

2010 International Conference on System Science and Engineering

(ICSSE 2010)

**Taipei, Taiwan
1 – 3 July 2010**



**IEEE Catalog Number: CFP1046J-PRT
ISBN: 978-1-4244-6472-2**

TABLE OF CONTENTS

Research on the Green Development of China's Textile Industry	1
<i>C. Zhu, Y. Fan</i>	
Study on Eco-city Evaluation Method based on Emergy and Ecological Footprint Model.....	5
<i>X. Zheng, J. Li, H. Zhang</i>	
Research on the Method of Energy Analysis Applied in Eco-Evaluation	10
<i>H. Zhang, J. Li, X. Zhang, M. Cheng, Z. Peng</i>	
Analysis of Tianjin Virtual Water Trade Based on Input-Output Model.....	15
<i>H. Zhang, S. Ma, X. Zhang, Y. Wang</i>	
Analysis of Economy Transition in China City: Comparing Beijing, Tianjin and Shanghai.....	20
<i>X. Zhang, Y. Yang</i>	
Discrete Wavelet Transform and Short-Time Fourier Transform Applications: Wafer Microcrack and Voltage Sag Detection	25
<i>Wen-Ren Yang, Wen-Xun Yang</i>	
Stability Analysis for the Polynomial Fuzzy Systems by Utilizing Equality Constraints of Sum-of-Squares Program	30
<i>J. Chen, K. Tanaka, H.O. Wang, H. Otake, W. Wang</i>	
Frequency Domain Identification with Adaptive Rational Orthogonal System.....	35
<i>W. Mi, T. Qian</i>	
Friction Coefficient Prediction of Deposited Cr_{1-x}Al_xC Coatings Using Neural Networks.....	40
<i>Y. Yang, T. Fu, J. Chou, W. Huang, G. Li</i>	
A Three in One Smart Garment Hanger	44
<i>Y.K. Wong, K.S. Ip</i>	
A Hybrid Algorithm Applied to Classify Medical Datasets	50
<i>Y. Chiang, Z. Lee, L. Chang</i>	
FML-based Type-2 Fuzzy Ontology for Computer Go Knowledge Representation.....	56
<i>C. Lee, M. Wang, Z. Yan, Y. Chen, H. Doghmen, O. Teytaud</i>	
Semantic Image Retrieval with Fuzzy-ART	62
<i>C. Chang, H. Wang, R. Jian</i>	
Maintenance of High Average-Utility Itemsets for Record Deletion	68
<i>T. Hong, G. Lan, C. Lin, C. Lee</i>	
Mining Indirect Associations over Data Streams.....	73
<i>C. Chen, W. Lin, Y. Chen, H. Li</i>	
Evaluation Model Based on Network Analytic for Developing Effect of Green Industry	79
<i>T. Ma, X. Zhang</i>	
The Simulation of China Education-economy System: A System Dynamics Model	84
<i>L. Zhang, X. Zhang, N. Li</i>	
The Forecast of the Demand for the Talents of China's Textile Industry.....	88
<i>Z. Zhang, H. Le, S. Yu</i>	
A Case Study of Regional Ecosystem Health Assessment Based on PSR Model	94
<i>J. Yang, H. Zhang, X. Zhang</i>	
Research on the Comparison of the Development of Service Outsourcing Base in China	99
<i>S. Wang, C. Zhu</i>	
POPBL-Based Education and Training System on Robotics Training Effectiveness.....	103
<i>C. Chuang, Y. Huang, G. Lin, Y. Huang</i>	
Analysis of Influences from Exchange Rate to Pricing of China Steel Industry	107
<i>D. Huo</i>	
Selecting a CMOS Sensor by Using a Fuzzy MCDM Framework.....	111
<i>C. Huang, M. Hung, T. Jhu, G. Tzeng</i>	
Multi Objective Optimization For Piloting A Quality Management System: Study Case.....	116
<i>H.B. Mahmoud, R. Ketata, T.b. Romdhane, S.B. Ahmed</i>	
Design of Fall Detection System with Floor Pressure and Infrared Image.....	122
<i>H. Tzeng, M. Chen, J. Chen</i>	
Intelligent Mobile Mechanical Arm Design.....	127
<i>C. Lin, M. Chen</i>	
The Effects on Extremities' Muscles while Cycling with Different Speed and Gradients	133
<i>K. Lin, Y. Chen</i>	

