2008 6th IEEE International Conference on Industrial Informatics

Daejeon, South Korea
13-16 July 2008

Pages 1-542

IEEE Catalog Number: CFP08INI-PRT
ISBN 13: 978-1-4244-2170-1

Table of Contents

Actuated Voltage Shift Mechanisms of MEMS Capacitive Switch Based on Distributed Phase Shifter 1
Jia-hui Fu, Guo-hui Yang, Xun-jun He, Kai Tang, Qun Wu

A Hierarchical and Partial-distributed Localization Scheme for Ad-hoc Wireless Sensor Networks 6
Zou L.L., Zhao Z.W., Zheng Y.Q.

Study on photonic crystal filter for detecting the stimulated scattering signals in atmosphere 11
Zhang Y.L., Zhao Z.W., Liu F.

Research on Channel Estimation for OFDM Receiver Based on IEEE 802.11a 16
Huimei Yuan, Yingzhuan Ling, Hao Sun, Wen Chen

Optical Analysis for the Laser Scanning System 21
Tao Lv, Weihai Chen, Jianbin Zhang, Lixia Rong

Multi-Vision Information Fusion of a Laser Scanning System 27
Lihong Xu, Weihai Chen, Weiyang Song, Jianhua Wang

Color Map-Based Image Fusion 32
Mohammed Hossny, Saeid Nahavandi, Doug Creighton

From Character Animation to Robot Motion 37
Xing Shusong, Zhou Huanyun

Biologically Inspired Robot Behavior Design 43
Xing Shusong, Hua Jiefeng

Development and Application of Coastline Fractal Interpolation Computing System Based on GIS and Fractal Theory 48
ZHOU Jiang, Li Pei-wu

Development of Urban Land Grading Information System Based on Component GIS 54
ZHOU Jiang, Li Pei-wu

Mathematical Model of Coordinate Transformations for 3D Depth-of-field Collection System 60
Lixia Rong, Weihai Chen, Shouqian Yu, Weiyang Song

An Adaptive Speed-adjustable Scheme for 3D Laser Scanning Based on FPGA and DSP 66
Weiyang Song, Weihai Chen, Jingmeng Liu, Lihong Xu

Research on the architecture of Automatic Meter Reading in Next Generation Network 72
Li Li, Xiaoguang Hu, Jian Huang, Ketai He

A High-speed DAC module Designed for Imaging Radar 78
Li Wei, Wang Jun, Lei Peng

SVM Multiple Non-linear Regression for Moisture Content Detecting 82
Guohui Yang, Qun Wu, Yu Jiang

A Novel Fusion Method for DR /GPS Integrated Navigation System 87
Santong Zhang, Shiwu Yang

Research on Fast and Accurate Occlusion Detection Technology of Augmented Reality System 90
Zhang Jinling, Sun Hanxu, Jia Qingxuan, Yao Fusheng

Research of SoPC-Based Reconfigurable Machine Tools Controller 96
WEI Hongxing, WANG Songbai, SUN Kai, CHEN Youdong, WANG Tianmiao

Research on Reconfigurable Robot Controller Based on ARM and FPGA 102
WEI Hongxing, LI Chengcheng, CHEN Diansheng, WANG Jun, WANG Tianmiao

Kinematics Control for a 6-DOF Space Manipulator Based on ARM Processor and FPGA Co-processor 108
Zheng Yili, Sun Hanxu, Jia Qingxuan and Shi Guozhen

Table of Contents

A New Lightweight Database Encryption Scheme Transparent to Applications 114
Lianzhong Liu and Jingfen Gai

A Framework for Business-Oriented Security Audit 120
Lianzhong Liu, Wenli Jiang and Qiang Huang

Hardware Circuit Design of NC System Based on ARM and FPGA 126
Jingmeng Liu, Wheihai Chen, Tianmiao Wang, Youzhu Ling

Multi Sensor Data Fusion Method Based on Fuzzy Neural Network 132
Youzhu Ling, Xiaoguang Xu, Lina Shen, Jingmeng Liu

Automated Robot Cell for EBiD-based Nano-Assembly 138
Christian Stolle, Sergej Fatikow

Design of RF MEMS Phase Shifter Based on Saw-shaped CPW 144
Kai Tang, Qun Wu, Guo-hui Yang, Xun-jun He, Jia-hui Fu, Le-Wei Li

A Novel Design of RF-MEMS Phase Shifter Based on Bridge-like Coplanar Waveguide 149
Lu-kui Jin, Qun Wu, Kai Tang, Xun-jun He, Guo-hui Yang, Jia-hui Fu, Fang Zhang, Jongchul Lee

Modeling Technique for Down-state of RF MEMS Phase Shifter Based on Artificial Neural Network 154
G.H. Yang, Q. Wu, J.H. Fu, K. Tang, J.X. He

Fully-integrated CMOS Power Amplifier Design for WiMAX Application with Semi-lumped Transformer 159
Boshi Jin, Qun Wu, Guohui Yang, Fanyi Meng, Jiahui Fu, Kai Tang

New Symbol Synchronization Algorithms for OFDM Systems Based on IEEE 802.11a 164
Huimei Yuan, Xiaoguang Hu, Yingzhuan Ling

Implementation of CCK Based on DSP for a WLAN Transceiver 170
Lei Peng, Wang Jun, Li Wei

An Organization-Oriented Model for Federated Identity Management and Its Application 175
Lianzhong Liu and Junxiu Gao

A Trusted Role-Based Access Control Model for Dynamic Collaboration in a Federated Environment 181
Liu Lianzhong and Liu Peng

Operation Analysis of Headend Process Facility Using Discrete Event Simulation 187
Hyo Jik Lee, Sung Hyun Kim, Hee Sung Park, Chang Hwan Choi, Ji Sup Yoon and Byung Suk Park

