

International Conference on Advances in Engineering 2011

Procedia Engineering Volume 24

**Nanjing, China
24-25 December 2011**

Editors:

Yi Yang

ISBN: 978-1-62748-580-7

ISSN: 1877-7058

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2011) by Elsevier B.V.
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact Elsevier B.V.
at the address below.

Elsevier B.V.
Radarweg 29
Amsterdam 1043 NX
The Netherlands

Phone: +31 20 485 3911
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com



Contents

AFOD Regularization for Super-Resolution Reconstruction S. Huang, Y. Yang, G. Wang	1
Process Quality Metrics for Mechanical and Electrical Production Lin X. Zhang, Z. He, L. Shi	6
A Tight Framelet Algorithm for Color Image De-Noising Z. Cai, C. Wei	12
Plot Association for Multi-Sensor based on Hungary Algorithm P. Zhang, H. Wang, Z. Shi, W. Xiao, Z. Wu	17
A Vector Decomposition FFT Algorithm to Improve Power Network Frequency G. Li, L. Gao, J. Lei, Q. Liu, Y. Wen, H. Jiang, W. Xu, T. Lu	22
Dynamic Sliding Mode Control Scheme for Electro-Hydraulic Position Servo System T. Rui, Z. Qi	28
Adaptive Fuzzy Sliding Mode Control of Uncertain Nonlinear SISO Systems S. Wang, H. Li, D. Lu, H. Xiao	33
Support Vector Machine for Vibration Fault Classification of Steam Turbine-Generator Sets H.-C. Sun, Y.-C. Huang	38
Generalized Phase Diversity Wavefront Sensing based on Stochastic Parallel Optimization Algorithm H. Yang, Y. Li	43
Design of Remote Fault Diagnosis System for Medium and Small-Sized Enterprises J. Li, Z. Yuan, T. Hui, L. Ai Qin	48
Study of Orthogonal Test of the Tribological Properties of the Surface Texturing Coating Y. Zhao, G. Hao, C. Deng, W. Ma	53
The Design and Realization for a Multiplex Time Sequence Controller T. Hui, J. Ni, Q. Pang	59
A Probabilistic Approach for Energy Efficient Data Transmission in Pipeline Monitoring Sensor Networks Y. Yu, Y. Wu, X. Guo, R. Feng, J. Wan	64
Design of IEC-61968-based Distribution Network Information Exchange Interface G. Li, L. Gao, C. Bo, H. Huang, Y. Li, Z. Xing, D. Li, W. Xu, T. Lu	69
The Inverse System Decoupling Control of the Permanent Magnet Synchronous Motor in D-Q Synchronous Rotating Reference Frame X. Li, Y. Wu, S. Shen, X. Zhao	78
The Design and Implementation of a Wireless Remote Image Monitoring System Based on the ARM and GPRS D. Fana	83
A Novel Digital Video Watermarking Algorithm J. Xue, Q. Li, Z. Li	90
Beamforming and Processing of Broadband Wireless Signals based on Wavelet Packet Decomposition Y. Liu, Y. Zhou	95
Design Considerations of Step-Down Switching Converters J. Xue, X. Zhang, L. Xin, S. Li	100
Study on Gas Emission Rate Prediction based on Chaos Analysis Y. Liu, Q. Shi, J. Li, H. Ma, D. Liu	106
A New Method for Image Noise Removal using Chaos-PSO and Nonlinear ICA W. Ding	111
Model-based Method to Codesign of Control, Computing, and Communications with Resource Constraints J. Wan, H. Yan, H. Suo, C. Zou	116
A General Test Platform for Cyber-Physical Systems: Unmanned Vehicle with Wireless Sensor Network Navigation J. Wan, H. Suo, H. Yan, J. Liu	123
Cryptanalysis of an Ecient Secret Handshakes Scheme with Unlinkability E.J. Yoon	128
Computer-Aided Preoperative Planning for Liver Surgery based on CT Images X. Song, C. Ming, B. Wang, S. Huang, X. Huang	133

