concepts.

Keywords: artificial intellgent, Data Mining, CNN, ConvFM, PSO algorithm.

Introduction

Nowadays, people's expression on the Internet is no longer limited to text, especially with the rise of the short video boom, leading to the emergence of a large number of modal data such as text, pictures, audio, and video. Compared to single mode data, the multi-modal data always contains massive information. The mining process of multi-modal information can help computers to better understand human emotional characteristics. However, because the multi-modal data show obvious dynamic time series features, it is necessary to solve the dynamic correlation problem within a single mode and between different modes in the same application scene during the fusion process. To solve this problem, in this paper, a feature extraction framework of the three-dimensional dynamic expansion is established based on the common multi-modal data, for example video , sound ,text.Based on the framework, a multi-modal fusion-matched framework based on spatial and temporal feature enhancement, respectively to solve the dynamic correlation within and between modes, and then

model the short and long term dynamic correlation information between different modes based on the proposed framework. Multiple group experiments performed on MOSI datasets show that the emotion recognition model constructed based on the framework proposed here in this paper can better utilize the more complex complementary information between different modal data. Compared with other multi-modal data fusion models, the spatial-temporal attention-based multimodal data fusion framework proposed in this paper significantly improves the emotion recognition rate and accuracy when applied to multi-modal emotion analysis, so it is more feasible and effective.

Data Driven Requirement Engineering (DDRE) represents a vision for a shift from the static traditional methods of doing requirements engineering to dynamic data-driven user-centered methods. Data available and the increasingly complex requirements of system software whose functions can adapt to changing needs to gain the trust of its users, an approach is needed in a continuous software engineering process. This need drives the emergence of new challenges in the discipline of requirements engineering to meet the required changes. The problem in this study was the method in data discrepancies which resulted in the needs elicitation process being hampered and in the end software development found discrepancies and could not meet the needs of stakeholders and the goals of the organization. The research objectives in this research to the process collected and integrating data from multiple sources and ensuring interoperability. Conclusion in this research is determining is the clustering algorithm help the collection data and elicitation process has a somewhat greater impact on the ratings provided by professionals for pairs that belong to the same cluster. However, the influence of POS tagging on the ratings given by professionals is relatively consistent for pairs within the same cluster and pairs in different clusters.

The issue of increasing the range covered by a wireless sensor network with restricted sensors is addressed utilizing improved CS employing the PSO algorithm and opposition-based learning (ICS-PSO-OBL). At first, the iteration is carried out by updating the old solution dimension by dimension to achieve independent updating across the dimensions in the high-dimensional optimization problem. The PSO operator is then incorporated to lessen the preference random walk stage's imbalance between exploration and exploitation ability. Exceptional individuals are selected from the population using OBL to boost the chance of finding the optimal solution based on the fitness value. The ICS-PSO-OBL is used to maximize coverage in WSN by converting regional monitoring into point monitoring utilizing the discretization method in WSN. In the experiments, the ICS-PSO-OBL with the standard CS and three CS variants (MACS, ICS-2, and ICS) are utilized to execute the simulation experiment under different numbers of nodes (20 and 30, respectively). The experimental results reveal that the optimized coverage of ICS-PSO-OBL is 18.36%, 7.894%, 15%, and 9.02% higher than that of standard CS, MACS, ICS-2, and ICS when the number of nodes is 20. Moreover, it is 16.94%, 9.61%, 12.27%, and 7.75% higher when the quantity of nodes is 30, the convergence speed of ICS-PSO-OBL, and the distribution of nodes is superior to others.

Microservice architecture offers many advantages, especially for business applications, due to its flexibility, expandability, and loosely coupled structure for ease of maintenance. However, there are several disadvantages that stem from the features of microservices, such as the fact that microservices are independent in nature can hinder meaningful communication and make data synchronization more challenging. This paper addresses the issues by proposing a containerized microservices in an asynchronous event-driven architecture. This architecture encloses microservices in containers and implements an event manager to keep track of all the events in an event log to reduce errors in the application. Experiment results show a decline in response time compared to two other benchmark architectures, as well as a lessening in error rate.