Customer-Oriented Group Maintenance Model for Unreliable Service System 192
Gia-Shie Liu

Co..ceptual Design of Rail Transit Based Urban Logistics Delivery System 198
Ketai He, Juping Shao, Yubo Liu, Shaohua Dong

Process Abstraction and its Applications in Transportation Systems 204
Huang Ke, Li Zhihong, Benjamin H.-Y. Koo

Improved Genetic Algorithm for Variable Fleet Vehicle Routing Problem with Soft Time Window 210
Zhang Qinghua, Liu Yao, Cheng Guoquan, Wang Zhuan, Hu Haiqin, Liu Kui

Code reuse based on information items pool and application in WMS 216
Zhang Qinghua, Hu Haiqin, Cheng Guoquan, Wang Zhuan, Liu Yao

Evaluation Model of Regional Logistics Competence Based on Hierarchy and Fuzzy Decision 222
SHAO Ju-ping, HE Ke-tai, DONG Shao-hua, WU li-hua, MA tian-yun, WANG Dong

Safety Supervision Layer 228
Georg Hartner, Andreas Gerstinger

Modular Certification Support - the DECOS Concept of Generic Safety Cases 234
Egbert Althammer, Erwin Schoitsch, Gerald Sonneck, Henrik Eriksson, Jonny Vinter

Table of Contents

Outboard Flaps Control System based on the Avionics Deterministic Fault-Tolerant Data Bus LTTP 240
LeBel Kitoko, Lothar Klein, Georg Ried, Ulrich Zanker

Integrating Safety and Multimedia Subsystems on a Time-Triggered System-on-a-Chip 246
Roman Obermaisser, Bernhard Fr¨omel, Christian El Salloum, Bernhard Huber

Considering IEC 61131-3 and IEC 61499 in the context of Component Frameworks 252
Christoph Sünder, Alois Zoitl, James H. Christensen, Heinrich Steininger, Josef Fritsche

Framework for Distributed Industrial Automation and Control (4DIAC) 258
Thomas Strasser Martijn Rooker, Alois Zoitl Christoph Sünder, Antonio Valentini Allan Martel

On Comparisons of the ISaGRAF implementation of IEC 61499 with FBDK and other implementations 264
Valeriy Vyatkin, Julien Chouinard

Implementation Model Alternatives for IEC 61499 Function Block Networks 270
George Doukas, Kleanthis Thramboulidis

Definition of the Execution Model Used in the Fuber IEC 61499 Runtime Environment 276
Goran Cengic and Knut Akesson

Dynamic Reconfiguration of two Benchmark Production Systems 282
Mohamed Khalgui, Hans-Michael Hanisch

An Execution Semantic For Reconfigurable Manufacturing Systems 290
Mohamed Khalgui, Hans-Michael Hanisch

KNIVES: A Distributed Demand Side Management System - Integration with ZigBee Wireless Sensor Network and Application - 298
Toshihiko Handa, Akihiro Oda, Tomokazu Tachikawa, Junichi Ichimura, Yuji Watanabe, Hiroaki Nishi

Structural Health Monitoring System Considering Fault-tolerance 304
Yoshinao Matsushiba, Hiroaki Nishi

Cooperative Distributed Demand Control by Environmental Sensor Network - Estimating the Number of People by CO2 Concentration - 310
Tomokazu Tachikawa', Akihiro Oda, Toshihiko Handa, Junichi Ichimura, Yuji Watanabe, Hiroaki Nishi

A simulation platform for distributed energy optimization algorithms 316
Peter Palensky, Friederich Kupzog, Adeel Abbas Zaidi, Kai Zhou

An Enhanced Parking Lot Service Model Using Wireless Sensor Network 322
Jung-Wook Lee, Yoon-Bong Yoo, Jae-Jeung Rho

EEG Feature Extraction and Classification Using Data Dimension Reduction 328
So-Youn Park, Ju-Jang Lee

Bayesian Network-based Non-parametric Compact Genetic Algorithm 332
Joon-Yong Lee, Soung-Min Im, Ju-Jang Lee

Comfortable Environments for Mental Work By Suitable Work-rest schedule: Mental Fatigue and Relaxation 338
L.L. Chen, T. Sugi, S.Shirakawa, J.Z. Zou, M. Nakamura

Hierarchical Path Planning Approach for Mobile Robot Navigation under the Dynamic Environment 344
Zeng Bi, Yang Yimin, Yuan Wei

Locomotion Pattern Generation of Semi-Looper Type Robots Using Central Pattern Generators Based on Van der Pol Oscillators 349
Keigo Watanabe, Akihito Tajima, and Kiyotaka Izumi

A Switching Control of Underactuated Manipulators by Introducing a Definition of Monotonically Decreasing Energy 355
Kiyotaka Izumi, Yuichi Kamada, Keisuke Ichida, and Keigo Watanabe

Table of Contents

Simulation of Mobile Robot Motion Considering Uncertainties in Robot Model 361
Nak Yong Ko, Dong Jin Seo, and Gwang Jin Kim, Yongseon Moon, Youngchul Bae

Damage Reduction of Robot at the Emergence Crash by modifying Stiffness 367
Tae-Yong Choi and Ju-Jang Lee

Evolving Artificial Neural Network using Simple Augmenting Weight Matrix Method 373
Dong-Hyun Lee, Ju-Jang Lee

Intelligent Vision Sensor for the Robotic Laser Welding 378
Chang-Hyun Kim, Tae-Yong Choi, Ju-Jang Lee, Jeong Suh, Kyoung-Taik Park, and Hee-Shin Kang

Localization and Map-building of Mobile Robot Based on RFID Sensor Fusion System 384
Byoung-Suk Choi, Joon-Woo Lee and Ju-Jang Lee

