微型电脑应用

Weixing Diannao Yingyong

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EXPERT FORUM

Research on Trends of Software Technology Development ····· (1)
Zhu Zhongying[1],Yu Huiqun[2],Wang Jingyin[3],You Jinyuan[1],Gao Yuqian[4](1.School of Electronic Information and Electrical Engineering, Shanghai Jiaotong University,Shanghai 200030,China;2.Department of Computer Science and Engineering, East China of University of Science and Technology,Shanghai 200237,China;3.Shanghai Institute of Computing Technology,Shanghai 200040, China;4.Shanghai Software Park Office,Shanghai 201112,China)

Abstract: Software technology is not only the core of information technology industry, but also the important foundation of software industry and information applications. Nowadays, information technology which is on the eve of the breakthrough of a new round critical technology will greatly push the information industry and software industry forward to new development and put new requirements for software technology, and also certainly leads momentous changes in software technology. Through the analysis of main factors of affecting software technology development, this paper presents that software technology is quickening towards networking, convergence, trustworthy, intelligence, engineering and servicing. New features and new connotations of the trends of software technology development are interpreted in detail. Finally, it is pointed out that software technology serves as the foundation of software industry, while software industry is the driving force for development of software technology.

Key words: Software Technology; Internet; Convergence; Intelligence; Service

RESEARCH AND DESIGN

Design and Implement of Web GIS Based on ActiveX and Web Service in Electric System ····· (5)
Jiang Xiao[1],Shi Haoshan[1], Chen Dingjian[2](1.Northwestern Polytechnical University, Xi'an 710129,China;2.Suzhou Wanlong Group Co. Ltd, Suzhou 215123, China)

Abstract: Web GIS is focus in GIS study fields. It expends GIS application range, and realizes sharing information. It has better development foreground than GIS. This paper gives a kind of method which based on ActiveX Control and Web Service to achieve Web GIS, and describes its detail. Comparing to traditional method, this paper give a method to realize rich client, the users gain a better experience.

Key words: Web GIS; ActiveX; Web Service; Rich Client

Modeling and Numerical Simulations of Planar Solid Oxide Fuel Cell ····· (7)
Feng Xingqiang,Yu Qingchun(Fuel Cell Research Center, Shanghai Jiaotong University, Shanghai 200240,China)

Abstract: A model of flat-plate solid oxide fuel cell (SOFC) for Computational Fluid Dynamics (CFD) model based on Flow model and thermal model was developed with hydrodynamics computation software FLUENT. The model used the electrochemical reaction equations, mass, momentum and energy conservation equation to describe heat and mass transfer in the SOFC, and also simulated the profile of operating voltage, temperature, and a variety of polarization distribution in the SOFC numerically. Research shows operating voltage, temperature and polarization distribution under the downstream and upstream flat plate type SOFC. The results demonstrated that upstream flat plate type SOFC get better performance, with higher electric power and fuel efficiency.

Key words: SOFC; Heat and Mass Transfer; CFD; FLUENT

Simulation of Wi-Fi Based on Wireless Networked Control System ····· (10)
Zeng Shan, Weng Zhengxin (Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)

Abstract: In recent years, Wi-Fi has been developing greatly as the representative for the WLAN technology, it has been deployed in many application areas. In the control field, it has become a research frontier to integrate the wireless network with and the traditional control systems form the WNCS with many advantages, such as high-mobility, extendibility, flexibility and so on. In this paper, a Wi-Fi based on WNCS is studied. With the TrueTime toolbox and the MATLAB/Simulink environment, a simulation model of the WNCS is built, a corresponding PID controller is designed and the influence of network data rate, sample period on the system's control performance is analyzed.

Key words: Wi-Fi; WNCS; Truetime Toolbox; PID Control; Network Performance Index

Matching Algorithm Research and Implementation in Intranet Based on Knowledgebase ····· (12)
Zhao Jianhua,Zhang Tongzhen(Department of Computer Science and Engineering,Shanghai Jiaotong University,Shanghai 200030, China)

Abstract: Knowledgebase is a feasible method in Intranet. Matching is the key of Knowledgebase, this paper analyses all kinds of factors in Matching and proposes a matching algorithm based on question's keywords, weight of keywords', question frequency and special semantic words. Finally, it gives the implementation system scheme.

