

# 微型电脑应用

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## Microcomputer Applications

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**RESEARCH AND DESIGN****Telecommunication Software Implementation Based on ATCA..... (1)***Wei Liang (School of Software Engineering, Shanghai Jiaotong University, Shanghai 200240, China)*

**Abstract:** This paper introduces the composition and characteristic of ATCA (Advanced Telecom Computing Architecture), and presents a telecommunication software implementation based on ATCA. This implementation takes full advantages of high performance and high reliability of ATCA, with reusing the existing software. So the system performance is highly improved with low development cost.

**Key words:** ATCA; PICMG3.x; Telecommunication; Software Design

**Research on Product Market Analysis Model for Micro-blogs Platform..... (4)***Hou Shaolong, Zhao Zhengwen(Computer Collage, Northwestern Polytechnical University, Xi'an 710072,China)*

**Abstract:** Through abstracting the whole process of the product market analysis for micro-blogs platform, this paper proposes an analysis model with three layers. The first layer achieves the data preparation modules and provides normalized data for interest analysis. The second layer extracts user interest of the product by performing a sentiment analysis on micro-blogs platform. The third layer uses the satisfaction and attention degree calculated by the user interest to show the market trend of the products. The whole model provides an instant solution constructing the product market analysis system for micro-blogs platform.

**Key words:** Micro-blogs Platform; User Interest; Sentiment Analysis; Product Market Analysis

**Research on Authentication Levels Mode of OpenID Authentication System..... (7)***Xia Ye, Qian Songrong (Department of Communication Science and Engineering, Fudan University, Shanghai 200433, China)*

**Abstract:** Based on OpenID authentication system, the article analyzes the functional and security requirement of both end users and relying parties of today's distributed authentication system, proposes an extension to OpenID protocol by defining 4 different authentication levels according to different authentication requirement. Characteristics such as anonymity, completeness and unforgeability are shown on each level of authentication with cryptographic protocols. The security achieved on some authentication levels increases users' trust on relying parties. This classification into different authentication levels can be a reference for relying parties to choose their strategy for their service and for end users to get a security assessment of the relying parties.

**Key words:** Authentication Level; OpenID System; Security; Trust

**Improved MUSIC Source Localization Algorithm and its Matrix Analyze..... (10)***Feng Zhongling<sup>1</sup>, Tong Yinghua<sup>2</sup>(1.Department of Physics, Qinghai Normal University, Xining 810008,China; 2. Department of Computer, Qinghai Normal University, Xining 810008, China)*

**Abstract:** This paper introduces the process that traditional MUSIC algorithm temporal characteristics improved into frequency domain ,sound localization of the apply it on Sound localization by the microphone array of GSMMA model, and the article gets a good localization result by computer simulator. Furthermore, this paper analyses the matrix theory of the improved MUSIC algorithm.

**Key words:** Sound Localization; GSMMA; Improved MUSIC Algorithm; Matrix Analyze

**Research on Maritime Search and Rescue Case-Based System..... (13)***Yu Weihong<sup>1</sup>, Han Junsong<sup>2</sup>(1.College of Transportation Management, Dalian Maritime University, Dalian 116026,China;2.Liaoning Maritime Safety Administration, Dalian 116001,China)*

**Abstract:** With the development of shipping industry, maritime accidents frequently happen. After receiving a distress report, rescue coordination center makes a search and rescue decision and performs some actions quickly, orderly and effectively. While making a decision, it is a fast and effective way to refer to the historical similar cases. At present, the search and rescue cases are mostly scattered stored in the various departments in the form of text or graphics. So, it is difficult for computers to understand the cases. Because of this status, maritime search and rescue case-based system is developed, and some key issues, such as case storage, case maintenance, case statistics and case-based reasoning and so on are studied.

**Key words:** Maritime Search and Rescue; Case Retain; Case Description; Case-Based Reasoning

**Design and Research on the Electronic Speed Governor for a Diesel with the Combination of Digital-Analog Skills..... (16)***Shen Jie, Tian Zuohua (Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)*

**Abstract:** In this paper, an analog electronic speed governor for a diesel generator is improved into a multifunctional speed governor which can change data through digital-potentiometers board and speed-control board based on ATmega8. Also the governor is based on S3C2440 ARM9 and embedded operating system Linux, using the skill of the serial communication and QV/Embedded. Experimental results show that the new governor can control speed, monitor the diesel generator and manage data effectively and reliable.