Recommendation systems are now being used to address the problem of excess information in several sectors such as entertainment, social networking, and e-commerce. Although conventional methods to recommendation systems have achieved significant success in providing item suggestions, they still face

many challenges, including the cold start problem and data sparsity. Numerous recommendation models have been created in order to address these difficulties. Nevertheless, including user or item-specific information has the potential to enhance the performance of recommendations. The ConvFM model is a novel convolutional neural network architecture that combines the capabilities of deep learning for feature extraction with the effectiveness of factorization machines for recommendation tasks. The present work introduces a novel hybrid deep factorization machine (FM) model, referred to as ConvFM. The ConvFM model use a combination of feature extraction and convolutional neural networks (CNNs) to extract features from both individuals and things, namely movies. Following this, the proposed model employs a methodology known as factorization machines, which use the FM algorithm. The focus of the CNN is on the extraction of features, which has resulted in a notable improvement in performance. In order to enhance the accuracy of predictions and address the challenges posed by sparsity, the proposed model incorporates both the extracted attributes and explicit interactions between items and users. This paper presents the experimental procedures and outcomes conducted on the Movie Lens dataset. In this discussion, we engage in an analysis of our research outcomes followed by provide recommendations for further action.

E-wallet, also referred to as digital wallet, is a software application designed to replace physical wallets, with the primary purpose of facilitating online transactions when users wish to make virtual payments. Nowadays, E-wallets are not limited to mobile applications, but they have also been extended to wearable devices, such as smartwatches, enabling users to make payments via their watches. This research study focuses on three main E-wallet service providers in Malaysia, namely TouchNGo E-wallet, Boost, and Grab pay, as they are the top three E-wallets in the country. The aim of this paper is to explore the real-world implementation of E-wallets among mobile phone users in Malaysia, employing the Technology Adoption Model as the theoretical framework. Six independent variables were identified to study the implementation of E-wallets, and a total of 500 respondents shared their opinions on retaining the usage of E-wallet in Malaysia. The

data collected were analysed using SPSS for Pearson Correlation Analysis and Multiple Linear Regression. Out of the six variables, five independent variables were accepted, and one independent variable was rejected due to the greater significant level. The highest correlation coefficient falls under Business Resources with 0.704. The study delves into the implications and constraints, providing insights for the future advancement of E-wallets within the Malaysian context.

In regression testing, Test case prioritization (TCP) is a technique to arrange all the available test cases. TCP techniques can improve fault detection performance which is measured by the average percentage of fault detection (APFD). History-based TCP is one of the TCP techniques that consider the history of past data to prioritize test cases. The issue of equal priority allocation to test cases is a common problem for most TCP techniques. However, this problem has not been explored in history-based TCP techniques. To solve this problem in regression testing, most of the researchers resort to random sorting of test cases. This study aims to investigate equal priority in history-based TCP techniques. The first objective is to implement different history-based TCP techniques. The second objective is to explore the problem of equal priority in history-based TCP techniques. The third objective is to explore random sorting as a solution to the problem of equal priority in history-based TCP techniques. Datasets of historical records of test cases from conventional and modern sources were collected. History-based TCP techniques were applied to different datasets. The History-based TCP techniques were checked for the problem of equal priority. Then random sorting was used as a solution to the problem of equal priority. Finally, the results were elaborated in terms of APFD and execution time. The results indicate that history-based techniques also suffer from the problem of equal priority like other types of TCP techniques. Secondly, random sorting does not produce optimal results while trying to solve the problem of equal priority in history-based TCP. Furthermore, random sorting deteriorates the results of history-based TCP techniques when employed to solve the problem of equal priority. One should resort to random sorting if no other solution exists. The decision to choose the

best solution requires a cost-benefit analysis keeping in view the context and solution under consideration.

