

2011 IEEE 5th International Conference on Cybernetics and Intelligent Systems

(CIS 2011)

**Qingdao, China
17 – 19 September 2011**



**IEEE Catalog Number: CFP11835-PRT
ISBN: 978-1-61284-199-1**

TABLE OF CONTENTS

Robust Adaptive Control Of A Class Of Nonlinear Systems With Inverse Compensation Of Unknown Asymmetrical Backlash Nonlinearity	1
<i>G. Gu, L. Zhu, Y. Feng, C. Su</i>	
Adaptive Optimal Control for an Air-breathing Hypersonic Vehicle	7
<i>C. Guo, H. Wu, B. Luo</i>	
Application of Active Disturbance Rejection Control in Tank Gun Control System	13
<i>C. Wang, Y. Xia, M. Fu, Z. Zhu</i>	
A New On-Board Data Handling System for Spacecraft Flight Control Simulator	19
<i>J. Wu, M. Hu, Y. Gao</i>	
Longitudinal and Transverse Vibration Control of an Axially Moving String	24
<i>Q. Nguyen, K. Hong</i>	
Energy-consumption-related Robust Optimization Scheduling Strategy for Elevator Group Control System	30
<i>F. Wang, J. Tang, Q. Zong</i>	
An Improved Image Segmentation Algorithm and Measurement Methods for Asphalt Mixtures	36
<i>Y. Hao, W. Qiu-sheng, Y. Hai-wen</i>	
Diagnostic Information Based Test Points Selection For Analog Circuit Diagnosis	42
<i>J. Wan, F. Zhang</i>	
Overview of Intelligent Composites with Embedded FBG Sensors	47
<i>W. Wang, H. Song, J. Xue, W. Guo, M. Zheng</i>	
Mechanical Properties of Composites with Embedded FBG Sensors in Different Layer	52
<i>H. Song, W. Wang, Y. Zhou, G. Zhou</i>	
Aircraft Wing Structural Damage Localization Research Based on RBF Neural Network	57
<i>P. Bao, M. Yuan, H. Song, W. Guo, J. Xue</i>	
Robust Neural Network Threshold Determination For Wavelet Shrinkage in Images	63
<i>C. Ochotorena, E. Dadios</i>	
Discrete-Time Adaptive Iterative Learning Control for Permanent Magnet Linear Moto	69
<i>S. Jin, Z. Hou, R. Chi, Y. Li</i>	
Robust H_∞ Filtering For A Class Of Stochastic Hybrid Neutral Time-Delay Systems With Average Dwell Time	75
<i>Z. Feng, J. Lian</i>	
Robust Strict Dissipativeness Analysis for Affinely Uncertain Singular Systems	81
<i>L. Liu, X. Dong, W. Wang</i>	
H_∞ Synchronization Control For A Class Of Chaotic Neural Networks With Time-Varying Delays Via Disturbance Observer	87
<i>M. Rong, M. Chen</i>	
Robust Trajectory-Tracking Method for UAV Using Nonlinear Dynamic Inversion	93
<i>Z. Xie, Y. Xia, M. Fu</i>	
State Feedback Robust Dissipative Control for Singular Systems with Affine Uncertainty	99
<i>L. Liu, X. Dong, W. Wang</i>	
Depth-based Reference Portrait Painting Selection for Example-based Rendering	105
<i>X. Zhang, K. Chan, M. Constable</i>	
Ghost, Occlusion and Distractors Handling in Object Tracking System	111
<i>J. Wen, Y. Xu, Y. Zhan</i>	
Evaluation of Coded Structured Light Methods Using Ground Truth	117
<i>X. Zhang, L. Zhu, L. Chu</i>	
Active Contour Model for Images Corrupted by Multiplicative Noise with Rayleigh Distribution	124
<i>G. Wang, Z. Pan, J. Xu, Z. Zhang, C. Liu, J. Ding</i>	
A Projection Model for Chan-Vese Model in Level Set Formulation and Its Split Bregman Algorithm	128
<i>Z. Zhang, Z. Pan, G. Wang, X. Zhao, J. Ding</i>	
A New Algorithm for Characters Segmentation of License Plate Based on Variance Projection and Mean Filter	132
<i>Y. Ma, J. Chi, R. Hu, G. Yang</i>	
A Systems Design Approach to Manage Mechatronics R&D	136
<i>C. Pang, T. Ng, F. Lewis, T. Lee</i>	
Intelligent Energy Audit and Machine Management for Energy-Efficient Manufacturing	142
<i>C. Pang, C. Le, O. Gan, X. Chee, D. Zhang, M. Luo, H. Chan, F. Lewis</i>	