**Key words:** Diesel Governor; Mathematical Model Unite; ATmega8; Digital Potentiometers; SC2440 ARM9; Linux;

**Design and Implementation of a Public Credit Information Exchange Platform Application System..... (21)***Lei Yaolin, Wu Jian, Jiang Yixun (College of Computer, Northwestern Polytechnical University, Xi'an 710072, China)*

**Abstract:** The business and personal credit information in the Commerce and Industry Bureau, the national tax authority, the Quality and Technical Supervision, the regional tax authority, the bureau of customs are inconsistent in concept and data format. To solve this problem, based on J2EE, middleware and Object-oriented programming technologies, the paper proposes a design and implementation of a public credit information exchange platform application system. The logical structure of the system framework, the data exchange process and other key issues are discussed. Finally, the system modules are implemented. The system has been used in a province information center. The exchange and sharing of the public based on business and personal credit information of some of the major departments are implemented.

**Key words:** Data Exchange; Credit Information; E-Government

**Mean Shift Target Tracking Based on Pixel-level Image Fusion.....(25)**

Zhang Guohua<sup>1</sup>, Pu Jiwei<sup>2</sup>, Xue Lei<sup>3</sup>, Xiao Gang<sup>3</sup>, Pan Han<sup>3</sup> (1.Science and Technology on Electro-optic Control Laboratory, Luoyang 471009, China; 2.Luoyang Institute of Electro-Optical Equipment of AVIC, Luoyang471009, China; 3.Institute of Aerospace Science and Technology, Shanghai Jiaotong University, Shanghai 200240, China)

**Abstract:** The impact of pixel-level dynamic image fusion of video from visible and infrared cameras on Mean Shift object tracking performance is proposed, as compared to the problem of tracking in single modality videos. The fusion methods use weighted average fusion and fusion scheme based on region target detection, while the tracking method use Mean Shift algorithm. The fusion Experiments on real world image sequences indicate that aiming at the target moving from one area to a different area, the proposed method is effective and efficient, improving the tracking robustness, and meeting the real-time requirements.

**Key words:** Image Fusion; Dynamic Image Fusion; Mean Shift; Target Tracking; Fusion Tracking

**Software Simulation of Molecular Random Movement Based on Player-Stage.....(28)**

Hu Ying(Science and Education Research Office, Shenzhen Hanlin School, Shenzhen 518049, China)

**Abstract:** Molecular movement is a kind of typical Brown Movement. With many factors, individual behaves as the change of moving speed, random degree, or entropy. However, it is difficult to capture the moving track of fast and small molecular using traditional observing methods. So it is abstract to observe and analyze molecular random movement. This paper develops a software simulation of molecular random movement based on Player-Stage simulation platform. The software simulation simulates both physical and logical attributes of molecular to vividly display molecular random movement. To guarantee the real time of simulation, this paper uses Stage to simulate molecular movement, which is more efficiently than using Player. Meanwhile, this paper develops the logic model which is responsible for controlling the movement of molecular. The experiments show the simulation results of 50 and 100 molecular random movement, and the results validate the Brown attribute of molecular movement.

**Key words:** Molecular Random Movement; Player-Stage; Software Simulation

**A Block-based Continuous Data Protection System.....(30)**

Shen Yuannan<sup>1</sup>, You Lujin<sup>2</sup>, Yan He<sup>1</sup>, Tian Yimeng<sup>1</sup> (1.Department of Information Security Engineering, Shanghai Jiaotong University, Shanghai 200240, China; 2 Shanghai Sabei Computer Ltd., Shanghai 200025, China)

**Abstract:** Currently, electronic data has been becoming more and more important, which calls for more sophisticated measure for data protection. The goal of data protection is to provide fine-grain protection with least time and storage cost, and with least data lost after data recovery. For this, this paper have designed a block-based data protection system and implemented it, which can provide protection for Windows disk data in an efficient way. With experimental test, this paper found this system brings little negative influence to the normal work and can recover the damaged data in short time.

