

微型电脑应用

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EXPERT FORUM**Technique Development Trends of Foundational Software**..... (1)

Yu Huiqun¹, Qian Zhiling¹, Zhu Zhongying² (1. School of Computer Science and Engineering, East China of University of Science and Technology, Shanghai 200237, China; 2. School of Electronic, Information and Electrical Engineering, Shanghai Jiaotong University, Shanghai 200030, China)

Abstract: This paper surveys various aspects of foundational software, including basic concepts, characteristics, contents, requirements, techniques and products. Main streams of foundational software, as well as future development trends are addressed. Based on analysis of typical application domains, we explore the current situation and limitation of foundational software development in China. This survey aims to assisting decision making for domestic foundational software industry policy.

Key words: Foundational Software; Software Engineering; Software Service; Software Industry

RESEARCH AND DESIGN**Design and Implement of the Performance Optimization in Network Storage System**..... (3)

Li Lina (School of Information Security Engineering, Shanghai Jiaotong University, Shanghai 200240, China)

Abstract: Vast amounts of data appear with the digital wave, the world is entering an era of network storage. NFS (Network File System) is one of the most common protocols used nowadays. But the default setting of NFS is based on SYN UDP, which cannot achieve traffic control during communication and easily results in performance barriers in a heavy-loading network storage system.

According to the demand of airborne storage, this paper analyzes the NFS protocol on a stable and reliable real time operating system- VxWorks, and design optimization for the NFS protocol based on queuing theory.

Key words: Network Storage; VxWorks; NFS; Traffic Control

Strengthening the Research of Information Security Risk Evaluation..... (6)

Fu Shai (Software School, Hunan University, Changsha 410082, China)

Abstract: This paper reviews the history of information security risk evaluation job at home and abroad, points out the importance of each application field while carries through with information security risk evaluation. The information security risk evaluation question is elaborated, the major methods in information security risk evaluation fields are introduced, and the methods are analyzed and studied. Discusses the processes and forecasts the future prospect.

Key words: Information Security; Risk Evaluation; Asset Threat; Weak Point

Design of the Mobile Game's Map..... (9)

Cheng Hexia¹, Sun Yinan¹, Huang Guoxing² (1. Department of Computers, Anqing Teachers College, Anqing 246011, China; 2. College of Software, East China Normal University, Shanghai 200237, China)

Abstract: The design of the game's map is the most important part of the game design. The other elements of the game are dependent on this design of game's map. Map system must consider these issues: the standard format of the map, Using of this standard format and forming a map and analysis to the map and display on the screen. This Paper describes the map design of advanced technology through the game of outrun, including the map storage, map animation, map optimization.

Key words: Game; Mobile Phone Game; Game's Map; Map Storage; Map Optimize Feedback Control for Fractional-Order Linear

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Lou Zhengqing (Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)

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Key words: Fractional-order System; Robust Stability; Linear Matrix Inequality; Static Output Feedback Control

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Jia Leilei¹, Li Shuyu² (Computer Science College, Shanxi Normal University, Xi'an 710062, China)

Abstract: Through analysis of the current status of community e-service system, there is the performance bottleneck of existing systems, network latency, slow integration of new business issues, and design an open community-based e-service platform across operating systems and network platform, cross-programming environment, which will help with existing systems integrated, flexible and scalable, support system for rapid remodeling and new services quickly access. At the same time in view of all the disadvantages of traditional software development, in the organization of the OMG's MDA (Model Driven Architecture) framework for thinking a detailed analysis and research, build PIM and PSM of community e-service development platform, ultimately achieved quickly a new community e-services development platform.

Key words: MDA; Community E-service Platform; PIM; PSM

Knowledge Acquisition Framework for Unstructured Information..... (18)*Zou Zhipeng, Rao Ruonan (School of Software, Shanghai Jiaotong University, Shanghai 200240, China)*

Abstract: Unstructured information such as text, images, audio, contains a great deal of knowledge, how to acquire these knowledge from the massive unstructured information automatically is a serious problem. This paper presents a knowledge acquisition framework for unstructured information called KAFUI which is based on UIMA. KAFUI support heterogeneous accessing of unstructured information resources, integrating and re-using of analysis engines. The analysis results got from unstructured information contains lots of annotations of knowledge objects such as entities and relations between them. These knowledge objects will be transformed to the knowledge form presented by OWL. In addition, KAFUI supports the discovering new facts through reasoning. The prototype implementation of the framework has been applied in real scenarios, and experimental conditions shows it is feasible and effective.

