中国科技论文统计源期刊（科技核心期刊）
ISSN 1007-757X
CN 31-1634/TP

微型電腦應用

9
第31卷第9期
2015.9.20

MICROCOMPUTER APPLICATIONS

责任者：吴红泉

微信号：smcaa1985

ISSN 1007-757X
09
9 771007 757150
万方数据

上海市微型电脑应用学会

微型电脑应用

Weixing Diannao Yingyong

主管单位：上海市科学技术协会

主办单位：上海市微型电脑应用学会

协办单位：上海交通大学

出版单位：《微型电脑应用》编辑部

印刷单位：上海万卷印刷有限公司

创刊年份：1985年

刊名题字：江泽民

国家科技部中国科技论文统计源期刊(中国科技核心期刊)
《中国期刊网》、《中国学术期刊(光盘版)》全文收录期刊
中国期刊数据库全文收录期刊
中国学术期刊综合评价数据库来源期刊
中国科学引文数据库来源期刊
中国科学计量指标数据库来源期刊
中信所万方数据库资源系统数字化期刊群期刊
《中国核心期刊(遴选)数据库收录期刊》
《中文科技期刊数据库》收录期刊
华东地区优秀期刊
上海市优秀科技期刊
2015年9月版
第31卷第 9 期（总第269期）
月　刊

目　次

期刊基本参数：CN 31-1634/TP*1985*m*16*80*zh*P*¥10.00*3200*25*2015-09*n

ISSN 1007-757X

Microcomputer Applications

Monthly (Since 1985)

Wu Hongquan

Editor-in-Chief

Vol.31, No.9 (General No.269)

September 2015

CONTENTS

neighborhood nonparametric regression is verified and the model is experimented on large-scale datasets. MAPE (mean absolute percentage error), MFE (mean forecast error) and MAD (mean absolute deviation) are used to appreciate the effectiveness of the model. The results show that all the evaluation indicators of average MAPE, MFE and MAD achieve good performance providing neighbors equal to 6.

Key words: KNN; Short-term Traffic Flow Prediction; Nonparametric Regression

Design & Implementation of High-way Joint Inspection System under B/S Architecture..... (30)

Liu Jie[1], Hu Qian[2] (1. School of Computer Science & Engineering, South China University of Technology, Guangzhou 510006, China; 2. School of Software Engineering, South China University of Technology, Guangzhou 510006, China)

Abstract: With the growing of highway traffic, toll evasion phenomenon is also increasing. How to fetch data and image quickly and easily is a key of success inspection when suspected behavior is found. In order to achieve the purpose of rapid response, it needs to rearrange the original hardware structure. Meanwhile, it needs to optimize query processing in database. This paper describes the joint inspection system for highway using B/S framework. The system can manage data and special events systematically and intensively. By using this system, it can improve the inspection of pass card, location of special events, and safety of highway operation.

Key words: B/S Architecture; High-way; Joint Inspection

A High Performance Text Detection System Based on SWT for RGB-D Image..... (33)

Song Yuntao[1], Liu Ye[2], Wang Yuanbin[1], Chen Yanqiu[1] (1.School of Computer Science, Fudan University, Shanghai 201203, China; 2. Nanjing University of Posts and Telecommunications, Nanjing 210000, China)

Abstract: Automatic detection and recognition of text in the natural scene is a prerequisite for a couple of applications, such as automatic robot navigation and instant scene text translation system. The RGB-D camera has wildly used in mobile robot and wearable device, whether depth can benefit text detection, however, has not been investigated deeply. A text detection system based on SWT using RGB-D image is introduced here, and depth Channel of RGB-D image and distribution of text are used to optimize the performance of SWT. Even though the dependency of Depth information would limit the application, many applications still can benefit from this research, such as automatic navigation of robot equipped with Kinect, and instant translation system of HoloLens. The experiment result shows that the depth channel indeed can promote the performance of SWT text detection system.

Key words: Text Detection; Stroke Width Transform; RGB-D Image; Distribution of Text

Research on Configuration management system based on Cloud Model for Network Devices..... (37)

Tian Aibao (Network and Educational Technology Center, China University of Petroleum(East China), Qingdao 266580, China)

Abstract: With the development of university information construction, the campus network is all around every corner. Therefore, the great quantity of network devices results in huge workload of installation, maintain and management. It can reduce the workload of installation and maintain efficiently by using the configuration management system based on cloud model. It also shortens the time of network deployment and restoration, and improves the management efficiency of network.