Data-driven models perform poorly on part-of-speech tagging problems with the square Hmong language, a low-resource corpus. This paper designs a weight evaluation function to reduce the influence of unknown words. It proposes an improved harmony search algorithm utilizing the roulette and local evaluation strategies for handling the square Hmong part-of-speech tagging problem. The experiment shows that the average accuracy of the proposed model is 6%, 8% more than HMM and BiLSTM-CRF models, respectively. Meanwhile, the average F1 of the proposed model is also 6%, 3% more than HMM and BiLSTM-CRF models, respectively.

The consensus algorithm is the core mechanism of blockchain and is used to ensure data consistency among blockchain nodes. The PBFT consensus algorithm is widely used in alliance chains because it is resistant to Byzantine errors. However, the present PBFT (Practical Byzantine Fault Tolerance) still has issues with master node selection that is random and complicated communication. The IBFT consensus technique, which is enhanced, is proposed in this study and is based on node trust value and BLS (Boneh-Lynn-Shacham) aggregate signature. In IBFT, multi-level indicators are used to calculate the trust value of each node, and some nodes are selected to take part in network consensus as a result of this calculation. The master node is chosen from among them based on which node has the highest trust value, it transforms the BLS signature process into the information interaction process between nodes. Consequently, communication complexity is reduced, and node-to-node information exchange remains secure. The simulation experiment findings demonstrate that the IBFT consensus method enhances transaction throughput rate by 61% and reduces latency by 13% when compared to the PBFT algorithm.

Alzheimer's disease (AD) increasingly affects the elderly and is a major killer of those 65 and over. Different deep-learning methods are used for automatic diagnosis, yet they have some limitations. Deep Learning is one of the modern methods that were used to detect and classify a medical image because of the ability of deep Learning to extract the features of images automatically. However, there are still limitations to using deep learning to accurately classify medical images because extracting the fine edges of medical images is sometimes considered difficult, and some distortion in the images. Therefore, this research aims to develop A Computer-Aided Brain Diagnosis (CABD) system that can tell if a brain scan exhibits indications of Alzheimer's disease. The system employs MRI and feature extraction methods to categorize images. This paper adopts the Alzheimer's Disease Neuroimaging Initiative (ADNI) dataset includes functional MRI and Positron-Version Tomography scans for Alzheimer's patient identification, which were produced for people with Alzheimer's as well as typical individuals. The proposed technique uses MRI brain scans to discover and categorize traits utilizing the Histogram Features Extraction (HFE) technique to be combined with the Canny edge to representing the input image of the Convolutional Neural Networks (CNN) classification. This strategy keeps track of their instances of gradient orientation in an image. The experimental result provided an accuracy of 97.7% for classifying ADNI images.

When optimizing the performance of neural network-based chatbots, determining the optimizer is one of the most important aspects. Optimizers primarily control the adjustment of model parameters such as weight and bias to minimize a loss function during training. Adaptive optimizers such as ADAM have become a standard choice and are widely used for their invariant parameter updates' magnitudes concerning gradient scale variations, but often pose generalization problems. Alternatively, Stochastic Gradient Descent (SGD) with Momentum and the extension of ADAM, the ADAMW, offers several advantages. This study aims to compare and examine the effects of these optimizers on the chatbot CST dataset. The effectiveness of each optimizer is evaluated based on its sparse-categorical loss during training and BLEU in the inference phase, utilizing a neural generative attention-based additive scoring function. Despite memory constraints that limited ADAMW to ten epochs, this optimizer showed promising results compared to configurations using early stopping techniques. SGD provided higher BLEU scores for generalization but

was very time-consuming. The results highlight the importance of finding a balance between optimization performance and computational efficiency, positioning ADAMW as a promising alternative when training efficiency and generalization are primary concerns.