Development of Robot and Navigation Techniques for Humanitarian Demining 390
Maki K. Habib

Performance Test of Industrial Dual Arm Robot 396
Kyoung-Taik Park, Chan-Hun Park and Young-Jae Shin

Design and Kinematics Analysis of Dual Arm Robot Manipulator for Precision Assembly 401
Chanhun Park and Kyoungtaik Park

Performance Test of Large Telescopic Robot for LCD Glass Handling 407
Young-Jae Shin, Kyoung-Taik Park, Jung-Hoon Ha and Sang-Kyun Shim

Remote Control System of Industrial Field Robot 413
Soon-Young Yang, Sung-Min Jin, Soon-Kwang Kwon

A Low Cost Map Building Sensor System for Mobile Robot 419
Hyun seung Choi and Woong keun Hyun

Robot Calibration Based on Multi-thread Particle Swarm Optimization 424
Aiguo Li, Defeng Wu, Zi Ma

Industry Robot and External Axle Calibration Using Particle Swarm Optimization Algorithm 428
Huang Jin, Ma Zi, Hu Ying, Wang Yang, Yu Shuanghe

A Smart Supervisory Control System Framework for a Sugar Mill Crystallisation Stage 433
R. Dodd, A. Chiou, X. Yu, R. Broadfoot

Hybrid Convolutional Neural Networks 439
Iveta Mrazov, Marek Kukacka

ANFIS Controller for Double Inverted Pendulum 445
Sheng Qiang, Qing Zhou, X. Z. Gao, and Shuanghe Yu

Adaptive Fuzzy Trajectory-Tracking Control of Uncertain Nonholonomic Mobile Robots 451
Shuanghe Yu, Shuang Liu, He Xu

Neural Network Modeling and Generalized Predictive Control for an Autonomous Underwater Vehicle 457
Jianan Xu, Mingjun Zhang

Learning the Inverse Kinematics of a Robot Manipulator using the Bees Algorithm 462
D.T. Pham, M. Castellani, and A. A. Fahmy

Measuring the Effort of a Reconfiguration Processes 468
Amro M. Farid, Wuttiphat Covanich

An Attempt to Obtain Scheduling Rules of Network-based Support System for Decentralized Scheduling of Distributed Production Systems 475
Hisaaki Yamaba, Shinichi Matsumoto, Shigeyuki Tomita

Research Topics in Manufacturing - The IPROMS PAC Delphi Study - 481
Michael Hoepf

Table of Contents

AmI-based Production Systems: Configuration of Sequential Process Flow and SoA-based Diagnosis 486
Martin Feike, Nataliya Popova, Armando Walter Colombo

Application of Support Vector Machine for Equipment Reliability Forecasting 494
Feng Ding, Zhengjia He, Yanyang Zi, Xuefeng Chen, Jiyong Tan, Hongrui Cao, Huaxin Chen

Object-Oriented Analysis and Design of Elliptic Curve Cryptosystem 499
Shen Guicheng, Zheng Xuefeng, Liu Bingwu

Dynamic Trust Model Applied In Mobile Agent 504
Zhen Ye, Weiwei Song, DayongYe and Lei Yue

Design and Evaluation of a Client-friendly Cross-realm Framework for Kerberos 5 509
Ken'ichi Kamada, Shoichi Sakane, Kazunori Miyazawa, and Nobuo Okabe

Multipath Key Management with Aggregators in Sensor Networks 515
Soonhwa Sung

Detecting Code Theft via a Static Instruction Trace Birthmark for Java Methods 519
Heewan Park, Seokwoo Choi, Hyun-il Lim, and Taisook Han

An Integrated Framework of the Modeling of Failure-Detection and Fault-Correction Processes in Software Reliability Analysis 525
Jung-Hua Lo

A Dynamic-entropy Algorithm for Fault Isolation 531
Wang dong, Chen Shengjian, Zhang Yan, Chen Jian

SCADA System Security: Complexity, History and New Developments 537
Ning Cai, Jidong Wang and Xinghuo Yu

Domain based Security for Mobile Agents 543
Najmus Saqib Malik, Friedrich Kupzog, Michael Sonntag

Cryptanalysis on an Enhanced Identity-based Deniable Authentication Protocol 549
Meng-Hui Lim, Sanggon Lee, Hoonjae Lee

Integrating Network Misuse and Anomaly Prevention 554
Yoseba K. Penya, Pablo G. Bringas

A Proposal Framework for Adoption of Electronic Payment Services by Iranian Customers 560
Abbas Keramati, Bahar Hadjiha, Mohammad Sadegh Saremi

A Nonwhitening Post Filter to Improve the Performance of Sound Source Separation 566
Augie Widyotriatmo, Harijono A. Tjokronegoro, and Keum-Shik Hong

Redeployment Design Algorithm for Enhancing Channel Capacity in Multi-Agent Systems 571
Fang-Li Lian, Ko-Hsin Tsai, Yi-Chun Lin, Jong-Hann Jean, and Hou-Tsan Lee

A High Dynamic Range SiGe HBT Variable Gain Amplifier for WCDMA Applications 577
GAN Jun-ning, ZHANG Wan-rong, XIE Hong-yun, Jin Dong-yue, SHEN Pei, LI Jia, HE Li-jian

Design a Wireless Sensor Network for Methane Monitoring System 581
Xuhui Zhang, Sunan Wang

Measurement and Analysis of Heart Signal Based on the Pressure Sensor 586
Xu Wang, Jingjing Jin and Shilong Li

Application of Daubechies-Wavelet Based MRTD Schemes to Electromagnetic Scattering 590
Jiang Yu, Yu Shao-peng, Gao Hong-you, Xiao Hong, Teng Wei, Liu Xing-peng