An Improved Adaptive PID Controller Algorithm	148
<i>W. Yang, M. Fei</i>	
A Hybrid Binary Harmony Search Algorithm inspired by Ant System	153
<i>L. Wang, P. Zhou, J. Fang, Q. Niu</i>	
Modelling Large-Scale Manpower Dynamics: An Expert Systems Approach	159
<i>T. Sheng, A. Ng</i>	
Force and Motion Analyses of the Human Patting Gesture for Robotic Social Touching	165
<i>J. Cabibihan, I. Ahmed, S. Ge</i>	
Estimating the Minimum Number of Robots to Finish Given Multi-Objects Task	170
<i>J. Guo, B. Gao, R. Cui, S. Ge</i>	
Route Network Flow Assignment in the New Generation of Aviation by Cooperative Co-evolution	175
<i>H. Liu, Y. Zhu, K. Cai, Q. Pan</i>	
Error Analysis In Data Fusion Of Airborne Radar And ADS-B	181
<i>D. Li, Q. Pan</i>	
Analysis and Optimization of PMF-FFT Acquisition Algorithm for High-Dynamic GPS Signal	185
<i>C. Liu, J. Zhang, Y. Zhu, Q. Pan</i>	
Localization Method of Multiple Targets by Crossing Direction Finding	190
<i>W. Ling, S. Ge</i>	
Robust GPS and Radar Sensor Fusion for Multiple Aerial Vehicles Localization	196
<i>G. Wang, S. Ge</i>	
Adaptive Fuzzy Control On A Chewing Machine	202
<i>C. Sun, J. Bronlund, W. Xu, L. Huang</i>	
Design and Implementation of Type-2 Fuzzy Iterative Learning Controllers Using FPGA Chip	208
<i>C. Chien, S. Peng, Y. Wang</i>	
Fuzzy Controller Design Based On Sampled-Data under Time-Varying Sampling	214
<i>J. Ding, B. Chen</i>	
Fault-Tolerant Control for T-S Fuzzy Systems with Actuator Faults: A Fault Partitioning Approach	217
<i>X. Chi, X. Jia, L. Zhang, B. Liu</i>	
Bio-Inspired Coordination of Multiple Robots Systems and Stigmergy Mechanims to Cooperative Exploration and Surveillance Tasks	223
<i>R. Calvo, J. Oliveira, M. Figueiredo, R. Romero</i>	
Evolution Strategy based Decision-making Model for Order Allocation in Production Planning	229
<i>Z. Guo, W. Wong, S. Leung, M. Li</i>	
Human Motion Tracking in a Wireless Network of Mobile and Static Sensors	235
<i>L. Ong, M. Han, W. Xiao, C. Tham, M. Ang Jr.</i>	
Automated Tracking of Biological Cells in an “In-vitro” Environment using Active Contours and Distance Measures	241
<i>K. Ramanathan, L. Ong, H. Asada, M. Ang Jr.</i>	
Gyroscopic Stabilization of a Kid-Size Bicycle	247
<i>P. Lam</i>	
Autonomous Personal Vehicle for the First- and Last-Mile Transportation Services	253
<i>Z. Chong, B. Qin, T. Bandyopadhyay, T. Wongpiromsarn, E. Rankin, M. Ang Jr., E. Frazzoli, D. Rus, D. Hsu, K. Low</i>	
Face Detection using Neural Networks with Skin Segmentation	261
<i>S. Hilado, E. Dadios, R. Gustilo</i>	
Optimal Control Of Prawn Aquaculture Water Quality Index Using Artificial Neural Networks	266
<i>R. Gustilo, E. Dadios</i>	
Signals of Opportunity Navigation Methods for Complex Lower Airspace Flight	272
<i>L. Zheng, R. Xue</i>	
Augmented State Multiple Model Probability Data Association Track Fusion for Air Traffic Control	277
<i>F. Huang, J. Zhang</i>	
The Effect of Navigation Frequency on Smoothed Pseudorange Variance in SBAS	283
<i>S. Wang, Y. Zhu, R. Li</i>	
Optimized Key Parameters On RAIM Performance For Vertically Guided Approaches	288
<i>S. Qian, Z. Jun</i>	
Study on Multi-legged Walking Robot in Huazhong University of Science & Technology	294
<i>X. Chen, B. Han, X. Luo</i>	
Intelligent Available-to-Promise System under Manufacturing Uncertainty	300
<i>C. Lim, T. Halim</i>	
On-line Optimal Control of Two-stage Discrete Event Systems with Real-Time Constraints	306
<i>J. Mao, T. Yanyan</i>	