Most companies use social media data for business. Sentiment analysis automatically gathers analyses and summarizes this type of data. Managing unstructured social media data is difficult. Noisy data is a challenge to sentiment analysis. Since over 50% of the sentiment analysis process is data pre-processing, processing big social media data is challenging too. If pre-processing is carried out correctly, data accuracy may improve. Also, sentiment analysis workflow is highly dependent. Because no pre-processing technique works well in all situations or with all data sources, choosing the most important ones is crucial. Prioritization is an excellent technique for choosing the most important ones. As one of many Multi-Criteria Decision Making (MCDM) methods, the Analytic Hierarchy Process (AHP) is preferred for handling complicated decision-making challenges using several criteria. The Consistency Ratio (CR) scores were used to examine pair-wise comparisons to evaluate the AHP. This study used two judgment scales to get the most consistent judgment. Firstly, the Saaty judgment scale (SS), then the Generalized Balanced Scale (GBS). It investigated whether two different AHP judgment scales would affect decision-making. The main criteria for prioritizing pre-processing techniques in sentiment analysis are Punctuation, Spelling, Number, and Context. These four criteria also contain sub-criteria. GBS pair-wise comparisons are closer to the CR value than SS, reducing the alternatives' weight ratios. This paper explains how AHP aids logical decision-making. Prioritizing pre-processing techniques with AHP can be a paradigm for other sentiment analysis stages. In short, this paper adds another contribution to the Big Data Analytics domain.

An oil spill is a leakage of pipelines, vessels, oil rigs, or tankers that leads to the release of petroleum products into the marine environment or on land that happened naturally or due to human action, which resulted in severe damages and financial loss.

Satellite imagery is one of the powerful tools currently utilized for capturing and getting vital information from the Earth's surface. But the complexity and the vast amount of data make it challenging and time-consuming for humans to process. However, with the advancement of deep learning techniques, the processes are now computerized for finding vital information using real-time satellite images. This paper applied three deep-learning algorithms for satellite image classification, including ResNet50, VGG19, and InceptionV4; They were trained and tested on an open-source satellite image dataset to analyze the algorithms' efficiency and performance and correlated the classification accuracy, precisions, recall, and f1-score. The result shows that InceptionV4 gives the best classification accuracy of 97% for cloudy, desert, green areas, and water, followed by VGG19 with approximately 96% and ResNet50 with 93%. The findings proved that the InceptionV4 algorithm is suitable for classifying oil spills and no spill with satellite images on a validated dataset.

The dependable and efficient identification of Qin seal script characters is pivotal in the discovery, preservation, and inheritance of the distinctive cultural values embodied by these artifacts. This paper uses image histograms of oriented gradients (HOG) features and an SVM model to discuss a character recognition model for identifying partial and blurred Qin seal script characters. The model achieves accurate recognition on a small, imbalanced dataset. Firstly, a dataset of Qin seal script image samples is established, and Gaussian filtering is employed to remove image noise. Subsequently, the gamma transformation algorithm adjusts the image brightness and enhances the contrast between font structures and image backgrounds. After a series of preprocessing operations, the oriented gradient histograms (HOG) features are extracted from the images. During model training, different weights are assigned to classes with varying sample quantities to address the issue of class imbalance and improve the model's classification accuracy. Results show that the model achieves an accuracy of 95.30%. This research can help historians quickly identify and extract the text content on newly discovered Qin slip

cultural relics, shortening the cycle of building a historical database.