Adaptive Optimization in A/D Converter System 594
Ce Fu, HuiWang

An Efficient Optimization for Passive Filter Design 598
Ce Fu, HuiWang

Table of Contents

A New Configuration of Differential CMOS LNA 602
Chen Xuan, Feng Quanyuan

An Automated Measurement System for Determining Magnetization Characteristics of Switched Reluctance Motors 606
Shun-Chung Wang, Yi-Hua Liu, Wei-Hsin Liao, Cheng-Liang Tu

A Wireless Escape System for Industrial Accidents Using Ad Hoc Positioning 612
Tengyue Zou, Huiyou Chang, Yang Yi

The Influence of Different Grid Length to the FDTD Calculation 618
Yu Jiang, Hong-you Gao, Shao-peng Yu, Hong Xiao, Xing-peng Liu, Wei Teng

A Real-time Finite Line Detection System Based on FPGA 622
Dongkyun Kim, Seung Hun Jin, Nguyen Tuong Thuy, Ki Hoon Kim, and Jae Wook Jeon

ZigBee-based Wireless Extension of FOUNDATIO Fieldbus 628
Tang Zhong, Zeng Peng, Yu Haibin, Wang Hong

Robust Filtering for Uncertain Discrete-Time Systems with Uncertain Noise Covariance and Uncertain Observations 634
Shady M. Korany Mohamed, Saeid Nahavandi

Real-time Sound Source Localization System based on FPGA 640
Seunghun Jin, Dongkyun Kim, Hyung Soon Kim, Chang Hoon Lee, Jong Suk Choi and Jae Wook Jeon

A Detailed Simulation Study for Troposcatter Channel 645
CHEN Shu-xin, GU Hai-long

A Fast Encoding Algorithm for Vector Quantization Based on Haar Wavelet Transform 650
Jiann-Der Lee, Yaw-Hwang Chiou

OCARI: Optimization of Communication for Ad hoc Reliable Industrial networks 655
Tuan Dang, Catherine Devic

A Study on the In-orbit Environment of a GPS Receiver for Low/Medium Altitude Satellites 661
S. I. Chung, H. S. Lee, H. H. Lee

Analysis of the Effects of High-energy electrons on a Low Earth Orbit Satellite Parts 667
S. I. Chung, H. H. Lee

Improved Method for Solving Permutation Problem of Frequency Domain Blind Source Separation 670
Wang Weihua, Huang Fenggang

Packet Classification for Network Processors in WSN Traffic using ANN 674
R.Rajkamal, P.Vanaja Ranjan

An Approach to Enhance Mobile Multicast Using Context Transfer 678
Aisha Hassan Abdalla, Wan Haslina Hassan, Abdulrhman Mohammed, Abdi Nasir Ahmed, and Azana Hafizah Mohd

On Non-integer Order Rational Model Identification 683
Defeng Wu, Aiguo Li, Zi Ma, Quanmin Zhu

Nano-Level 3-D Measurement System Using 3-Wavelength Laser Light Interference 688
Seiji Hata ,Junichiro Hayashi, Ichiro Ishimaru Shigeaki Morimoto

Theoretical and Experimental Study on Parameters Setting of Ant Colony Optimization 693
Yanpeng Liu, Yongsheng Yu, Wanjun Tian, Mingguang Wu, Jixin Qian

Multi-Agent System Coordination Architecture and Its Use in Electric Power Decision Support System 698
Lianzhong Liu, Xiangrong Zu, Ruzhi Xu

Objective Function of Semi-Supervised Fuzzy C-Means Clustering Algorithm 704
Chunfang Li, Lianzhong Liu and Wenli Jiang

Table of Contents

Service-Oriented Control Architecture for Reconfigurable Production Systems 710
J. Marco Mendes, Paulo Leitão, Armando W. Colombo, Francisco Restivo

Service-oriented Process Control using High-Level Petri Nets 716
J. Marco Mendes, Paulo Leitão, Armando W. Colombo, Francisco Restivo

Roadmap to adopting OPC UA 722
Tom Hannelius, Mikko Salmenperä, Seppo Kuikka

A Generic Communication Interface for DPWSbased Web Services 728
Luís Ribeiro, José Barata, Armando Colombo, François Jammes

Integration of Multi-Agent Systems and Service-Oriented Architecture for Industrial Automation 734
V Villasenor Herrera, A. Bepperling, A. Lobov, H. Smit, A. W. Colombo and J. L. Martinez Lastra

A Web Services-enabled B2B Integration Approach for SMEs 740
W.J. Yan, P.S. Tan, E.W. Lee

Modelling interaction-aware services from an orchestration viewpoint 746
Corina Popescu, Jose L. Martinez Lastra

Web-based Vertical Information Services for Mining Right Trade 752
Haizhong An, Na Cui

Service Oriented Architecture in Developing of Loosely-coupled Manufacturing Systems 757
Andrei Lobov, Juha Puttonen, Vladimir Villaseñor Herrera, Rajasekaran Andiappan, Jose L. Martinez Lastra

Device and Service Templates for the Devices Profile for Web Services 763
Andreas Bobek, Elmar Zeeb, Hendrik Bohn, Frank Golatowski, Dirk Timmermann

Strategic Supply Chain Positioning (SSCP) Methodology Development in SMEs Context 768
Roland Lim, Laura Xu Xiao Xia, Ma Bin

A Robust Pricing/Lot-sizing Model and A Solution Method Based on Geometric Programming 773
Sungmook Lim, Woo-Je Kim

An Implementation of Context-aware Partner Selection to Support Supply Chain Collaborations 777
P. S. Tan, E.W. Lee, K. Mous, S.S.G. Lee, A.E.S. Goh

A Simulation System for Aerospace Spare Inventory Management and Decision Support 784
Kong-Wei Lye, Lai-Peng Chan, and Xue-Ming Yuan