Modeling Agile Software Maintenance Process using Analytical Theory of Project Investment X. Kong, L. Li, J. Chen	138
An Application Research on IPv6 Multicasting Testing Method W. Yang, L. Zhang	143
An Overview of Conceptual Model for Simulation and its Validation J. Liu, Y. Yu, Z. Liu, C. Nie	152
English Character Recognition based on Feature combination Y. Yang, L. Xu, C. Chen.	159
A Real-Time Database Index Management Method for Fast Access to Massive Data of Power System M. Yue, C. Ren, X. Li	165
A Distributed Real-Time Database Index Algorithm Based on B+ Tree and Consistent Hashing X. Li, C. Ren, M. Yue	171
A Novel DWT based Multi-Focus Image Fusion Method Y. Yang	177
A New Technique for Multispectral and Panchromatic Image Fusion Q. Wang, Z. Jia, X. Qin, Y. Jie, Y. Hu	182
Cryptanalysis of Guo et al.'s Three-Party Password-based Authenticated Key Exchange (G-3PAKE) Protocol S.B. Choi, E.J. Yoon	187
A Specular Shape from Shading by Fast Marching Method G. Wang, W. Su, G. Fen	192
Gbest-Guided Artificial Chemical Reaction Algorithm for global numerical optimization S. Yang, Y. Yi, Z. Shan	197
Model Generation based on Network of Variable Conversion Relationship X. Ying, H. Zhang, Z. Rui, Z. Zeng	202
The Module Design of Distributed Multi-Sensor Information Fusion Toolbox L. Wei, J. Wang, H. Song, J. Hu	208
An Empirical Research of Relation Norms on IT Outsourcing Performance J. Feng, R. Du, S. Ai, Y. Zheng, P. Abbott	214
A Novel Method for the Control of Multi-Motor System based on Embedded Terminal Z. Yong, Y. Zhang, Q. Zhou, Q. Li	219
Digital Image Processing Technology Applied in Level Measurement and Control System C. Li, X. Jia, H. Li, D. Lin, X. Shi	226
Research on Packet Classification Cased on Improved Cross-Product Method M. Zhang, G. Li	232
The Design of Image Processing System based on SOPC and OV7670 W. Rui, Z. Mi, H. Yu, Y. Wei	237
Accelerating Koblinger's Method of Compton Scattering on Gpu J. Xie	242
An Application in Frequency Assignment based on Improved Discrete Harmony Search Algorithm F. Shi, X. Xia, C. Chun, G. Xu, X. Qin, Z. Jia	247
Multi-Temporal Satellite Images Change Detection Algorithm based on NSCT W. Cui, Z. Jia, X. Qin, J. Yang, Y. Hu	252
A Mobile Electronic Police System based on Improve-ART1 Neural Network Q. Jin, Z. Liu	257
Development of Coordinate-Machine of the Scene of Road Traffic Accident based on Binocular Stereo Omni-Directional Vision Sensors Z. Bo, H. Xu, L. Lin, J. Jun, J. Zhang, G. Tan	262
A New Feature Matching Algorithm of Ct Slices S. Yang, Y. Yi, Z. Shan, Q. Li	267
Security Risk Assessment about Enterprise Networks on the base of Simulated Attacks J. Shi	272
Some New Sufficient Conditions and Hamiltonian Connected Graphs K. Zhao, D. Chen, Y. Lin, Z. Li, K. Zeng	278
Research on the Human Factors of Common Operational Picture B. Liu, C.H. Wu, H.J. Liu	282
Guaranteed Quality of Service in Multimedia System N. Yao, J. Chen	287
3D Mesh Model and its Cylindrical Image J. Huang, P. Liu, Y. Lv	292
Research on Trajectory Tracking Control for 3-Axis Servo System based on Optimal Preview Control Method M.S. All-bail Mohammed, Y. Tan, L. Li	297
Best Traffic Carrier Frequency Number and Cell Wireless Utilization Research Z. Liu, Z. Jia, X. Qin, C. Chun, G. Xu, X. Xia	303
Overview of Support Vector Machine in Modeling Machining Performances A.M. Deris, A.M. Zain, S. Roselina	308