Key words: Cloud; Network Device; Configuration; Management

Dynamic Facial Recognition Method Based on Deep Neural Networks and Its Application..... (39)

Chen Guoping[1], Du Shanshan[2] (1.Shanghai instrument electronics co., LTD, Shanghai 200233, China;2.School of Computer Science, Fudan University, Shanghai 201203, China)

Abstract: Face feature extraction and recognition is the corn issue of face recognition. Deep Neural Network (DNN) is an emerging hot area of research in the field of artificial intelligence and pattern recognition. Combined with the face recognition method based on Constraints between classes and features, this paper proposes a dynamic face recognition method which is suitable for outdoor open occasions and user imperceptions by using its characteristics of the visual feature of self-learning. Then it develops a face recognition system based on the proposed method for peaceful campus to realize the function of face recognition for school staff. And it shows the function in the interactive system at all time. After actual deployment and long time running, it realizes efficient control of the school staff, and meets the demand of actual application.

Key words: Video Surveillance; Face Recognition; Deep Neural Network (DNN); Machine Learning

Research on USD Recognition Scheme Based on the Modular Descriptive Feature..... (42)

Han Fang (The School of information Engineering, HUANGHE S&T COLLEGE, Zhengzhou 450063, China)

Abstract: Aiming at the existing problems in the currency recognition, this paper proposes a USD recognition algorithm based on the modular Descriptive Feature. Firstly, the currency matrix is blocked, and then the local feature of the currency image is extracted in each block. Finally, the dollar is recognized by the fuzzy identification method. Simulation results show that the scheme is robust, and it is also better than the traditional methods in terms of the recognition effect and time.

Key words: Currency Recognition; Modular Descriptive Feature; Block; MEFFRA Algorithm; Fuzzy Identification

Research on an Instance Detection Strategy for Cloud Resource Allocation..... (45)

Sun Hao (Urumqi Vocational University, Urumqi 830002, China)

Abstract: In order to help the lessee to deploy the service in the cloud, the current work focus on how to detect the virtual machines of the better the performance, and little attention is paid on the effect of cloud detection strategies for resource allocation. Therefore, this paper first presents the design of a double layer resource allocation strategy. For each tenant's request, which cluster or host is chosen to run the virtual machines would be decided by the data center controller. Then the tenant is divided into two types: the performance oriented tenants and the budget oriented tenants. And it presents 5 instance detection strategies. Simulation results based on the real data show that instance detection strategy may lead to the depletion of high quality examples in a cloud environment and highly increasing requirements. In addition, it is found that the tenant can save time and budget through collaborative detection strategy. Finally, it discusses the implications of the findings from perspectives of both tenants and providers.

Key words: Cloud Services; Virtual Machines; Tenants; Resource Allocation; Instance Detection Strategies

Analysis of Sleep Based on Support Vector Machines and Recursive Feature Elimination using Electroencephalogram..... (50)

Lin Xiujing, Qian Songrong (The department of Communication Science and Engineering, School of information and technology, Fudan University, Shanghai 200433, China)

Abstract: Sleep electroencephalogram (EEG) is an important index in diagnosing sleep disorders and related diseases. In order to improve automatic sleep stage accuracy, a sleep stage method based on Support Vector Machines (SVM) and Recursive Feature Elimination feature selection (RFE) is proposed. Based on the feature selection RFE method definition, it is extended to multiclass followed by a method using the data aggregation with experiments to find proper features, which are used as SVM classifier inputs. Research is further accomplished with the data from a standard open source database and the results are compared among none feature selection and two group data with feature selection. The research results show the presented method can effectively improve the sleep stage accuracy and reduce the computation time.

Key words: Sleep Stage; Support Vector Machines; Recursive Feature Elimination; Data Aggregation

Redundancy Architecture Design of Emergency Call Center System..... (53)

Yang Shihua (Shanghai Municipal Public Security Bureau, Shanghai 210000, China)

Abstract: Emergency call center often carries with various emergency response services, providing the rapid processing of the service to the public. In addition to the admissibility of the emergency events outside, it also provides quick and effective 'urgent, difficult and dangerous' integrated services with the masses. As a tool to improve the response to the disposal efficiency, emergency call center system is also required to run for 24 hours. Emergency call center system failure may cause serious consequences. Reducing the downtime of the system, it can greatly reduce the resulting loss. The purpose of this paper is to describe how to effectively improve the emergency call center system reliability and stability through the elaboration of an emergency call center system hardware redundancy, application layer multi path redundancy and system overall double live center redundancy and three link redundancy design.