Key words: Knowledgebase; Matching; Keywords; Keywords' Weight; Question Frequency; Semantic Words

Overview of Distributed Key Management for Mobile Ad Hoc Network ····· (15)
Chen Chaoda[1], Liang Zhuxun[2], Zheng Shiji[1](1.Tianhe College of Guangdong Polytechnical Normal University,Guangzhou 510540,China; 2.Xi'an Jiaotong University, Xi'an 7100493,China;3.Xinhui Cable TV Station, JiangMen 529000,China)

Abstract: Traditional key management scheme is designed to provide secure communications for the existing Internet. Mobile Ad Hoc network is a novel wireless network which main feature is mobility and energy-constrained nature. Therefore traditional key management scheme cannot be applied in the MANET directly. For these characteristics of MANET, researchers have proposed many effective and secure key management schemes. This paper expatiates several typical distributed key management schemes for MANET and analyses their principles and characteristics.

Key words: MANET; Key Management; Distributed; Assembled; Wireless Communications

Information System of the Engineering Geological Investigation Analysis and Design Based on J2EE ····· (18)
Wang Jishui,Yu Hong(Department of Information Engineering, Changzhou Institute of Mechatronic Technology, Changzhou 213164,China)

Abstract: This article makes general analysis and design for the information system of the engineering geological investigation based on J2EE, and makes

detailed descriptions about the developing concept and technology implementation of the system.

Key words: J2EE Technology; Engineering Geological Investigation; Information Management System Design

Design of Intelligence Combined Meter in Automobile Based on Embedded Program ····· (20)

Yang Xingshan, Wang Ji, Liu Yin (School of Mechanical Engineering, Shanghai Jiaotong University, Shanghai 200030, China)

Abstract: A method of designing of intelligence combined meter in automobile is introduced, its developing process is discussed, and the system software and hardware is analyzed. The meter is based on uPD78F0433, an 8-bit microprocessor from NEC Company. In the method, the mileage is displayed on LCD, the rotation speed, vehicle speed, water temperature and fuel level are displayed on needle meters. The meters can protect important data when power off, alarm for over speed and low fuel.

Key words: Combined Meter; UPD48F0433; Hardware Frame; Software

Design and Research on Self-service System for Ticket Selling····· (23)

Wu Xiumin, An Desheng, Chen Shibin, Fang Wei (College of Computer Science and Technology, Huazhong University of Science and Technology, Wuhan430034, China)

Abstract: This paper mainly researches into the hardware construct and the software design of the self-service system for student train ticket selling. With the uses of the student information database(s) and the ticket database(s) of Ministry of Railways, such a system can implement excellent management without need of people. It not only helps the out-of-towner students to buy train tickets, but also reduces the workload of the ticket sellers dramatically. In summit is a system of great practical value. By adding other information databases, this system can be easily extended to support other kinds of people to buy tickets with their certificate number freely.

Key words: Self-service for Ticket Selling; Database Design; State Machine; Communication Protocol

Approach for Solving Nonlinear Equations Based on Adaptive Simulated Annealing Genetic Algorithm····· (25)

Hu Fei,Zhao Zhiguo(College of Automotive Engineering, Tongji University, Shanghai 201804,China)

Abstract: The problem on solving9 nonlinear equations is converted into that of function optimization. Considering the defect of the traditional genetic algorithm (GA) which is prone to be premature convergence, it is improved by the following two ways: firstly, the adaptive crossover fraction is adopted to create crossover children and mutation children; secondly, the ideology of the simulated annealing algorithm (SA) is integrated. Then the Adaptive Simulated Annealing Genetic Algorithm (ASAGA) is proposed. Numerical experiments show that the global searching ability is enhanced and the ASAGA is a reliable approach in solving nonlinear equations.

Key words: Genetic Algorithm; Annealing Algorithm; Adaptive; Nonlinear Equations

DEVELOPMENT AND APPLICATION

Design of the Graphical Real-time Energy Control Accounting System····· (28)

Jiang Limin, Zhao Xia (School of Electronic, Information and Electrical Engineering, Shanghai Jiaotong University, Shanghai 200240, China)

Abstract: In process industries, traditional energy consumption control only allowed to be settled by a certain period of time (usually by month), which is not able to get real time information of product cost. In this paper, based on input-output theory, an energy control accounting system with graphical interface is developed, which analyzes real-time energy consumption and implements the online dynamic cost control. The system has been put into use and obtained much benefit.