Key words: Unstructured Information; UIMA; Knowledge Acquisition

DEVELOPMENT AND APPLICATION**Development of the Circular Parametric Current Transformer Error Simulation Software**..... (22)*Jiang Ling, Guo Qiyi, Huang Shize, Peng Yu (Electronic and Information Engineer College, Tongji University, Shanghai 200331, China)*

Abstract: During the simulation of electromagnetic current transformer, it needs lots of input parameters. MATLAB is a powerful simulation software, but it does not have a friendly interface for parametric input and management capabilities of abundant data. VB.NET can be used to develop a friendly interface for parametric input, Access and Excel can be used to manage abundant data. Combining respective advantages of the four software, the simulation software of circular electromagnetic current transformer is developed. In the software, MATLAB is called by VB.NET through .NET components. And the Access is used to export magnetic curve and the Excel is used to save data.

Key words: VB.NET; MATLAB; Access; Excel; .NET Component; Electromagnetic CT

Zerotree Combined Application Of Clustering Algorithm for Image Data Mining..... (26)*Wang Chao, Zhou Zhigang, Wang Deguang (Software Technology Institute, Dalian Jiaotong University, Dalian 116028, China)*

Abstract: The current image-based data mining mainly uses the cluster analysis method, but the shortage of the cluster analysis method is how many types the image should be classified, which is affected by many factors influence. And it's difficult to provide convincing evidence and proof. In this paper, the defect is proposed on the image data mining as a new idea, namely, the introduction of wavelet theory in the Zerotree algorithm to determine the image number and location of the initial class, and then divided the use of clustering algorithms. Experimental results show that using a combination of Zerotree image data mining method is given a more reasonable explanation for improved efficiency and image similarity clustering than the original image data mining algorithms.

Key words: Zerotree; Image Data Mining; Clustering; Wavelet Theory

Implementation of Interpolating Catmull-clark Surfaces..... (29)*Song Guotao, Liu Jinyi (School of Computer and Communication Engineering, Liaoning Shihua University, Fushun 113001, China)*

Abstract: Catmull-Clark subdivision is an approximating subdivision scheme, which does not interpolate the initial control vertices. By analyzing the Catmull-Clark subdivision matrix, an interpolation condition is proposed. Solving the interpolation condition we derive a new mesh. Applying Catmull-Clark subdivision on this mesh, the limit surface interpolates the control vertices of the initial mesh. In the end, we discuss the shape of the limit surface.

Key words: Catmull-Clark Subdivision; Subdivision Matrix; Interpolation Condition; Limit Surface

Visualization Data Management of the XML-based SVG File from Power System..... (33)*Yan Zengrui, He Xing (Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)*

Abstract: XML is a W3C open standard set of metadata markup language, is an open, scalable, platform-independent, self-descriptive characteristics. SVG is a W3C-defined XML-based description of the text of the standard vector graphics file formats, has good application properties, and in the visualization of power system research has been widely used. This study analyzed starting from the XML document DOM interface, the analytic methods to explore the power system of the SVG document is graphic interactive application, and basically realized the programming elements in SVG document to add, modify, delete and search functions.

Key words: XML; SVG; DOM

Cyclic Recording Monitor System Based on ARM9 in Linux Environment..... (35)*Chen Cangyi, Lu Linji (Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)*

Abstract: Based on the demand of video surveillance in certain special workplaces, such as unattended storage, broad-scale forest, and transports with high speed, the monitor system, which is low-cost and convenient to install is highly required. This paper provides one cyclic recording method based on embedded Linux system, great importance has been attached to the solution to the problems about how to avoid data or frame losing. The experiments show that it is feasible to use this method to video, which has broad prospects.

Key words: Embedded Linux; Video4Linux; FFMpeg; MJPEG

Technology of Night Image Enhancement Based on DSP..... (38)*Cao li, Lu lin ji² (Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)*

Abstract: In this paper, a fast Retinex algorithm based on color invariance was proposed. Through this, the contrast of the night image is enhanced while the color of the image is maintained. This algorithm is realized through real-time DSP, and the following experimental results shows that the algorithm is practical.

Key words: DSP; Image Process; Night image; Retinex

TECHNICAL COMMUNICATION**Studies on Rule-based Intelligent Diagnosis System**..... (41)

Cai Yiming, Zhou Yi(LianSheng Technology, Shanghai 200123, China)

Abstract: This paper focus on the limitation of current PC diagnosis systems, used Jess to build the Inference Engine, adhered to JSR 94, made up the frame in Java language, and finally realized the PC intelligent diagnose system with expansibility.