Compact Ant Colony Optimization Algorithm Based Fuzzy Neural Network Backstepping Controller for MIMO Nonlinear Systems	137
<i>C. Chen, Y. Leu, W. Wang, C. Chen</i>	
Adaptive Nonlinear Parametric Neural Control of Nonaffine Nonlinear Systems	141
<i>Y. Leu, W. Wang, W. Leu, Z. Lee, C. Hong</i>	
Multimodal Kernel Learning for Image Retrieval.....	146
<i>Y. Lin, C. Fuh</i>	
Robust Visual Mouse by Motion History Image	152
<i>C. Hsieh, D. Liou, Y. Cheng, F. Cheng</i>	
Automated Lecture Recording System	158
<i>H. Chou, J. Wang, C. Fuh, S. Lin, S. Chen</i>	
A SOM-Based Dimensionality Reduction Method for KNN Classifiers	164
<i>J. Wu, I. Li</i>	
Concept of Ambiguity and Applications to Security and Transportation Safety.....	170
<i>P.S. Wang</i>	
Reinforcement Learning Based Control of Tumor Growth with Chemotherapy	175
<i>A. Hassani, M.B. Naghibi-S</i>	
An Intelligent Non-Contact Wireless Monitoring System for Vital Signs and Motion Detection	180
<i>W. Hu, D.Y.C. Lie, M.U. Kakade, R. Ichapurapu, S. Mane, J. Lopez, Y. Li, C. Li, R.E. Banister, A. Dentino, T. Nguyen, S. Zupancic, J. Griswold</i>	
A Theoretical Model of the Adaptive Navigation Support.....	185
<i>M.A.F. Almeida, F.M. De Azevedo</i>	
A New Design of an Alternating-pressure Air Cushion.....	191
<i>J.Y. Chen, A.W. Luo</i>	
Time Pattern Study for a Dynamic-type Air Cushion	194
<i>J.Y. Chen, B. Xiao</i>	
A Fast Denoising Approach to Corrupted Infrared Images	197
<i>C. Lin, C. Kuo, E. Jian, Y. Chang, H. Huang</i>	
Modified Clustering Algorithm for the Trachea Sound Featuring	202
<i>M. Hsueh, Y. Wu, F. Chong, M. Hsueh, B. Lu, S. Wei, H. Wu</i>	
Extended Kalman Particle Filter Angle Tracking (EKPF-AT) Algorithm for Tracking Multiple Targets.....	206
<i>S. Hou, H. Hung, T. Kao</i>	
Application of the Genetic Algorithm in Customization Personalized E-Course.....	211
<i>Y. Chang, S. Hsieh, J. Li</i>	
Reliable Multi-objective Decentralized Controller Design.....	217
<i>Y. Chang, L. Kuo, J. Wu</i>	
Adaptive Dynamic Motion Controller Design for a Four-Wheeled Omnidirectional Mobile Robot.....	223
<i>C. Tsai, Z. Wu, Z. Wang, M. Hisu, Z. Wang</i>	
Cooperation and Task Execution of an Anthropomorphic Two-Armed Robot: An Application to Coffee Making.....	229
<i>C. Tsai, Y. Wang, Y. Li, F. Tai</i>	
Linearized Two-Loop Posture and Speed Control of an Electric Unicycle.....	235
<i>S. Lin, C. Tsai, X. Shih, C.H. Lu</i>	
Self-Balancing and Position Control Using Multi-Loop Approach for Ball Robots.....	241
<i>C. Tsai, M. Juang, C. Chan, C. Liao, S. Chan</i>	
Design and Application of Predictive Controller using Neural Networks	247
<i>C. Lu, C. Tsai</i>	
L2- Gain Control of Time-Delay Systems with Actuator Saturation	253
<i>M.N.A. Parakci, I.B. Kucukdemiral</i>	
A New, Practical Approach to Maintaining an Efficient Yet Acceptably-performing Wireless Networked Control System.....	259
<i>J.H. Taylor, H.M.S. Ibrahim</i>	
Fuzzy Tracking Control Design Using Observerbased Stabilizing Compensator for Nonlinear Systems	265
<i>T. Agustinalah, A. Jazidie, M. Nuh, H. Du</i>	
Microcontroller based Active Noise Controller in Headphones	271
<i>S. Li, C. Chang</i>	
Enhanced Method to Improve the Performance of Active Noise Control System.....	276
<i>H. Hsu, C. Chang</i>	
Adaptive Robust Dynamic Surface Control of Magnetic Levitation Systems	282
<i>H. Lin, W. Chan, C. Chang, Y. Chang</i>	