A UML Model for Mobile Game on the Android OS Q. Zhu, J. Yin, C. Xu, G. Rui	313
Development of Downlink Communication System for Steerable Drilling Application R. Dang, G. Yin, G. Gao, L. Lu	319
Cluster Center Initialization Method for K-Means Algorithm over Data Sets with Two Clusters C.S. Li	324
Novel Top-Down Methods for Hierarchical Text Classification C. Ying, R. Duan.	329
An Information Security Maturity Evaluation Mode X. Ge, Y. Yuan, L. Lu.	335
A Study on Database Fuzzy Query Method in SQL Z. Peng	340
Research on Information System Integration in Colleges based on SOA Y. Wu, T. Shu	345
A Fast Inverse Kinematics Algorithm for Joint Animation W. Song, G. Hu.	350
Design and Implementation of Intelligent PID Control System of High-Efficiency Comber X. Wang, H. Wang	355
An Improved Wireless Sensor Network Mode based on Complex Network Theory L. Li, L. Chen, X. Fu, L. Shi.	360
A New Data Mining Method based on Multidimensional-Data Flow L. Chen, X. Fu, J. Gang, L. Li	365
Reinforced Concrete Beam Stress Performance at Ultra-Low Temperature S. Liu, C. Lv	370
Interference Of Frame and Glass Systems and their Impact on Thermal Performance of Fenestration Systems M. Bagona, L. Martin	375
Experimental Determination of Chloride Penetration in Cracked Concrete Beams S. ZHANG, C. Lu, R. Liu	380
Study of Dynamic Response of the Sandy Soil by Cone Penetration Testing C. Bo, Y. Gao, Y. Wang	385
The Building of Water Conservancy Project Model Test Automatic Monitoring Agent Federation L. Zhang, W. Sun, C. Jing.	390
Material Factor for the Beauty of Modern Architecture Decoration in Harbin Y. He, S. Liu, Q. Sun	395
Positioning Mine Ventilation Recirculation Winds based on the Depth-First Search Method H. An, L. Bin, L. Lv	400
High Temperature X-Ray Diffraction Studies of the Sample Heating Units C. Hu, P. Liu, Y. Liu.	404
Possibility of Concrete Prepared with Steel Slag as Fine and Coarse Aggregates: A Preliminary Study C. Liu, K. Zha, D. Chen	412
Design of the Temperature Signal Wireless Receiver and Display System on Polishing Interface in Chemical Mechanical Polishing H. Gao, J. Su	417
Theoretical Analysis on the Attenuation Characteristics of Strong Shock Wave of Gas Explosion B. Jiang, B. Lin, S. Shi, C. Zhu, Z. Li.	422
Infrared Radiation Characteristic Analysis for Active-illuminated Vehicle X. Yang.	426
An Experimental Study on Permeability Properties of Outburst Coal under the Coupling Effect of Multiple Factors Y. Liu	431
Catalytic Oxidation of Diesel Soot over Transition Metal Doped Lanthanum Stannate Pyrochlores with a O ₂ /No Mixture Z. Wang, F. He, Q. Li, L. Wang	436
Research on Material Removal Rate of CMP 6H-SiC Crystal Substrate (0001) Si Surface based on Abrasive Alumina (Al ₂ O ₃) J. Su, J. Du, H. Liu, X. Liu	441
ICP-AES Determination of 15 Kind of Impurity Elements in the Vanadium-Aluminum Alloy C. Yonga	447
An Auto-Switched Chaos System Design and Experimental Study of Pulsed Cavitating Multihole Nozzle D. Ma, G. Li, Z. Huang, J. Niu, X. Song	454
Human Bioelectrical impedance Measuring Method based on Principle of Multi-Frequency and Multi-Segment X. Gao, J. Tang	459
An Auto-Switched Chaos Kystem X. Wu, Z. Wang	464
An Algorithm for Remote Sensing Image Denoising based on the Combination of the Improved BiShrink and DTCWT M. Li, Z. Jia, J. Yang, Y. Hu, D. Li	470
Application of NI Real-Time Hypervisor in Bellows Swing Measurement and Control System M. Wang, W. Li, Y. Yang.	475