Research on Dynamic Scheduling Operation Method in Supply Chain Based on Ant Colony Optimization 790
Wang Xu, Jia Yan-min and Yu Tian-lai

Ontology-based Information Integration Framework for Mechatronics System Multi-disciplinary Design 796
Luyan Bi, Zongxia Jiao, Shengtao Fan

A Mixed Integer Programming Model for Production Inventory Network Design 802
Xue-Ming Yuan and Soumen Saha

Virtual Organization for Supply Chain Integration 808
William Y. C. Wang and Hing Kai Chan

To estimate the stage completion time for a two-stage flexible flow shop with dynamic job arrival 814
Ming-Hsien Yang, Shu-Hsing Chung and Ching-Kuei Kao

A Generic Model for Crossdock Truck Scheduling and Truck-to-Door Assignment Problems 822
Mojtaba Shakeri, Malcolm Yoke Hean Low, Zhengping Li

Address Supply Chain Visibility from Knowledge Management Perspective 830
N. Zhang, W. He and E. W. Lee

Optimal Decision-making on Product Ranking For Crossdocking/Warehousing Operations 836
Zhengping Lii, Malcolm Yoke Hean Lowii, Yuan Guan Limiii, Bin Maiv

Table of Contents

Supplier Performance Measurement in a Supply Chain 842
Laura Xu Xiao Xia, Bin Ma and Roland Lim

On Wheat Storage Period Estimation Using Markov_ chain Analysis 847
Ge Wang, Qin Li, Jane You

Study of Sliding Mode Control for Stewart Platform Based on Simplified Dynamic Model 853
Wu Qiang, Chen Juan, Tang Zhiyong

Accurate prediction of interception positions for catching thrown objects in production systems 857
Dennis Barteit and Heinz Frank, Friederich Kupzog

A Method to Find Local Planar Region from 3D Range Data 863
Sung-Jo Lim, Bae-Keun Kwon, and Dong-Joong Kang

Motion Control Design of the Lower-Limb Mobile Training Robot 868
Syh-Shiuh Yeha and Hung-Hsiu Yub

Research on Computer Control System of Close Precision Winding 874
Zhang Xu, Wei Jian, Wang Minghong, Lu Wenhua, Xu Zhenling

Control of Commutation of SR Motor Using its Magnetic Characteristics and Back-of-Core Saturation Effects 879
N.H. Mvungi

Nonlinear Parameter Neuro-Estimation for Optimal Tuning of Power System Stabilizers 885
Seung-Mook Baek a and Jung-Wook Park

A Novel Adaptive Current Regulator for Permanent Magnet Synchronous Motor Based on Modified Current Dynamics 891
HongZhe Jin and JangMyung Lee

System Modeling and Stability Design for Peak Current-mode Buck Power Converter 897
CHEN Xiao-fei, ZOU Xue-cheng, CHENG Jun, YU Kai, LIN Shuang-xi

Unfolding Enhancements Speed FSM Based Simulation 903
Pj Radcliffe

Port Choice Behavior in Asia - A Network Perspective 909
Joyce M.W. LowA, Loon Ching TangB and Xue-Ming YuanA

Design of One-channel Embedded Network Video Server 915
Shu-rong Chen, Kai-yu Xu, and Hai-yun Gu

Performance Analysis of the Ethernet Nets for Applications in Real-Time: IEEE 802.3 and 802.3 1Q 919
Ricardo A. de M. Valentim, Antônio H. F. Morais, Gláucio B. Brandão, Ana M. G. Guerreiro

NCS Flexible Experimental System with Network Load Controlled 925
Chen Zaiping, Yang Nan, Dong Enzeng, Liu Chunxue

A Gateway System for an Automotive System: LIN, CAN, and FlexRay 930
Seung-Han Kim, Suk-Hyun Seo, Jin-Ho Kim, Tae-Yoon Moon, Chang-Wan Son, Sung-Ho Hwang, and Jae Wook Jeon

Gateway-free Integration of BACnet and KNX using Multi-Protocol Devices 936
Wolfgang Granzer, Wolfgang Kastner, Christian Reinisch

MP-HA: Multicycles Protocol for Hospital Automation over Multicast with IEEE 802.3 942
Ricardo A. de M. Valentim, Antônio H. F. Morais, Ana M. G. Guerreiro, Gláucio B. Brandão, Carlos A. Paz de Araújo

A hierarchical position based routing scheme for data centric wireless sensor networks 948
Sajjad A. Madani, Daniel Weber and Stefan Mahlknecht

Table of Contents

Research of Intelligent Building Control Using an Agent-based Approach 954
Jianmin Duan, Fan Lin

A Tracking Mechanism Using Agents For Personal Mobility in IP Networks 958
Wan Haslina Hassan, Aisha Hassan, Norsheila FIsal

Mathematical Analysis of Prioritized Data Transmission in the Foundation Fieldbus 963
Yong Hee Lee, Seung Hwan Min, Seung Ho Hong

A Simulation-based Approach to Job Shop Scheduling with Bottlenecks 969
Rui Zhang and Cheng Wu

The Self-Organization Genetic Algorithm Based on the Mutation with Cycle Probabilities 975
Baojuan Huang, Jian Zhuang, DehongYu

Bee Colony Optimization with Local Search for Traveling Salesman Problem 981
Li-Pei Wong, Malcolm Yoke Hean Low, Chin Soon Chong

Study of a New Online Least Squares Support Vector Machine Algorithm in Gas Prediction 988
Xiao-hu Zhao, Ke-ke Zhao

Using Goal-oriented Paradigm for Community Computing 993
Sehyeong Cho and Chulan Ren

Forecasting Exchange Rate by Weighted Average Defuzzification Based on NEWFM 998
Sang-Hong Lee and Joon S. Lim