Churning of employees from organizations is a serious problem. Turnover or churn of employees within an organization needs to be solved since it has negative impact on the organization. Manual detection of employee churn is quite difficult, so machine learning (ML) algorithms have been frequently used for employee churn detection as well as employee categorization according to turnover. Using Machine learning, only one study looks into the categorization of employees up to date. A novel multi-criterion decision-making approach (MCDM) coupled with DE-PARETO principle has been proposed to categorize employees. This is referred to as SNEC scheme. An AHP-TOPSIS DE-PARETO PRINCIPLE model (AHPTOPDE) has been designed that uses 2-stage MCDM scheme for categorizing employees. In 1st stage, analytic hierarchy process (AHP) has been utilized for assigning relative weights for employee accomplishment factors. In second stage, TOPSIS has been used for expressing significance of employees for performing employee categorization. A simple 20-30-50 rule in DE PARETO principle has been applied to categorize employees into three major groups namely enthusiastic, behavioral and distressed employees. Random forest algorithm is then applied as baseline algorithm to the proposed employee churn framework to predict class-wise employee churn which is tested on standard dataset of the (HRIS), the obtained results are evaluated with other ML methods. The Random Forest ML algorithm in SNEC scheme has similar or slightly better overall accuracy and MCC with significant less time complexity compared with that of ECPR scheme using CATBOOST algorithm.

Students' feedback is crucial for educational institutions to assess the performance of their teachers, most opinions are expressed in their native language, especially for people in south Asian regions. In Pakistan, people use Roman Urdu to express their reviews, and this applied in the education domain where students used Roman Urdu to express their feedback. It is very time-consuming and labor-intensive process to handle qualitative opinions manually. Additionally, it can be difficult to determine sentence semantics in a text that is written in a colloquial style like Roman Urdu. This study proposes an enhanced word embedding technique and investigates the neural word Embedding (Word2Vec and Glove) to determine which performs better for Roman Urdu Sentiment analysis. Our suggested model employs the BiLSTM network to maintain the context in both directions and eventually, results for ternary classification are obtained by using the final softmax output layer. A manually labeled data set was used to evaluate the model, data is collected from the HEIs of Pakistan. Model was empirically evaluated on two datasets of Roman Urdu, the newly developed student's feedback dataset and RUSA-19 publically available data set of Roman Urdu. Our model performs effectively using the word embedding and BiLSTM layer. The proposed model is compared with the baseline models of CNN, RNN, GRU and classic LSTM. The experimental findings demonstrate the proposed model's efficacy with an F1score of 90%.

The rise of edge-cloud continuum computing is a result of the growing significance of edge computing, which has become a complementary or substitute option for traditional cloud services. The convergence of networking and computers presents a notable challenge due to their distinct historical development. Task scheduling is a major challenge in the context of edge-cloud continuum computing. The selection of the execution location of tasks, is crucial in meeting the quality-of-service (QoS) requirements of applications. An efficient scheduling strategy for distributing workloads among virtual machines in the edge-cloud continuum data center is mandatory to ensure the fulfilment of QoS requirements for both customer and service provider. Existing research used metaheuristic algorithm to solve tak scheduling problem, however, must of the existing metaheuristics used suffers from falling into local mina due to their inefficiency to avoid unfeasible region in the solution search space. Therefore, there is a dire need for an efficient metaheuristic algorithm for task scheduling. This study proposed an FPA-ISFLA task scheduling model using hybrid flower pollination and improved shuffled frog leaping algorithms. The simulation results indicate that the FPA-ISFLA algorithm is superior to the PSO algorithm in terms of makespan

time, resource utilization, and execution cost reduction, especially with an increasing number of tasks.

Human posture estimation is a crucial topic in the computer vision field and has become a hotspot for research in many human behaviors related work. Human pose estimation can be understood as the human key point recognition and connection problem. The paper presents an optimized symmetric spatial transformation network designed to connect with single-person pose estimation network to propose high-quality human target frames from inaccurate human bounding boxes, and introduces parametric pose non-maximal suppression to eliminate redundant pose estimation, and applies an elimination rule to eliminate similar pose to obtain unique human pose estimation results. The exploratory outcomes demonstrate the way that the proposed technique can precisely recognize the human central issues, really work on the exactness of human posture assessment, and can adjust to the intricate scenes with thick individuals and impediment. Finally, the difficulties and possible future trends are described, and the development of the field is presented.