**Key words:** Continuous Data Protection (CDP); iSCSI; Windows; Snapshot

**A Data Protection Algorithm for NAS Security Control.....(34)**

Wang Hongbo, Zhu Lanjuan(Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)

**Abstract:** Nowadays, NAS system becomes one of the most widely used network storage systems, which enhanced the efficiency of data application and in the meanwhile brought forward an important area on data securities. This paper focuses on the security of NAS data access and proposes a concept of "Disk-writing Key", which combined the traditional RAID5 strategy with the data authentication technique, to encrypt the data and guarantee the undeniable property for the NAS system.

**Key words:** NAS Security; Disk-writing Key; RAID; Undeniable Property

**Design and Implementation of IPv4/IPv6 Campus Network..... (37)**

Si Guangtao, Ren Fenfen(School of Computer Science, Qufu Normal University, Rizhao 276826, China)

**Abstract:** With the comprehensive construction of CERNET2, it has been an inevitable trend for universities and colleges to establish IPv6 campus network and take active part in the test and study of it. The design and implementation of IPv6 campus network based on IPv4 network is studied in this paper. Firstly, from the aspect of technology, important transition technologies are used during the process of the transition from IPv4 to IPv6 and the communication between IPv6 networks, such as dual stack, tunnel, NAT - PT and so on are described. Secondly, from the aspect of design and implementation, the new hierarchical network topology with IPv6 network added to the existing IPv4 network topology, the services are provided by IPv6 network and the equipments required are studied in detail. It provides theoretical guidance and practical experience for the deployment and application of IPv6 campus network.

**Key words:** IPv4/IPv6; Dual Stack; Tunnel; NAT-PT; Topology; Service

**DEVELOPMENT AND APPLICATION****Research and Application of Wireless Sensor Controller Networks Self-Organizing Route for Underground Garage Inducing Fan.....(40)**

Lin Jiayi, Lu Linji (Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)

**Abstract:** In this paper, according to the technical requirements of Wireless Sensing Controllers Inducing Fan for Underground Garage, the specific target object is the underground garage temperature and CO concentration. More than 63 nodes are included in this wireless sensor network controller system. In this design and implementation, there is a complete set of self-organizing routing protocol. As for each underground garage is designed to different forms and underground garage is in use of different operating conditions, a set of control network for many conditions and self-organizing wireless sensor is needed to design. This reduces costs for the Ventilation Induced System, and greatly improves the coverage of the system.

**Key words:** Wireless Sensor Networks; Self-organizing; Inducing Fan

**Three-dimensional Animation Simulation of Aircraft Arresting Process..... (43)**

Zhao Kaiyu, Wu Juan, Li Yongheng, Hu Yong (College of Automation, Northwestern Polytechnical University, Xi'an 710072, China)

**Abstract:** This paper presents a practical method to establish Aircraft Arresting Visual animation. Firstly, this paper establishes three-dimensional models by creator. Secondly, this article integrates the various models in the same scene by Vega. Set the aircraft landing trajectory by Lynx. The cables of aircraft arresting net are established through Opengl, they can be extruded with the plane. Unify the overall framework in VC through the interface between them. Finally, this paper builds a very realistic three-dimensional visual simulation of Aircraft Arresting Device which has very good values for the directviewing research of them. Through the practical analysis, it is better than the two-dimension simulation in intuition and practicability.

**Key words:** Aircraft Arresting Device; Three-dimensional Model; Virtual Reality; Visual Animation

**Design of the Basic Spatial Data Central Framework--Taking the Example of the Kunming Planning and Management Information System**.....(46)*Li Tianlan (Faculty of Land Resource Engineering, Kunming University of Science and Technology, Kunming 650093, China)*

**Abstract:** First, this article introduces the significance and three constituents of the Basic spatial data central framework: the planning comprehensive database, the system of information resource sharing exchanging and the services structure of information resource. When this paper construct the plan comprehensive database, determining which databases can be constructed is very essential, which is the sharing foundation. While the system of information resource sharing exchanging is the sharing technological means, which is very essential. The services structure of information resource mainly has involved system's maintenance and the renewal aspect content. This article takes plans the management information system of Kunming as an example, introducing the design of the three constituents in detail.