Neuro-Symbolic Networks: Introduction to a New Information Processing Principle 1004
Rosemarie Velik, Dietmar Bruckner

Natural Histogram for Very Small Population Statistics 1010
Radu D. Rugescu, Valentin Silivestru, Sorin Aldea

Wavelet Neuron Selection Method for ECG Data Compression 1016
Xinping Yan, Qiaohui Guo, Yongming Yang

Optimization of the Neural Structure based on Domain Expert Previous Knowledge via GA and Sensitivity Factors 1020
Fabricio R. Bittencout and Luis E. Zárate

A New Approach in Discrete Chaos System Control by Differential Evolution Algorithm 1026
Fei Gao, Ju-Jang Lee

A New Approach in Synchronization of Uncertain Chaos Systems Through Particle Swarm Optimization 1031
Fei Gao, Ju-Jang Lee

Knowledge-based Multi-Agent Architecture for Dynamic Scheduling in Manufacturing Systems 1037
Munir Merdan, Pavel Vrba, Gottfried Koppensteiner, Alois Zoitl

A System Scheme of 3D Object Reconstruction From Single 2D Graphics Based on Neural Networks 1043
Guangmin Sun, Lei Xu, Deming Chen, Gang Li, Jing Wang

A Simulation Platform for Cognitive Agents 1048
Tobias Deutsch, Tehseen Zia, Roland Lang, Heimo Zeilinger

Network of Cooperating Smart Sensors for Global- View Generation in Surveillance Applications 1054
Dietmar Bruckner, Rosemarie Velik, Gerhard Zucker

A Novel Hybrid Wavelet Neural Network and Its Performance Evaluation 1059
Yi Zhi Zhao, Nhu Khue Vuong, Xiang Li

A hybrid Architecture for Function Approximation 1065
HASSAB ELGAWI Osman

Table of Contents

Evaluation of Embedded RBF Neural Chip with Back-propagation Algorithm for Pattern Recognition Tasks 1071
Jeong-Seob Kim and Seul Jung

An Improved Window Control Scheme Over FAST TCP 1077
Fuzhe Zhao, Jianzhong Zhou and Zhimeng Luo, Yang Xiao

Model-Driven Embedded Systems Design Environment for the Industrial Automation Sector 1081
Thomas Strasser, Christoph Sünder, Antonio Valentini

Networked Control Systems by PID Controller Improvement of Performance Degradation Caused by Packet loss 1087
Ryotaro Okano, Tetusya Ohtani, Akira Nagashima

Automatic Model Generation of IEC 61499 Function Block Using Net Condition/Event Systems 1094
Cheng Pang, Valeriy Vyatkin

Development of an Embedded Controller for BioCD Inspections 1100
Fu-Shin Lee Rou-Jiun Shiu Ming-Da Chiang

A Fault-tolerant Gateway for In-vehicle Networks 1105
S. H. Seo, T. Y. Moon, J. H. Kim, K. H. Kwon, J. W. Jeon, S. H. Hwang

A method of Task Synchronization in a distributed system using FlexRay 1110
J. H. Kim, S. H. Seo, T. Y. Moon, C. W. Son, K. H. Kwon, and J. W. Jeon, S. H. Hwang

System Structure for FPGA-Based SOPC Design Using Hard Tasks 1115
Jianzhuang Wang, Youping Chen, Jingming Xie, Bing Chen, Haiping Lin

Powering Flexible Manufacturing Systems with Intelligent Contact-less Power Transfer 1121
M. Budhia, V. Vyatkin, G. A. Covic

Comprehensive Formal Description of IEC 61499 Control Devices 1127
Christoph Sünder, Ivo Gosetti, Valeriy Vyatkin, Bernard Favre-Bulle

Investigating of Embedded Virtual Instruments Middleware 1134
Na Wang, Huasong Min

Efficient Implementation of CNC Position Controller using FPGA 1138
Yaodong Tao, Hu Lin, Yi Hu..Xiaohui Zhang..Zhicheng Wang

An Efficient Calibration Method for RSSI-based Location Algorithms 1144
Rafael Pereira Pires

The reusable protocol-common block that can simulate the hardware characteristics 1150
T. Y. Moon, S. H. Seo, S.H Kim, J. H. Kim, K. H. Kwon, and J. W. Jeon, S. H. Hwang

An Architecture for a Fault Tolerant Highly Reconfigurable Shop Floor 1155
Luís Ribeiro, José Barata, Bruno Ferreira, Jorge Pires

The Universal Knowledge Moderator for Globally Distributed and Collaborative e-Manufacturing 1161
H.K. Lin, J.A. Harding, A K Choudhary

Market Orientation and Strategies in E-commerce Companies 1166
S. H. Chien, J. J. Wu, H. F. Lai

Design and Implementation of a Medical Knowledge Service System for Cross-Organization Healthcare Collaboration 1172
Yuh-Jen Chen, Yung-Sheng Su, Yuh-Min Chen, and Ching-Yuan Huang

An Evaluation Instrument for E-learning Ecosystem 1178
Vanessa Chang

ICT and Business Alignment in Virtual Organization 1184
Taivo Kangilaski

Table of Contents

Image Acquisition and Processing for Falling Objects with Line CCD Sensor 1190
Lei Yan, Choon-Young Lee, Gang Zhao, Sang-Ryong Lee, Bae Ki-Man

Event Cycle and Device Control in RFID Middleware 1195
Gan Oon Peen, Tan Chong Chuan Sheena, Wang Shing Chai, Tan Gak Chee, Zhao Yi Zhi

Towards a Unified Location Tracking System for Heterogeneous Industrial Environments............ 1200
Werner Kurschl, Wolfgang Gottesheim, Stefan Mitsch, Rene Prokop and Johannes Schonbock, Wolfgang Beer