Improvement and Application of Transient Chaos Neural Networks Z. Yi, G. Xu, X. Qin, Z. Jia	479
Optimization on the Extraction of Polysaccharides from Fructus Corni using Uniform Design J. Wu, F. Zhu, J. Xu	484
Target Recognition of Infrared Bridge Image based on Morphological Operator M. Wang, Y. Tian	490
Study on Finite Element Model of Traffic Flow based on Weighted Residual Method F. Li, W. Li, X. Fang	495
Vehicle Occupant Classification Algorithm based on T-S Fuzzy Model Z. Gao, Z. Yang	500
Finite element Analysis based on PKE System of Electromagnetic Fields Inside the Kehicle Z. Zhong, X. Wang, X. Wang, Z. Jiang	505
Pattern Recognition of Glycyrrhiza uralensis Metabonomics on Rats with MixOmics Package of R Software W. Rui, Y. Feng, M. Jiang, L. Wang, X. Zhang, Z. Shi	510
Analysis of Traumatic Cause on Delayed Giant Abdominal Wall Hernia G. Xu, R. Yan, X. Pan, R. Shen, R. Shen	515
Synthesis of Thiadiazole Zineb Y. Liu, B. Su, Z. Ying, D. Yin	519
The Design of ECG Signal Generator using PIC24F J. Zhang	523
A Method of Information Extraction from Design Sketches H. Yuan, C. Xue, Z. Lu	528
The Improved Partition Coefficient C. Li	534
Numerical Simulation and Visualization of Flow Field in a Special Piloted Directional Valve for Marine Steering Gear Y. Zhu, X. R. Gao, X.R. Li	539
Application and Design of Fuzzy Intelligent Evaluation Software for Sand Production and Steam Channeling Prediction of Steam Injection Well P. Wang, Z. Jing	546
Stability of Uncertain Networked Control Systems J. Sun, J. Jiang	551
Simulation Study on Cavity Size for Si3n4 Ceramics in Process of MDSAM B.G. Zhang, X.L. Tian, X.J. Tang, A.B. Yu, J.Q. Wang	558
The Application of Image Processing Technology On Brick-Carved Image Recognition C. Li, Y. Ping, Q. Wang, S. Zhang	563
Study on Flow Frictional Characteristics of Bi-Metal Lining Pipes G. Zang, D. Zeng, J. Yong, L. Fei, D. Zhu, T. Shi	568
Boussinesq Modelling of Rip Currents on Barred Beach K. Fang, J. Yin, Z. Zhili, Z. Liu	573
Ontology of Graphemes for Latin Character Recognition H. Belhadeif, M.K. Kholadi, E. Aicha	579
Three-Dimensional Virtual Human in the Military Criminal Investigation Training System Y. Liu, H.Yin, Z. Rui, W. Huang, Z. Zhennan	585
Design of Three-Dimensional Reconstruction System for Farm Production Q. Yan, W. Yin, X. Fen, M. Zhang	593
The Construction of English-Chinese Parallel Corpus of Medical Works based on Self-Coded Python Programs X. Chen, S. Ge	598
Study on Location Adjustment Model of Store Area in Distribution Center based on Shortest Picking Time M. Xing, Z. Wang, G. Cheng, Q. Zhang	604
Research on the Key Technologies for Underwater Image Communication System Y. Lu, B. Chen, J. Hu, C. Ping	610
NSCT Remote Sensing Image Denoising Based on Threshold of Free Distributed FDR J. Liu, Z. Jia, X. Qin, J. Yang, Y. Hu	616
Optimized Reconfigurable Modular Flight Control Design using Swarm Intelligence A.H. Khan, W. Zhang, J. Shi, Z.H. Khan	621
Modeling for Water Resources Utilization of Beijing X. Fu, Y. Chen, W. Zhang	629
CAD Graphic Preview and Interaction of the Mould Collaborative Design J. Xiong, Q. Shen, j. Yi, Z. Jin, X. Dai	634
Numerical Modeling of Three Dimension Groundwater Flow in Tongliao (China) Q. Yang, W. Lu, Y. Fang	638
Impact Analysis of Climate Change on Water Resources Y. Nan, B. Men, C. Lin	643