Key words: Manufacturing Execution System (MES); Process Industries; Energy Consumption; Input-output Theory; Graphical Interface

A μC/OS-II Based Distributed Control System for Intelligent Vehicles····· (31)

Zhang Yuteng[1],Wang Bing[1],Wu Changmao[2](1.Automation Department,Shanghai Jiaotong University,Shanghai 200240,China;2.Research Institute of Robotics, Shanghai Jiaotong University,Shanghai200240,China)

Abstract: A distributed vehicle bodywork control system which take free scale S12DG128 16 bit Singlechip as the central controller is designed. μC/OS-II real time operation system is also used, and the task allocation and scheduling is optimized. The stability and reliability of the system is enhanced. The modularization of the system also make the intelligent vehicle more flexible and the system upgrade would be easier.

Key words: Distributed Control, Intelligent Vehicles; μC/OS-II; S12 Singlechip

Application of Real-time Data Pre-processing Technology in Data Mining····· (34)

Chen Xin, Zhao Xia (Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)

Abstract: Process Industry Data mining results based on the accurate measurement of the required parameters, this paper presents a SVM-based hybrid algorithm of real-time data pre-processing. Through this algorithm, the accuracy of data is greatly improved which will access to data mining system. Design thinking and implementation details of this algorithm are also presented here, and the real-time data pre-processing system based on this algorithm is successfully applied to a large-scale chemical industry with satisfactory results.

Key words: Process Industry; SVM; Real-time Data Pre-processing

Relationship and Integration Analysis of Collaborative Software and ERP····· (36)

Du Dong,Guo Dongmei(Department of Information Management, Hohai University, Changzhou213022,China)

Abstract: The collaborative software is communication and cooperation software that can realize team work, ERP is the system that can achieve optimal distribution about enterprise resources with the continuous development of enterprise informationization, separate implementation of collaborative software or ERP system has been unable to meet the needs of enterprise, integration is an inevitable trend. This paper analysis the relationship between collaborative software and ERP, points out that the integration of collaborative software and ERP is needed. At the same time, the paper researches on how to integrate collaborative software and ERP. Finally, the prospect of integration about two has been forecast.

Key words: Collaborative Software; Enterprise Resource Planning (ERP); Integration

Method to Get 3D Image by Focusing····· (39)

Hu Lexin (Honeywell Integrated Technology (China) Co., Ltd, Shanghai 201203,China)

Abstract: Traditional digital imaging method can only get 2D images of targets which could not exactly describe target's shape and distance. This paper gives a new method to obtain 3D information of targets by analyzing focus data. It is based on optical imaging principle and can be easily implemented by software in traditional imaging systems without investment for special hardware devices.

Key words: Focusing; Three-dimensional; Imaging, Modeling

Component Retrieving by Search Result Refinement in Multi-library Based on Feedback····· (42)

Zheng Liyin, Lang Yingying(Institute of Computer Science and Communication Engineering, China University of Petroleum, Dongying 257061,China)

Abstract: To implement sharing resources in many component libraries with different classifications can expand the scope to retrieve and improve the retrieval efficiency, however, the retrieval precision rate and recall rate of multi-component library retrieving search is a problem to be solved. This paper

analyzed keyword search principle and semantic relation model, then use of domain ontology, proposed a kind of multi-component library of secondary retrieval model which based on user feedback of semantic relations identification, then obtain high-quality search results. The validity and feasibility of the method is certified by the experiment.

Key words: Component Library; Search Result Refinement; Feedback; Domain Ontology

Localization and Cooperation of Intelligent Vehicles in Typical Transportation ····· (45)

Peng Xinrong, Wang Bing, Xie Qiangde(Department of Automation, Shanghai Jiaotong University, Shanghai 200240, China)

Abstract: This paper builds and designs a distributed cooperative system of intelligent vehicles based on multi-agents. The embedded system includes multi-vehicle cooperative system's hardware, software and communication protocol. This system can be used as simulation platform for research on coordination algorithm of multi-vehicle cooperative system. Considering typical urban traffic situation, this paper proposes two layers' cartographic model based on topology structure, and implements vehicle's precise localization with the combination of visual system and odometer. On this basis, the paper designs coordinating algorithm for intersection based on conflict table, and platoon algorithm. This article implements intersection, platoon and overtaking with this system. Experiment results prove the feasibility and reliability of multi-vehicle system's localization and cooperation.