Key words: Emergency Call Center; Redundancy; Emergency Command; Integrated Information Management System

Study & Design of Intelligent Training Plan System..... (56)

Liu Yinghua (Laboratory of Sport Skill and Tactic Diagnosis and Analysis, Shanghai University of Sport, Shanghai 200438, China)

Abstract: Based on the basic theory of training plan, the paper classified the training plan depending on the training plan type, summarized the training content and analyzed the characteristics of training plan in different stages. Based on this, the paper designed an intelligent training plan system, and it described the system development, operation environment, overall architecture and its function in detail. The system applied database technology to realize the storage of training plan and constructed an online knowledge base to complete storage and query for training method and training means. Using this system could establish a scientific training plan, and it could provide accurate and reliable load intensity and the amount of training for different training periods. It also could check and analyze the implementation of training plan, and then it could do diagnostic and analysis to the training effect.

Key words: Training Plan; Train Diagnosis; Train Diagnosis; Knowledge Base; Check And Analyze

EDUCATION EXPLORATION

Zhang Chunming, Yang Tianhong, Wang Qing, Gu Xiaowei, Jia Peng (School of Resource and Civil Engineering, Northeastern University, Shenyang 110819, China)
Abstract: An innovative approach is presented in the paper to build a hybrid active / passive stereoscopic virtual reality experimental teaching system. By integrating the active and the passive stereoscopic virtual reality system purchased in succession at the Mining Virtual Reality and Numerical Simulation Center of Northeastern University, a set of distinctive central control system software is developed to realize the network-based management and automatic control of the related hardware. As a result of the virtual reality laboratory upgrading, both the content and means of experimental teaching have been enriched, and the quality and performance are also improved. It also provides reference to the readers in the upgrading and improvement of the virtual reality laboratory.
Key words: Active Stereoscopy; Passive Stereoscopy; Virtual Reality; Experimental Teaching; Optimization

Zhang Min (Dept. of Electronic Engineering, Xi'an FanYi University, Xi'an 710105, China)
Abstract: The traditional teaching of C Programming had disadvantages. In order to cultivate the students' initiative and creative thinking, the case methods with guidance of computational thinking was used in theory and practice teaching. The students knew how to use computers to solve problems in life. It cultivated the students' thinking ability in the program design case teaching. The method improved the students' learning initiative and the ability of innovation and application.
Key words: computational thinking; C Programming; case methods

DEVELOPMENT AND APPLICATION

Wang Junhua, Lu Linji (Department of automation, Shanghai Jiao Tong University, Shanghai 200240, China)
Abstract: This paper mainly introduces the process and method of the fuzzy controller in the PLC of the pressure control system, which is based on the fuzzy control theory. In the process of actual debugging, an optimization method of fuzzy controller based on error factor is proposed. After the verification of the actual system, the performance of the optimized fuzzy controller is better than that of the traditional PID controller.
Key words: PLC; Fuzzy Controller; Look-up Table; Automobile Middle Armrest; Error Factor

Nie Ru (Guangzhou College of South China University of Technology, Guangzhou 510800, China)
Abstract: With the rise of the Internet of Things, Android phones with its unique advantage of being open for us to provide more quality and convenient technological achievements. The research is a smart car design based on the Android mobile phone Bluetooth control. It uses the mobile platforms to design and implement the new solution of a wireless remote control car by means of Bluetooth technology. The remote control car mainly consists of hardware modules such as mobile control platform, Bluetooth communication module, motor drive modules and so on. It realizes real-time control of the car such as going forward and backward, turning front left and front right, turning back left and back right. It provides a new thought for the design of remote control toy car and also provides references for the future smart home remote control design.
Key words: Android; Bluetooth; Intelligent Car