A new human-based heuristic optimization method, named the Snooker-Based Optimization Algorithm (SBOA), is introduced in this study. The inspiration for this method is drawn from the traits of sales elites—those qualities every salesperson aspires to possess. Typically, salespersons strive to enhance their skills through autonomous learning or by seeking guidance from others. Furthermore, they engage in regular communication with customers to gain approval for their products or services. Building upon this concept, SBOA aims to find the optimal solution within a given search space, traversing all positions to obtain all possible values. To assesses the feasibility and effectiveness of SBOA in comparison to other algorithms, we conducted tests on ten single-objective functions from the 2019 benchmark functions of the Evolutionary Computation (CEC), as well as twenty-four single-objective functions from the 2022 CEC benchmark functions, in addition to four engineering problems. Seven comparative algorithms were utilized: the Differential Evolution Algorithm (DE), Sparrow

Search Algorithm (SSA), Sine Cosine Algorithm (SCA), Whale Optimization Algorithm (WOA), Butterfly Optimization Algorithm (BOA), Lion Swarm Optimization (LSO), and Golden Jackal Optimization (GJO). The results of these diverse experiments were compared in terms of accuracy and convergence curve speed. The findings suggest that SBOA is a straightforward and viable approach that, overall, outperforms the aforementioned algorithms.

Most recognition system of human facial emotions are assessed solely on accuracy, even if other performance criteria are also thought to be important in the evaluation process such as sensitivity, precision, F-measure, and G-mean. Moreover, the most common problem that must be resolved in face emotion recognition systems is the feature extraction methods, which is comparable to traditional manual feature extraction methods. This traditional method is not able to extract features efficiently. In other words, there are redundant amount of features which are considered not significant, which affect the classification performance. In this work, a new system to recognize human facial emotions from images is proposed. The HOG (Histograms of Oriented Gradients) is utilized to extract from the images. In addition, the Binarized Genetic Algorithm (BGA) is utilized as a features selection in order to select the most effective features of HOG. Random Forest (RF) functions as a classifier to categories facial emotions in people according to the image samples. The facial human examples of photos that have been extracted from the Yale Face dataset, where it contains the eleven human facial expressions are as follows; normal, left light, no glasses, joyful, centre light, sad, sleepy, wink and surprised. The proposed system performance is evaluated relates to accuracy, sensitivity (i.e., recall), precision, F-measure (i.e., F1-score), and G-mean. The highest accuracy for the proposed BGA-RF method is up to 96.03%. Besides, the proposed BGA-RF has performed more accurately than its counterparts. In light of the experimental findings, the suggested BGA-RF technique has proved its effectiveness in the human facial emotions identification utilizing images.

Regression testing is a crucial phase in the software development lifecycle that makes sure that new

changes/updates in the software system don't introduce defects or don't affect adversely the existing functionalities. However, as the software systems grow in complexity, the number of test cases in regression suite can become large which results into more testing time and resource consumption. In addition, the presence of redundant and faulty test cases may affect the efficiency of the regression testing process. Therefore, this paper presents a new Hybrid Framework to Exclude Similar & Faulty Test Cases in Regression Testing (ETCPM) that utilizes automated code analysis techniques and historical test execution data to identity and exclude redundant, similar and faulty test cases from the given regression suite. Our experimental results clearly show the benefits of the ETCPM framework in terms of reduction in the testing time, optimization of the resource allocation, and improvement in the overall quality of regression test suite. ETCPM enables software development teams to achieve faster and reliable regression testing by intelligent exclusion of similar and fault test cases, which yields in reduction in the software delivery cycles and better end user satisfaction.