Key words: Multi-vehicle Cooperation; Intelligent Vehicle; Visual Navigation; Conflict Table

X-ray Console Software System ····· (48)

Wang Juru(Shanghai Medical Instrumentation College,Shanghai 200093,China)

Abstract: The basic theory of MVC pattern and the working process of X-ray console system is introduced and then talk out the system based on MVC model. With modern software engineering design software, it is very important to achieve the separation of business logic and data, to make the system upgrades and maintenance to be easy. This paper use 232 protocols to communicate with PC, and 485 protocol to communicate with logic board. In order to facilitate reading the data, the whole-chip Flash is divided into code area and data area. The data area is divided into the file structure area, the data table area, and the character area. The console control the whole X-ray machine. There are many advantages, such as friendly interface, easy operation, efficient running, accurate control, and fast response.

Key words: MVC; X-ray Machine Console; Embedded Development

TECHNICAL COMMUNICATION

How to Use Asp Technology in Web Database ····· (51)

Wang Jiannan(Nanjing Vocational College, Nanjing210046 ,China)

Abstract: This article introduces a system of ASP and ASP and other associated technologies such as CGI, ISAPI accordingly introduced. The aim is to give readers a basic understanding. Then, using examples of the ASP technology in the landing WEB database system to achieve.

Key words: WEB; ASP:Database ;CGI ISAPI ADO (AXTIVE DATA OBJET)

Gaussian Process Based on Sewage Nitrogen Removal Process Soft-Sensor Method ····· (54)

Tian Yu,Yan Weiwu(Automation Department, Shanghai1 Jiaotong University, Shanghai 200240, China)

Abstract: Sewage treatment is a kind of process which has bad production conditions, strong random disturbing, huge non-linearity, time-variant and big time delay. The accurate mathematic model of it is very hard to obtain. A Gaussian regression method is introduced in the sewage nitrogen removal process soft-sensor based on the attribute of the sewage treatment process. The IWA/COST benchmark simulation model 1(BSM 1) serves as the data model. Application studies showed that the GP soft-sensor has high accuracy which met the demand for reliable measurement requirements in industrial application.

Key words: Semi-Supervise Learning; Soft-Sensor; BSM 1

Research on Improving the Algorithm for DTW ····· (56)

Zhu Minhao,Zhang Zhongneng(Department of Computer Science and Engineering, Shanghai Jiaotong University, Shanghai 200240,China)

Abstract: This paper researches the DTW algorithm in the speech recognition and put forward an improved algorithm which is verified with the experimental data. This algorithm has a drop in the speech recognition with an acceptable range, but effectively reduce the recognition time.

Key words: Dynamic Programming (DP); Dynamic Time Warping (DTW) ; Speech Recognition

Flash Based on Text Manipulation - the Production of Telephone Directories ····· (57)

Xing Suping(Computer and Software Institute ,Nanjing Vocational College , Nanjing210046,China)

Abstract: This paper describes the use of Flash text and script is designed to achieve the production of telephone directories. This design to add in the phone book primarily of records, modify records and display records functions.

Key words: Flash Interface; Telephone Directory

Modeling and Resource Allocation Optimization Using Resource Constraint Petri Net ····· (60)

Song Haixiang[1], Zhang Zhongneng[2] (1.Department of Computer Science and Technology,Shanghai Jiaotong University, Shanghai 200240, China; 2. Department of Computer Science and Technology, Shanghai Jiaotong University, Shanghai 200240, China)

Abstract: This paper defined a resource constraint Petri Net which introduced the resource constraint concept into generalized stochastic Petri Net. With this new Petri Net, each timed transition is associated with a resource and its fire rate is constrained by this resource. Business processes can be modeled and optimized by this Petri Net. This model not only includes the interactions of each task in the workflow but also includes the resources which can be used by this workflow. By the application of a branch and bound algorithm, best resource allocation solution can be found to optimize the whole workflow performance.

Key words: Petri Net; Branch and Bound; Performance Analysis; Business Process Modeling; Business Process Optimization

Address: 1954 Huashan Rd.,Shanghai,P.R.China
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