Integral Sliding-Mode Flux Observer for Sensorless Vector-Controlled Induction Motors	287
<i>H. Chen, C. Wu, C. Chang, Y. Chang, H. Lin</i>	
Design and Implementation of Wave Variable Based Teleoperation Systems	293
<i>J. Huang, C. Wu, Y. Chang, H. Lin, C. Wu, S. Lee</i>	
Adaptive Fuzzy Sliding-Mode Formation Control for Second-Order Multi-Agent Systems	299
<i>C. Chang, C. Chen, Y. Chang, C.W. Tao</i>	
Interval Type-2 Fuzzy Neural Network for Ball and Beam Systems	304
<i>W. Chan, C. Lee, C. Chang, Y. Chang</i>	
Location Estimation in Indoor Wireless Networks by Hierarchical Support Vector Machines with Fast Learning Algorithm	310
<i>V.S. Feng, T.C. Wang, S.Y. Chang, H. Ma</i>	
One Way Ranging Time Drift Compensation for Both Synchronized and Non-Synchronized Clocks	316
<i>J.X. Lee, Z.W. Lin, P.S. Chin, K.P. Yar</i>	
Robust Expectation-Maximization Algorithm for Multiple Wide-band Acoustic Source Localization in the Presence of Non-Uniform Noise Variances	321
<i>L. Lu, H. Wu, K. Yan</i>	
Numen: Where and What are You Doing Now?	327
<i>N. Xu, W. Jia</i>	
Partial Response Maximum Likelihood Sequence Detector for a Nonlinear Magnetic Recording Channel	333
<i>T. Kao, C. Chen, S. Chen, S. Hou, Y. Chang, X. Chou</i>	
Multilevel Concatenated Space-Time Block Codes	337
<i>S. Ma, C. Lin</i>	
Layer-component-based Communication Stack Framework for Wireless Residential Control Systems	340
<i>R. Torbensen, T. Hjorth</i>	
An Observer Design for Primary-Side Control of Flyback Converter	346
<i>T. Chiang, D. Liaw, C. Li, T. Yang</i>	
The Truth of Russian Economic Reform	352
<i>T. Yang, H. Wu</i>	
An Approach for Improving K-Means Algorithm on Market Segmentation	356
<i>H. Wang, D. Huo, J. Huang, L. Yan, W. Sun, X. Li, Y. Xu</i>	
The Torque Control of Human Power Assisted Electric Bikes	361
<i>P. Chen, H. Lin, S. Chang, Y. Huang</i>	
A Safety System for Intelligent Portable Hybrid Electric Bicycle	367
<i>M. Dai, H. Ho, C. Hsiao</i>	
Designing a Fast Battery Charger for Electric Bikes	373
<i>C. Tsai, W. Lin, C. Lin, M. Wu</i>	
Research on Comparison of Textile Industry Technological Innovation among Typical Countries	378
<i>Y. Fan, C. Zhu, S. Wang</i>	
Productivity and Structural Change in China	383
<i>M. Wei, X. Zhang</i>	
A Heuristic Finite Frequency H-infinity Filtering Technique with Application to Cascaded 2-1 Sigma-Delta Modulators	388
<i>Y. Chou, C. Lin, Y. Chang</i>	
Derivation of the Optimal Guidance Law for Space Vehicle Based on a DAE Approach	394
<i>H. Wang</i>	
Estimation of Relative Orientation Using Dual Quaternion	400
<i>Y. Lin, Y. Chiang, H. Wang, F. Chang</i>	
A Novel Self-Organizing Map Algorithm for Text Mining	404
<i>H. Yang, C. Lee</i>	
Applying Gene Ontology to Microarray Gene Expression Data Analysis	408
<i>A.C. Yang, H. Hsu, M. Lu</i>	
A Development of Information Protection System Using System Engineering and RFID Technology	414
<i>J.H. Kuan, J. Chang</i>	
Form-Driven Value Evaluation of Eco-Products	420
<i>C. Chen, C. Yeh, Y. Lin</i>	
Fuzzy Random Shortest Path Problem using Conditional Value at Risk	426
<i>T. Hasuike</i>	
Robust Feature Extraction and Control Design for Autonomous Grasping and Mobile Manipulation	432
<i>K. Song, C. Chang, C. Lin</i>	
LMI-based Approach for Robust Stability Analysis of Genetic Regulatory Delayed Networks	438
<i>Cheng-Fa Cheng, Ching-Yuan Cheng</i>	