Heart disease is a significant and impactful health condition that ranks as the leading cause of death in many countries. In order to aid physicians in diagnosing cardiovascular diseases, clinical datasets are available for reference. However, with the rise of big data and medical datasets, it has become increasingly challenging for medical practitioners to accurately predict heart disease due to the abundance of unrelated and redundant features that hinder computational complexity and accuracy. As such, this study aims to identify the most discriminative features within high-dimensional datasets while minimizing complexity and improving accuracy through an Extra Tree feature selection based technique. The work study assesses the efficacy of several classification algorithms on four reputable datasets, using both the full features set and the reduced features subset selected through the proposed method. The results show that the feature selection technique achieves outstanding classification accuracy, precision, and recall, with an impressive 97% accuracy when used with the Extra Tree classifier algorithm. The research reveals the promising potential of the feature selection method for improving classifier accuracy by focusing on the most informative features and simultaneously decreasing computational burden.

The field of autonomous robotic systems has advanced tremendously in the last few years, allowing them to perform complicated tasks in various contexts. One of the most important and useful applications of guide robots is the support of the blind. The successful implementation of this study requires a more accurate and powerful self-localization system for guide robots in indoor environments. This paper proposes a self-localization system for guide robots. To successfully implement this study, images were collected from the perspective of a robot inside a room, and a deep learning system such as a convolutional neural network (CNN) was used. An image-based self-localization guide robot image-classification system delivers a more accurate solution for indoor robot navigation. The more accurate solution of the guide robotic system opens a new window of the self-localization system and solves the more complex problem of indoor robot navigation. It makes a reliable interface between humans and robots. This study successfully demonstrated how a robot finds its initial position inside a room. A deep learning system, such as a convolutional neural network, trains the self-localization system as an image classification problem. The robot was placed inside the room to collect images using a panoramic camera. Two datasets were created from the room images based on the height above and below the chest. The above-mentioned method achieved a localization accuracy of 98.98%.

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الافتتاحية: الحوسبة التطبيقية 2023

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الخلاصة

تستخدم الحوسبة التطبيقية جوانب علوم الكمبيوتر لحل المشكلات في العديد من التخصصات، بما في ذلك الأعمال والسياسة والتعليم والبيئة. ومن المرجح أن يستخدم في هذا المجال مجموعة من مهارات البرمجة والتطبيقات الرسومية والشبكات وهندسة البرمجيات وإدارة أنظمة التشغيل لجمع المعلومات وتحليلها وتخزينها وتقديمها التي ستساعد في حل المشكلات للأفراد والشركات والمجموعات. الحوسبة التطبيقية هي دراسة كل من علوم الكمبيوتر التطبيقية والنظرية. يعتقد تقاطع تكنولوجيا المعلومات وعلوم الكمبيوتر والأعمال، وتركز الحوسبة التطبيقية على مفاهيم الحوسبة التقنية وحدوث المهارات في القيادة التنظيمية واستراتيجية الأعمال. يمكن تصنيف مهارات ومعرفة الحوسبة التطبيقية إلى (لغات وتقنيات البرمجة الحالية، هندسة البرمجيات، أمن تكنولوجيا المعلومات، تكنولوجيا الهاتف المحمول، الشبكات، إدارة نظام التشغيل، التطبيقات الرسومية، الأنظمة الموزعة، الاتصالات، التفكير النقدي، التحليل، و حل المشكلات، إدارة المشاريع). من الناحية العملية، فإن السمة الأكثر تحديدًا للحوسبة التطبيقية هي القدرة على الافتراض بشكل نقدي حول كيفية استخدام مهاراتهم التقنية على أفضل وجه لحل المشكلات وإحداث تأثير إيجابي على المنظمة. يقدم هذا العدد الخاص من مجلة بغداد للعلوم حول الحوسبة التطبيقية نظرة عامة على الحوسبة التطبيقية للغات البرمجة الحالية والتكنولوجيا، وهندسة البرمجيات، وأمن تكنولوجيا المعلومات، وتكنولوجيا الهاتف المحمول، والشبكات، من خلال نشر مقالات حول المفاهيم البحثية الحديثة.

الكلمات المفتاحية: ذكاء اصطناعي , تنقيب البيانات , الشبكات العصبية.