Spatial Alignment of Passive Radar and Infrared Image Data on Seeker T. Jin, D. Rui	649
Influence of Air Pollutants on Fog Formation in Urban Environment of Nanjing, China K. Chen, Y. Yin, Z. Hu	654
Study of Intermittency in Parallel-Connection Buck Converters L. Wang	658
Features and Application of Titanium Dioxide Thin Films in Water Treatment Y. Ban, X. Wang	663
Analysis of Stability and Control in Landfill Sites Expansion F. Rong, Z. Guo, T. Feng	667
A Traditional Quadrilateral NURBS Surfaces Generation Method using MATLAB J. Li	672
Research on the Key Technologies of Web Parts Kibrary in Product Konfiguration System Q. Liu, Y. Xu, R. Peng, X. Jing, Y. Wang	677
The Stability Analysis of Manufacturer-Stackelberg Process in Two-Echelon Supply-Chain J. Su	682
The Role of Internal Audit in Engineering Project Risk Management Y. Wang, M. Li	689
An Adaptive Distribute Routing Strategy Control for Publish/Subscribe Systems X. Feng, Y. Zhang, C. Guan, J. Wang	695
Advances in Ambiguity Detection Methods for Formal Grammars H.M. Pandey	700
Heuristic Education of Microcontroller Unit Principle and Applications Y. Qin, B. Yu	708
Research and Design on Integrated Management System of Digitalized Emergency Preplan Y. Gu	713
Research on the Management System of enterprises using Modern Logistics Supply Chain Theory L. Liu	721
An Empirical Study on Listed Companies Merger Synergies J. Kui, S. Lin	726
Reliability Analysis of a Fire Alarm System Y. Chen	731
Sphericity Evaluation using Maximum Inscribed Sphere Method F. Meng, C. Xu, H. Li, J. Hao	737
Multivariant Performance Study of Vaneless Integral Particle Separator C. Ren, Q. Wang, D. Zhang	743
Motion Control System using SERCOS over EtherCAT X. Hu, H. Ji, Y. Liu	749
Consideration of Fuzzy Components for Prediction of Machining Performance: A Review M.R.H.M. Adnan, A.M. Zain, H. Haron	754
Design of Humidity Monitoring System based on Virtual Instrument J. Li, Z. Hong, H. Li, Y. Li	759
Analysis and Solutions of Three Combined Test Chamberís Malfunction based on the Working Process J. Feng, C. Bo, J. Teng	764
Research on Multi-Axis CNC Programming in Machining Large Hydraulic Turbineís blades based on UG L. Yang, J. Feng	768
Determination of The Dynamic Response of Q345 Steel Materials by Using SHPB W. Zhang, P. Hao, Y. Liu, X. Shu	773
Micro Friction Experimental Study based on Parallel Cantilever Y. Xu, H. Yu, Z. Yu, J. Xu, Q. Shi	778
The Research on Optimal Design of Large Metallurgical Crane X. Wu, C. Bo, Z. Dan, J. Li	783
Modeling and Control of a Single-Legged Robot X. Yu, C. Fu, C. Ken	788
A Fault Feature Extraction Method for Rotor Rubbing based on Load Identification and Measured Impact Response Y. Li, J. Zhang, L. Wang, Y. Chen	793
Interactive Genetic Algorithms with Grey Level of Discrete Fitness G. Guo, S. Liu	798
Surface Temperature Analysis for Infrared Active-illuminated Vehicle H. Yang, X. Yang	804
Design of Equipment Procurement Project Organization based on Viable Systems Model J.F. Sun, W.Y. Liu	809

Experimental Investigations on Spray Characteristics in Twin-Fluid Atomizer W. Pipatpong, H. Hirahara, H. Mochida, T. Furukawa, M. Nakamura, S. Chaitep	816
Incorporating Method of Time Correlation and SVM based on Time Geodesic Distance W. Ping, G. Zhang	823
Lagrangian-based Investigation of Gaseous Jets Injected into Water by Finite-Time Lyapunov Exponents J.N. Tang, N.F. Wang	828
Prediction Study of Geometric Optimization for an Ejector Nozzle with Coupled Flow-Heat Transfer Method G. Kang, Q. Wang	835
Comprehensive Welding Technology for Type 304 Stainless Steel Rotating Shaft Z. Shilun, Z. Xiong, Z. Gang	840
Geometric Error Modeling of Machine Tools based on Screw Theory Z. Yu, T. Li, X. Ang	845
Dynamics Modeling of Planetary Gear Set Considering Meshing Stiffness based on Bond Graph Y. Luo, T. Di	850
Resilience and Social Support as Moderators of Work Stress of Young Teachers in Engineering College K. Xiao	856
The Research on Coding Scheme of Binary-Tree for XML W. Shi, S. Zhang, Q. Hu	861
Experimental Investigations on Spray Characteristics in Twin-Fluid Atomizer P. Watanawanyoo, H.H.H. Mochida, T. Furukawa, M. Nakamura, S. Chaitep	866