Key words: Rule Engine; Intelligent Diagnose System; Jess

Study and Realization of Digital Community Synthetic Information Integration System (44)
Zeng Hai¹, Wu Junsheng¹, Li Lin²(1.Guangzhou Radio and TV University, Guangzhou 510091,China;2.Singapore New Electronic System PTE.LTD., Guangzhou 510091,China)

Abstract: This paper is proceed from the experience of Digital Community and put forward an essential in building Digital Community that are to carry out the system integration and information sharing along with building an intellectualized and synthetic information integration system, which can offer an effective solution of synthetic management in Digital Community integration.

Key words: Digital Community; Synthetic Information Integration System; System Integration; B/S

Detecting and Tracing Algorithm of Blind Sidewalk Based on Color Information (47)
Zhou Yi,Zhao Qunfei(Institute of Image Processing and Pattern Recognition, Shanghai Jiao Tong University, Shanghai 200240,China)

Abstract: Blind sidewalk is an important component for the blind people to go out in their daily life. This paper proposes a blind sidewalk detecting and tracing algorithm based on the color information and lays emphasis on dealing with the change of illumination and the cast shadow. This algorithm could be used in the portable or wearable equipment such as electronic walking stick, in order to guide blind pedestrians or visually impaired people walking safely along the Blind sidewalk with a sound or vibration signal.

Key words: Blind Sidewalk Detection; Blind Sidewalk Tracing; Blind Sidewalk Color; Shadow Removal

Feature Based on Recognition of Car..... (51)
Huang Can(Department of Automation, Shanghai Jiaotong University,Shanghai 200030,China)

Abstract: In this paper, we present a method for automatic detection and recognition of car types. There are two main stages in this process: First, detect the car based on adaboost learning algorithm and get the region of car face. Second, recognition of the car based on SURF feature matching. In our experiment, the algorithm yielded a recognition rate of 81.6% when tested on about 800 images containing 48 different kinds of car type.

Key words: Adaboost; SURF; local feature; car recognition

Older Driver's Behavior Safety Evaluation Methods Based on Multi-source Information Fusion Model..... (53)
Xu Li,Zhao Qunfei (Institute of Image Processing and Pattern Recognition, Shanghai Jiaotong University,Shanghai 200240,China)

Abstract: In this paper we propose a information fusion model to provide exact evaluation of the driver condition and improve the driver safety degree. Firstly, the influence of age and driver speed on the driver safety is analyzed, and we found the safety degree declined as the exponential function. Secondly, based on the driver's behavior information data and the road information data, we proposed a fuzzy information fusion method to give the integrated estimation of the driver safety degree. In this way, we can get them comprehensive understand about the surroundings and themselves. Finally, the information fusion rules can be adjusted to satisfy different drivers through analysis the driver behavior log and their history incident log. Based on the fuzzy inference results, some driver behavior adjust policies can be proposed to the drivers. The experimental results based on data form American National Highway Traffic Safety Administration show that the methods proposed in this paper is more sensitive and is efficient in improving the older driver safety.

Key words: Older Drivers, Assistant Driving System, Fuzzy Information Fusion

System Resources Optimized Nesting for Choosing Classes Analysis..... (57)
Li Hong (Guangdong Peizheng College,Guangzhou 510830,China)

Abstract: This Paper based on probability dynamic distributing, using the Multi-channel Queuing arithmetic of operational research, bring forward a recourse optimization of the server.

Key words:Queuing Arithmetic,Multi-channel,Course-selection, Optimization.

Introduction of CFITSIO and Its Applied Example..... (59)
Ou Jianbin(Jinan University, Department of Computers Science,Guangzhou510632,China)

Abstract: In this paper, the software package CFITSIO is introduced, as well as the standard astronomical data format—FITS.

Key words: FITS; CFITSIO; Flat-field Correction

Design and Implementation of Traffic Lights Control System Based on Ethernet/IP Protocol (61)
Ge Yuqing (Rockwell Automation System and Solution Business, Shanghai 200051, China)

Abstract: Based on Ethernet/IP protocol, the design and realization of traffic lights control are studied using Rockwell controller and Rockwell software. This experiment provides an integrated reference for city transport construction.

Key words: Ethernet/IP Protocol; Micro Logix; Network Communication; Logic Program; Monitor Control

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