TECHNICAL COMMUNICATION

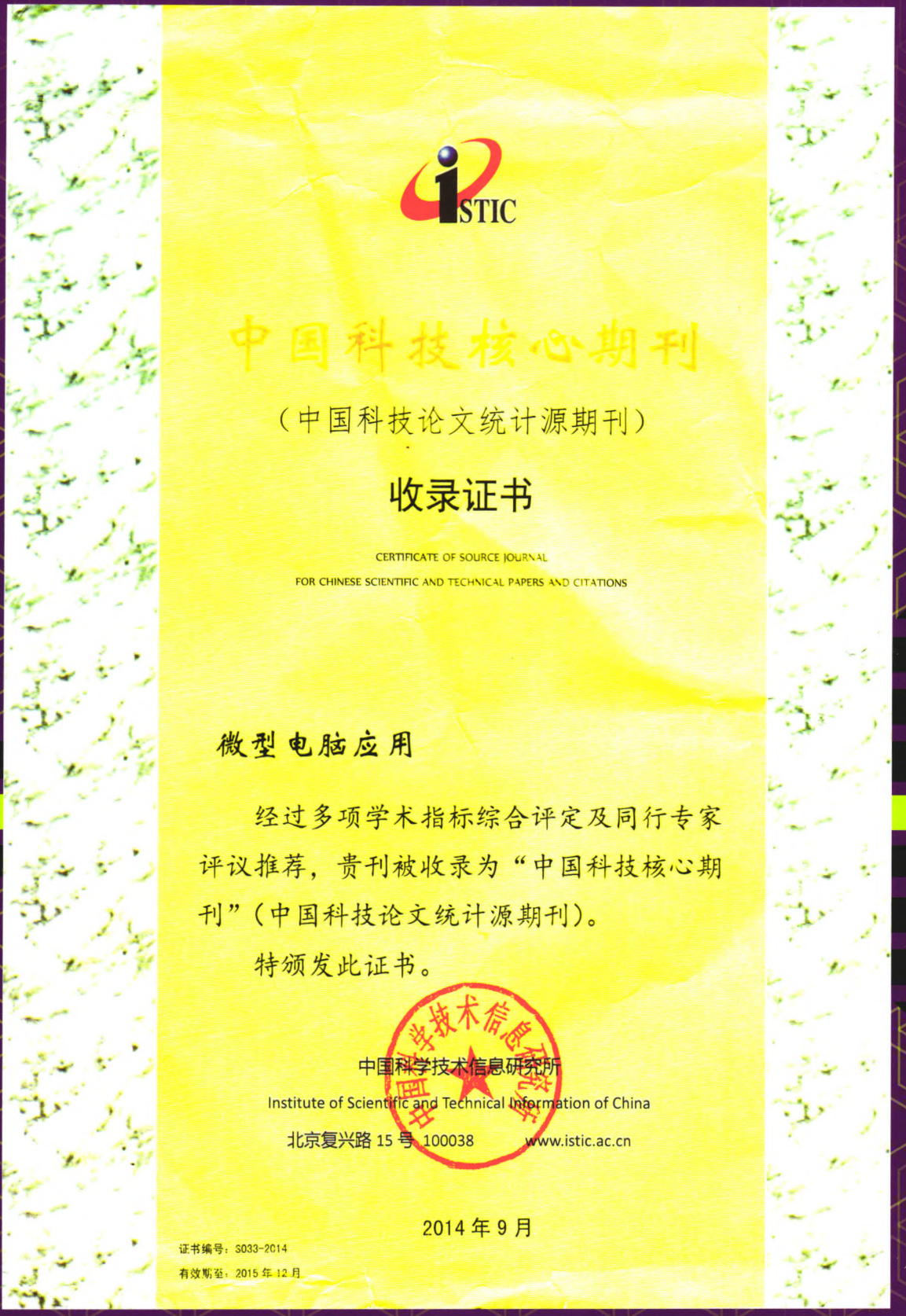
Chen Liyue[1], Shen Xiaodong[1], He Xing[2] (1. Electric power dispatching control center, State Grid ZheJiang Electric Power Company, HangZhou 310007, China;2.Department of Automation, Shanghai Jiao Tong University, and Key Laboratory of System Control and Information Processing, Ministry of Education of China, Shanghai 200240, China)
Abstract: This paper mainly discusses the anomaly detection methods of electric power remote monitor and proposes a two-level clustering algorithm. Through the analysis of the communication data, it can detect the abnormal situations of the electric power remote monitor system so that it can reduce the time of the anomaly processing and ensure the reliability of the power supply.
Key words: Remote Monitor; Anomaly Detection; Two-level Clustering Algorithm