SolarEnergy: A Framework for Solar Energy Applications............ 1206
Guidoni, G. Song, M., Yoshioka, S., Reis, I., Papatella, F., Zarate, L., Pereira, E

The Role of Human, Organization and Technology in Building Competitive Advantage with CRM: The Case of Iranian Internet Service Industry............ 1212
Abbas Keramatia, Hamed Mehrabib and Mohammad Mousakhanic

Database summarization approach based on description logic theory 1218
Amel Triki, Yann Pollet, Mohamed Ben Ahmed

Petroleum Ontology: an effective data integration and mining methodology aiding exploration of commercial petroleum plays 1222
Shastri L Nimmagadda, Heinz Dreher

Research on the SWF-net-based modeling technology of Virtual Enterprise workflow 1229
Dejun Chen, Heng Huang, C.Ji

An Adaptive Model for Building Service-Partition System 1235
Jian Wang, Jianling Sun, Xinyu Wang, Hang Chen, Juefeng Li, Kumar Sanjeev

Personalized Domain-specific Search Engine............ 1241
Lei Zhang, Yong Peng, Xiangwu Meng, and Jie Guo

IT - Revolutions in the Industry 1247
Mihaela Ulieru, John Verdon

Automation 2.0: current trends in Factory Automation 1253
Jose L. Martinez Lastra, Ivan M. Delamer

Highlighting the Issues in making an Informed Interaction-based Decision in Industrial Ecosystems............ 1256
Omar Hussain, Tharam Dillon, Elizabeth Chang and Farookh Hussain

Leveraging Paradox to Understand Technology Ecosystems: A Question of Balance 1262
Lawrence John, John Boardman, Brian Sauser

An Auto ID-enabled Framework for Manufacturing Information Sharing Systems............ 1268
Hu, Peng

Creating Interoperability Within Healthcare Industry............ 1273
Chen Wu, Maja Hadzic

Short Term Forecasting for Lumpy and Non-lumpy Intermittent Demands............ 1279
Wei Khong Watson Chua, Xue-Ming Yuan, Wee Keong Ng, Tian Xiang Cai

Developing a Semantic Service Transaction System in the DE Environment 1285
Hai Dong, Farookh Khadeer Hussain, Elizabeth Chang

Distributed Teleoperation and Collaborative Environment for Robotics E-Learning and Cooperation 1290
Maki K. Habib

A Secure RFID-based Track and Trace Solution in Supply Chains 1296
W. He, N. Zhang, P. S. Tan, E. W. Lee, T. Y. Li, T. L. Lim

A Feature Selection Method for Automated Visual Inspection Systems 1302
Hugo C. Garcia, J. Rene Villalobos

Table of Contents

MultiAgent Architecture for Function Blocks: Intelligent Configuration Strategies Allocation 1308
Vinicius Machado, Adriao Duarte, Jorge Melo, Leonardo Guanabara, Juliana Medeiros

Efficient Method for Correction and Interpolation Signal of Magnetic Encoders 1314
Hieu Tue Le, Hung Van Hoang, Jae Wook Jeon

Effective Auto-tuning Proportional-Integral Controller based on a Heuristic Algorithm... 1320
Mai Thanh La, Quy Ngoc Le, Jae Wook Jeon

Design and Validation of Distributed Control with Decentralized Intelligence in Process Industries: A Survey 1326
Chia-han (John) Yang and Valeriy Vyatkin

3D graphic simulation of flexible manufacturing systems with Day Dream Daemon and 3DCreate........................... 1332
Luca Ferrarini, Carlo Veber

Formal Model of Agent-based Supply Chain Framework in a Virtual Enterprise for Reliability.............................. 1338
Mukaila A. Rahman, Sarmad Sadik, Arshad Ali, H. Farooq Ahmad, Hiroki Suguri

A Test Automation Solution on GUI Functional Test 1344
ZHU Xiaochun, ZHOU Bo, LI Juefeng, GAO Qiu

SOA MIDDLEWARE AND AUTOMATION: Services, Applications and Architectures 1350
T Kirkham, D Savio, H Smit, R Harrison, RP Monfared P Phaithoonbuathong

Automatic Segmentation of Scanned Human Bodies for Building LOD Models.. 1356
Hui Yu, Shengfeng Qin, Guangmin Sun, David K.Wright

Application of Optical Flow to Sonar Image for Mobile Robot Navigation 1362
Gun-Young Park, Sang-Ryong Lee, and Choon-Young Lee

A Filter Approach for Myoelectric Channel Selection 1367
Gernot Kvas, Rosemarie Velik

Remote Robot Control System based on DTMF of Mobile Phone.. 1371
Yun Chan Cho and Jae Wook Jeon

Trends and proposals of user-designable mobile phone cover 1377
Jae Hyung Park and Jae Wook Jeon

Teleoperation of Multi-Robot and Multi-Property Systems... 1383
Ildar Farkhatdinov and Jee-Hwan Ryu

Request Classification of Web QoS Based On User Behaviour Analysis.. 1389
Wang Cong, Guo Xiaolei, Shan Zhiguang

Intelligent User Interface for Human-Robot Interaction.. 1393
T. H. Song, J. H. Park, S. M. Chung, K. H. Kwon and J. W. Jeon

Ontology-based Inference for Information-Seeking in Natural Language Dialog System.. 1399
Unknown

Observation System of Human-Object Relations in Intelligent Space.. 1405
Kouhei Kawaji, Kazuki Yokoi, Mihoko Niitsuma, Hideki Hashimoto

On Technology for Ontology-based Product Lifecycle Knowledge Integration 1411
Yuh-Jen Chen, Yung-Sheng Su, Yuh-Min Chen, and Meng-Sheng Wu

One-way Ranging Technique for CSS-based Indoor Localization.. 1417
Hyo-Sung Ahn, Hwan Hur, Wan-Sik Choi