A Study on Finding Optimal Network Operators Level.....	444
<i>S. Seok, M. Kwon, B. Chung, B. Park, B. Chang</i>	
Design and Implementation of Intelligent Driving Controller for Car-Like Mobile Robot	449
<i>C. Chen, K. Lim, T.S. Li</i>	
Performance Comparisons of Genetic Algorithm and Artificial Bee Colony Algorithm Applications for Localization in Wireless Sensor Networks.....	455
<i>H. Wang, Y. Wang, M. Tsai</i>	
Extended Sliding-mode Controller for High Speed Train.....	461
<i>C. Lin, C. Chen, S. Tsai, T.S. Li</i>	
A Modified Instantaneous Speed Observer Design for Brushless AC Motors.....	467
<i>M. Wang, P. Hsiao, N.T. Hanh, T.S. Li</i>	
Speech Signal Processing Based Emotion Recognition.....	472
<i>L. Luoh, Y. Su, C. Hsu</i>	
Image Processing Based Emotion Recognition.....	476
<i>L. Luoh, C. Huang, H. Liu</i>	
A Face Detection and Recognition System based on Rectangular Feature Orientation	480
<i>D. Lee, J. Liang</i>	
Recovery of Occluded Face Using Direct Combined Model-based Particle Filter	485
<i>C. Tu, J.J. Lien</i>	
Authentication of Binary Document Images in PNG Format Based on A Secret Sharing Technique	491
<i>C. Lee, W. Tsai</i>	
Apply GM(h,N) in The Influence Factor Analysis of 300 m Man's Race.....	496
<i>W. Hsieh, K. Wen</i>	
Unsupervised and Fast Continent Classification of Digital Image Collections using Time	501
<i>F.E. Sandnes</i>	
Intellec System: Shell for Expert Systems Creation with Fuzzy Inference Machine Developed in Prolog.....	506
<i>C.R.P. Filho, M.J. Cunha, F.M. De Azevedo, G.L. Ferrari</i>	
The CMAC Coding Schemes Applied on FPGA for Image Reconstruction.....	510
<i>T. Tao, T. Chen</i>	
Image Tracking and Anti-Collision System for the WMR Using Fuzzy Controllers.....	516
<i>G. Yu, M. Chen</i>	
Box-Cox Transformation-Based Annealing Robust Radial Basis Function Networks for Skewness Noises	522
<i>Y. Liu, S.F. Su, C. Chuang, J. Jeng</i>	
Analysis and Control of the Chaotic Turbulence of Nonholonomic Constraints on Humanoid Robots	527
<i>C. Wang, Y. Chang</i>	
Image-based Age-group Classification Design Using Facial Features.....	533
<i>Y. Chen, M. Han, K. Song, Y. Ho</i>	
Vision-Based Side Vehicle Detection from a Moving Vehicle	538
<i>W. Chang, K. Hsu</i>	
Design of the Surgical Robots for Orthopaedics Applications	544
<i>P. Yen, S. Hung, H. Hsiao</i>	
Development of a Web-Based Telemedicin System for Remote ENT Diagnoses.....	550
<i>C. Kuo, J. Liu</i>	
Assessing Inferior Glnohumeral Stiffness: A Quantified and Non-invasive Ultrasonographic Method	556
<i>W. Tsai, M. Lee, W. Yeh, M. Wu, K. Soon</i>	
Layer-based Abrasive Computer Tomography for Custom Denture Fabrication.....	562
<i>M.Y. Lee, C.C. Chang</i>	
Diversity-guided Bilateral Objective Function and Its Application to Optimal Planning of Cogeneration	568
<i>C. Chen, F. Chen</i>	
Reengineer Restaurant Set-Meal Design Process: A Combination of Modular Product Design and System Engineering Evaluation Approach.....	572
<i>K.J. Chen, Y.J. Lo, A.J.C. Trappey, C.V. Trappey</i>	
Programming Parallel Apriori Algorithms for Mining Association Rules	578
<i>C. Chiang</i>	
Portable Green Energy Sources: Advancement and Challenges	584
<i>M. Tahavori</i>	
Immune Feedback Principle in Supervisory Loop of Flexible Joint Robot Control	590
<i>M. Rashtian, M. Farahmand</i>	

QVCO Using Back-Gate Connection for Low Power Consumption and Phase-Noise Reduction	595
<i>M. Azhdari, N. Fatahi, H. Nabavati</i>	
A Comparison of Adiabatic Logic as a Countermeasures against Power Analysis Attacks	599
<i>Y. Takahashi, T. Sekine, M. Yokoyama</i>	
Malware Analysis Using Reverse Engineering and Data Mining Tools	603
<i>S. Burji, K.J. Liszka, C.C. Chan</i>	
A Secured Video Streaming System	609
<i>S. Liu, H. Yu, J. Wu, J. Chen, J. Liu, D. Shiue</i>	
Face Recognition and Unseen Subject Rejection in Margin-Enhanced Space	615
<i>J. Chen, S. Shi, J.J. Lien</i>	
Face Gender Recognition Using Improved Appearance-Based Average Face Difference and Support Vector Machine	621
<i>J. Guo, C. Lin, H. Nguyen</i>	
Author Index	