Zhao Kai[1], Li Weiyao[2] (1.Teaching Affairs Division, Pingdingshan University, Pingdingshan 467000, China; 2. College of Computer Science and Technology, Pingdingshan University, Pingdingshan 467000, China)
Abstract: The fault of machine tool during it running period is complex. In order to find its fault reason accurately, gradual investigation to the positions which are mostly probable to break down should be done. However, it could not only find the reason difficultly but also consume the work time. Combined with the possible emergence of fault with machine tool, it uses AHP analysis to the machine fault and makes all possible fault factors hierarchical to establish a hierarchy model. Then according to the fuzzy set theory, it establishes the evaluation system to analyze every possible fault specifically. After that, it can find out the most possible positions which break down, and do fault diagnosis to the machine tool. It provides a reliable method and scientific basis for the improvement of work efficiency and predictive maintenance of machine tool.
Key words: Machine Tool; Fault AHP; Fuzzy Theory; Diagnosis

Zhang Kai, Lin Jia, Chen Jian (Chongqing Metrological Bureau, Chongqing 401147, China)
Abstract: Content-centric networks have been proposed to improve the flexibility of published information for users. However, most of the existing data retrieval schemes cannot support the keyword retrieval, which has the effect on the retrieval efficiency, resulting in the higher retrieval overhead. To solve this problem, two data retrieval schemes based on the independent search and merge (ISM) scheme and the Integrated Keyword Search (IKS) are proposed, which allow publishers to insert content identifiers together with independent keywords that are used to describe the content. Users can submit their searches/ interests based on keywords. Intermediate content routers retrieve content identifiers that match different keywords. The client programs in users' devices then do an intersection of all retrieved content identifiers to obtain a final list of content identifiers that match their interests. After that, users can retrieve these matched data contents. Finally, the effectiveness of the scheme is verified by the simulation experiments.
Key words: Content-centric Networks; Data Retrieval; Keywords; Content Identifiers; Interests; Match

Zhang Lili, Ma Jin, Li Xiaojing (Key Laboratory of Aerospace Medical of Ministry of Education, Forth Military Medical University, Xi'an 710032, China)
Abstract: Develop a health detection and instruction system based on C/S model. This paper adopts PowerBuilder as development platform and SQL Server2008 as the backend database. It achieves the data interview between Server and database with data windows objects. This system has been widely used. It has good stability and friendly interface, and it can also finish the test to give out corresponding reports and direction opinion without complex procedures. This system is widely applicable, quick and efficient. It can offer valuable reference to similar items.
Key words: Health Detection; Data Security; Data Window; SQL Server 2008

Address: 1954 Huashan Rd.,Shanghai, P.R.China
Zip Code: 200030
Tel：86-21-62933230 Fax：86-21-62933230
Email：smcaa@sjtu.edu.cn URL：http://wxdy.chinajournal.net.cn
IP：202.96.210.198 Publisher：Shanghai Microcomputer Application Association
Code Number：M 6329 Distributor：International Book Trading Corporation (P.0.Box 399,Beijing)



中国科技核心期刊

（中国科技论文统计源期刊）

收录证书

CERTIFICATE OF SOURCE JOURNAL

FOR CHINESE SCIENTIFIC AND TECHNICAL PAPERS AND CITATIONS

微型电脑应用

经过多项学术指标综合评定及同行专家评议推荐，贵刊被收录为“中国科技核心期刊”（中国科技论文统计源期刊）。

特颁发此证书。

中国科学技术信息研究所

Institute of Scientific and Technical Information of China

北京复兴路 15 号 100038　　www.istic.ac.cn

2014 年 9 月

证书编号：3033-2014

有效期至：2015 年 12 月

《微型电脑应用》月刊

主办单位：上海市微型电脑应用学会
创刊年份：1985年
出版年月：2015年9月20日
主　　编：吴红泉
卷 号 期：第31卷第9期（总第269期）
编辑部地址：上海市华山路1954号上海交通大学铸锻楼314室
电话 / 传真：021-62933230
国内总发行：上海市邮电局报刊发行局
国 内 订 购：全国各地邮局（所）
国外总发行：中国国际图书贸易总公司（北京399信箱）

中国标准连续出版物：ISSN 1007-757X / CN 31-1634/TP

URL:http://wxdy.chinajournal.net.cn
http://wxdnyy.periodicals.net.cn
http://www.smcaa.biz.sh.cn
E-mail:smcaa@sjtu.edu.cn

定价：10.00元
邮编：200030
邮发代号：4-506
国外代号：M 6329
IP：202.96.210.198