Optimization Of A Flat Facet Parabolic Solar Concentrator For Automatic Assembling	312
<i>H. Dominguez, A. Luca, J. Herrera, V. Nosov</i>	
Formation Flight using Multiple Integral Backstepping Controllers	317
<i>A. Davidi, N. Berman, S. Arogeti</i>	
Using SSVEP based Brain-Computer Interface to Control Functional Electrical Stimulation Training System	323
<i>L. Yao, D. Zhang, G. Huang, X. Zhu</i>	
Promoting Common Awareness Through Semantic Information Networks For Sustainability	329
<i>H. Dominguez, J. Gomez</i>	
Genetic Search for Fast Object Detection	335
<i>X. Fan, X. Wang</i>	
Zhang Dynamics Solving Scalar-Valued Time-Varying Linear Inequalities Using Different Activation Functions	340
<i>Y. Zhang, F. Li</i>	
Discrete-Time Zhang Neural Network and Numerical Algorithm for Time-Varying Quadratic Minimization	346
<i>Y. Zhang, B. Mu, H. Zheng</i>	
A NN-Based Expert System For The Forging Design Of Steering Knuckles	352
<i>L. Cheng, G. Zhao, R. Zou, T. Zhang</i>	
Ordinal Semi-Supervised k-Nearest Neighbor Algorithm for Small Training Datasets	356
<i>Z. Liu, T. Patel, M. Zuo, H. Xu</i>	
Deterministic Learning from ISS-Modular Adaptive NN Control of Nonlinear Strict-Feedback Systems	362
<i>C. Wang, M. Wang</i>	
Need For Causal Modeling Approximations	368
<i>L. Mazlack</i>	
Effect of Number of Input Layer Units on Performance of Neural Network Systems for Detection of Abnormal Areas from X-ray Images of Chest	374
<i>T. Sasaki, K. Kinoshita, S. Kishida, Y. Hirata, S. Yamada</i>	
Learning Control of Uncertain Ocean Surface Ship Dynamics Using Neural Networks	380
<i>S. Dai, C. Wang, F. Luo</i>	
Adaptive Neural Boundary Control Design for a Class of Nonlinear Spatially Distributed Systems	386
<i>Y. Li, H. Wu, J. Wang</i>	
Collision-Free Intersection Crossing of Mobile Robots Using Decentralized Navigation Functions on Predefined Paths	392
<i>B. Fankhauser, L. Makarem, D. Gillet</i>	
Simple Analog Motion Detection Circuit Based on the Retina	398
<i>K. Nishio, H. Asahina</i>	
Development and Performance Research of a Novel Thermal Biosensor	403
<i>X. Liu, Y. Zheng, L. Wang, Y. Ma</i>	
Author Index	