**Key words:** the Basic Spatial Data Central Framework; Planning Comprehensive Database; System of Information Resource Sharing Exchanging; Services Structure of Information Resource.

**Workflow Model and Algorithm Designing Based on Office Automation System**.....(49)*Ren Jing, Hao Jie (College of Aviation Technology, Xi'an 710077, China)*

**Abstract:** With the rapid development of computer science, most enterprises have implemented office automation system (OA). The workflow technology is a core business process management automation technology. Through business process modeling and business process modeling and analysis entities, designed based on Petri net office automation workflow system prototype. The existing Petri nets and WF-net based on the theory, designed to achieve the algorithm workflow, and established a office automation system to streamline the work flow model.

**Key words:** Office Automation; Petri Net; WF-net; Work Flow Model; Algorithm

**Elimination of Algorithm of Chinese Word Segmentation for Web Search Engine**..... (52)*Xu Ji, Zhu Lanjuan(Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)*

**Abstract:** This paper proposes an elimination of ambiguity method which can use in the web search engine based on forward maximum match method. By using single word and two words of high frequency, different word of different frequency and principle of long-term word priority, this paper can eliminate the overlapping ambiguity and combination ambiguity in the Chinese word segmentation. The result shows that the improved backtracking algorithm is more effective than forward maximum match and backtracking algorithm in disambiguation. The test result of overlapping ambiguity field of high frequency shows that the correct rate of using the improved backtracking algorithm is up to 75%.

**Key words:** Chinese Word Segmentation; Elimination of Ambiguity Method; Overlapping Ambiguity

**TECHNICAL COMMUNICATION****Design and Application of Virtual Serial Port Management Software**..... (55)*Jiang Yuanjian,Wang Bin,Xu Wei(Information Technology and Communication Company, NARI Group Corporation,Nanjing 210003,China )*

**Abstract:** In order to meet requirements for production and installation of the PLC devices, this paper introduces a method using the virtual serial port software to implement communication test and management for the PLC devices. The software has the charge of configuration of the virtual serial port devices and converting serial data frame to network data frame. The program structure and implementing technology for the software is given in this page.

**Key words:** Virtual Serial Port; Management; Data Convert

**Realization and Study of the fast Statistical Method in the Real-time System**..... (57)*Yan Xijun, Gong Xinliang, Xu Lizhong(School of Computer and Information, HO Hai University,Nanjing 210098,China)*

**Abstract:** This article introduces the fast statistical method in the real-time data collecting system. In view of the low speed and low efficiency of the traditional centralism statistical method, it proposes one fast disperser statistical method which divides a big data table into several data tables with the same structure. This method enormously enhances statistical and the inquiry efficiency and satisfies the timely request of the Real-time data collecting system.

**Key words:** MIS; Database; Table; Statistics; Real-time

**Research and Design of Network Teaching Platform Based on the J2EE** ..... (60)*Xue Shumin<sup>1,2</sup>,Yang Anqi<sup>1</sup>,Xu Yuliang<sup>3</sup>(1.College of Electronic and Information Engineering, Shaanxi University of Science and Technology, Xi'an 710021, China; 2. Department of Computer Science, Baoji University of Arts and Sciences, Baoji 721016, China; 3. Baoji Cigarette Tobacco, Baoji 721016, China)*

**Abstract:** From the Xianyang Vocational and Technical College "Multimedia Application Technology" teaching the work of the actual situation and in order to enhance students "multimedia application technology" learning the depth and breadth, proposed based on J2EE platform of network teaching and learning mode. The general structure, function module and backend database design. Through examples show that the WEB application technology development of network teaching platform with higher safety and practicality, and improve the students' practice ability.

**Key words:** Network Teaching Platform; Multimedia Technology; J2EE

**Produced by Flash 8.0 Radial Flashing Fireworks**..... (62)*Xing Suping(Nanjing Institute of Industry Technology, Nanjing 210046,China)*

**Abstract:** This paper presents a bonfire of skin by using flash 8.0 statement. The article states elements of production ,movements and movements of the statement using an animated and effective implementation. Using some knowledge such as shape tool, color pannel, duplicateMovieClip function etc.

**Key words:** Components; Image; Cartoon Effect

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