Analysis of Frame Delay Probability in the FlexRay Dynamic Segment.. 1423
Bongjun Kim and Kiejin Park

Simulation of an Inductive Coupled High Frequency Resonant Gate Driver Circuit.. 1427
N. Z. Yahaya, K.M. Begam, M. Awan

Table of Contents

A Test Framework for the Accuracy of Line Detection by Hough Transforms 1432
Thuy Tuong Nguyen, Xuan Dai Pham, Dongkyun Kim, Jae Wook Jeon

Hospital Automation RFID-Based 1438
Gustavo H. P. Florentino, Heitor U. Bezerra, Hélio B. de A. Júnior, Marcelo X. Araújo, Ricardo A. de M. Valentim, Antônio H. F. Morais, Tiago O. Jesus, Ana M. G. Guerreiro, Gláucio B. Brandão, Carlos A. Paz de Araújo

A Code Generation Tool for Embedded Automotive Systems Based on Finite State Machines 1443
Felix Lindlar, Armin Zimmermann

Using virtualization to improve durability and portability of industrial applications 1449
Alain Ribière

A review and comparison of fuzzy regression models for energy consumption estimation 1455
A. Azadeha,O. Seraja M. Saberib

Development of a Zigbee-based Electronics Ballast System 1460
Yi-Hua Liu, Shun-Chung Wang, Po-Yen Chen

A Total Fuzzy Regression Algorithm for Energy Consumption Estimation 1466
A. Azadeha,O. Seraja M. Saberib

Prototyping of an Optomechanical Apparatus for BioCD Specimen Image Inspections 1473
Fu-Shin Lee, Rou-Jiun Shiu, Ming-Da Chiang

On Characterizing the Interaction between Dynamical Behavior and Information Flow in Networked Control Systems 1478
Yi-Chun Lin and Feng-Li Lian

Converting AVS coefficients to H.264/AVC transform coefficients 1484
Minyue Wang, Guangmin Sun, Qiang Wu

Embedded systems course for potential automotive engineers 1488
Seung-Han Kim, Suk-Hyun Seo, Jin-Ho Kim, Tae-Yoon Moon, Sung-Ho Hwang, Key-Ho Kwon, and Jae Wook Jeon

A Panorama-Based Architecture for Multimedia from Hand-Held Devices 1494
Guangqi Hou, Ping Wei

A UML Profile for HLA-Based Simulation System Modeling 1500
Hengye Zhu, Guangyao Li, Liping Zheng

Engineering Materials Test Process Monitor System Based on CSDA Architecture 1506
Gao Hongli, Lu Xu, Zhang Ni

Numerical Simulation and Visualization of Engineering Analysis of Thermal and Flow Fields of Consecutive Diffusing Furnace 1512
Guihua Hu, Wenhua Zhu, Tao Yu and Yupeng Su

Design of an Efficient Initialization Method of a Logbased File System with Flash Memory 1518
Young Jun Cho and Jae Wook Jeon

Optimal Tuning for Saturation Limiter of a Series FACTS device 1524
Seung-Mook Baek a and Jung-Wook Park

Power Generation Loading Optimization using a Multi-Objective Constraint-Handling Method via PSO Algorithm 1530
Lily D Li, Xiaodong Li, and Xinghuo Yu

KAD - an Integrated CAD and CSCW System for the Development of New Product in Industry Business 1536
João Carlos, Amaro Ferreira

Table of Contents

Artificial Neural Networks Applied for Representation of Curves Current-Voltage of Photovoltaic Modules **1542**
Luis E. Zárate, Lauro de Vilhena B. Machado Neto, Daniel Alencar Soares and Fabricio R. Bittencou

Process Integration of Six Sigma and CMMI **1548**
Zhao Xiaosong, He Zhen, ZhangMin, Wang Jing, Yu Dainuan

Emotion-Based Image Retrieval Using Multiple- Queries and Consistency Feedback **1552**
Eun-Jong Park, Joon-Whoan Lee

Evaluation of OPC UA Secure Communication in Web Browser Applications **1558**
Annerose Braune, Stefan Hennig, Sebastian Hegler

XT algorithm for business data exchange **1564**
Kelvin Leong, Joseph Y.H. So, Vincent Ng, Mike Li, Tsui Tat Chee

Advanced Fault Prediction in High-Precision Foundry Production **1570**
Yoseba K. Penya, Pablo G. Bringas, Argoitz Zabala

Impulsive Interference Detection Method Based on Morlet Wavelet and Maximum Likelihood Estimation **1576**
Yuan Yuan He, Chang Jun Yu, Tai Fan Quan and Xin Jin

Control Software Design of Positron Emission Tomography Based on Real-Time Linux **1582**
Zhaohui Ren, Xiaopeng Li, Yongfu Wang, Bangchun Wen

A Preprocessing Method for Tracking and Counting Pedestrians in Bus Video Monitor **1587**
Ying Xin, Guangmin Sun, Qiang Wu

Fault Mechanism Analysis and Accelerate Life Testing for Pneumatic Cylinders **1592**
Chen Juan, Ma Jungong, Wu Qiang

Numerical Simulation and Experimental Study of Liquid-solid Two-phase Flow in Nozzle of DIA Jet **1598**
GuihuaHu, Wenhua Zhu, Tao Yu and Jin Yuan

Memorial Self Evolution Algorithm to Solve JIT Machine Scheduling Problem **1604**
Wei Weng and Shigeru Fujimura

Intelligent Track Guiding Controller-the Revolution of PID **1610**
Siyuan Wang, Yang Yang, Shuanghe Yu, Cheng Shao

A Novel Robot System for Surface Inspection and Diameter Measurement of Large Size Pipes1 .... **1615**
Xu Zhang, Zi Ma, Ying Hu and Jin Huang