# 2006 9th International Conference on Control, Automation, Robotics and Vision

Singapore, 5-8 December 2006

Volume 1 of 5



**IEEE Catalog Number: ISBN:** 

06EX1361 1-4244-0341-3

GPRS Communication System Designed for High Congestion Risk Circumstance	1
An Anycast Communication Model on Solving Scalability in IPv6	7
Robust Stable Controller Design of Networked Closed-loop Systems	12
Robust Limit Cycle Amplitude Suppression for a Class of Uncertain Nonlinear Control Systems	16
Mean-variance Portfolio Model with Consumption	22
A Robust Operation Model for Supply Chain with Uncertain Demands under Electronic Market	27
Stochastic Control in Optimal Portfolio with Regime Switching Model	33
An Autonomous Obstacles Negotiating Inspection Robot for Extra-High Voltage Power Transmission	25
Lines	3/
A Robust Dynamic Operating Model for a Supply Chain under Uncertain Markets	43
Output Sliding-Mode Control of Discrete-Time Nonminimum Phase Systems	49
Design of Interface Software for a Distributed System with Mixed Varied Intelligent Meters	55
A New Integrated Data Structure for 3D GIS	59
Design of Stable and Quadratic Optimal Linear State Feedback Controllers for TS-Fuzzy-Model-Based Control Systems	64
Multi-objective Decision Algorithm based on Adaptive Genetic Algorithm and Grey Relation Degree	70
Probabilistic Integration of 2D and 3D Cues for Visual Servoing	75
Decentralized Nonlinear Control of a Laboratory Model Helicopter	81
Stability Analysis of Nonlinear Distributed Parameter Switched Systems	87
Comparison of Control Approaches on Tracking Control of a 3 DOF Parallel Robot: Experimental Results	91
Architecture for Decision Logic Unit in Agile Manufacturing Planning and Control Systems	97
A Novel Conceptual Fish-like Robot Inspired by Rhinecanthus Aculeatus	102
Line Segment Based Scan Matching for Concurrent Mapping and Localization of a Mobile Robot	107

Research of Reactive Power Dynamic Compensation Controller for Oil-field Motor	113
Robust Time-optimal Algorithm of Constrained Systems with Parametric Uncertainties	117
Magnetic Bearing Control using Fuzzy Logic and a Single Neuron	121
A Novel MRF-Based Image Segmentation Algorithm	126
Fundamental Characteristics of a Finger Module for Human-care Robot	131
Devices for Automatic Irrigation based on GSM Network and Radio Communication	137
Hybrid Agent Model to Design Real-time Distributed Supervising and Control Systems	142
Adaptive Nonstationary Control using Solutions of Time-Varying Riccati Equations - Its Application to Positioning Control of Vibration Systems	147
Exponential Stability of General Stochastic Hybrid Systems and it's Application	153
Kinematic Modeling and Dynamic Analysis of the Long-based Undulation Fin	158
Decentralized Cooperative $H\infty$ Robust Control for Linear Large-Scale System	164
A JDF-based Framework of Computer Integrated Printing Manufacturing	169
Modeling Supply Chain Configuration based on Colored Petri Nets	176
Low Cost Measurement of Small Boat RCS at 94GHz	182
Rough-Terrain Robot Motion Planning based on Obstacleness	190
Viability Decision of Complex Stochastic System	196
Adaptive Controllers by using Neural Network Based Identification for Short Sampling Period	200
An Credit Card Verification System by Biometric Method	206
Delay-Dependent Robust Stabilization for Uncertain Time-Delay Systems	210
Self-Generation of Fuzzy Inference Systems by Enhanced Dynamic Self-Generated Fuzzy Q-Learning	214
Simulation Analysis of the Influence of Random Disturbances on Shell Pattern Formations	220
Development of 32-bit Universal Electronic Control Unit UECU32 for Automotive Application	226

Roll and Yaw Stabilisation using Nonlinear Energy Method	232
A Local √3-Subdivision Algorithm Preserving Sharp Features	236
An Object Tracking System based on Human Neural Pathways of Binocular Motor System	242
Input Estimation for Output Tracking in Nonlinear Systems	250
Acoustic Emission Source Identification Technique for Buried Gas Pipeline Leak	256
Plurilinear Modeling and Discrete µ-Synthesis Control of a Hysteretic and Creeped Unimorph Piezoelectric Cantilever	261
Automated Air Drop Video Data Reduction and Air Delivery Payload Position Estimation	269
Nonlinear System Identification based on TS-GFNN	275
U-Interaction Measure for Unstable Systems	280
Interfacing of Biped KHR-1 with DSP Board TMS320F2812	286
H infin Control of a State Matrix Model of Closed-loop Supply Chain and its Bullwhip Effect	292
Adaptive Stable PID Controller with Parallel Feedforward Compensator	297
Robust Adaptive Output Feedback Control of MIMO Systems using Multirate Sampling	303
Enhancement of Short-Span Seeking in a Dual-Stage Seek-Track Following Control Using Variable Saturation  Branislav Hredzak, Guido Herrmann, Chunling Du	309
Optimal Identification and Estimation in Practical Noisy Environments	315
Unbiased Adaptive Time-Delay Estimation in Noisy Environments	321
An Autonomous Task Allocation Method of the Multi-Robot System	327
Using Personality to Avoid Conflict in the Multi-Robot System	333
Developments in Snake Robot Modeling and Locomotion	339
Analysis of Vehicle Emissions and Prediction of Gross Emitter using Remote Sensing Data	347
Fuzzy Chance Constrained Programming Model for Refinery Short-term Scheduling Problem	352
A Microscopic Framework for Distributed Object-Recognition & Pose-Estimation	358

A HHMM-Based Approach for Robust Fall Detection	364
Error-Resilience of TCP-Friendly Video Transmission over Wireless Channel	372
A New Gait Recognition Method based on Body Contour	378
A Self-designed Test System Measuring Thermal Protective Performance of Fire Protective Clothing	384
A High-Precision Calibration and Optimization Method for Stereo Vision System	388
A Flexible Microassembly System for Automated Fabraction of MEMS Sensors	393
Credit Risk Assessment in Commercial Banks based on Fuzzy Support Vector Machines	399
The Study of a Particular Type of Capacitive Transducer for Large Displacement Measurement	403
Full State Tracking of a Four-Wheel-Steering Vehicle based on Output Tracking Control Strategies	407
Integrated Control of Urban Expressway Networks Under Incident Impact	413
A Control Design Approach for Slowly Varying Second Order Linear Systems using Generalized Multiple Scales Method	419
A Rear-Vehicle Detection System for Static Images based on Monocular Vision	425
A Traffic Control Strategy based on an Evolution Equation of Traffic Cost under Dynamical Road- Pricing Regulation	429
Adaptive Reliable and Robust H∞ Control for Nonlinear Systems with Parametric Uncertainties and External Disturbances	435
A Compact 24GHz Sensor for Beam-Forming and Imaging	439
Face Recognition with Weighted Kernel Principal Component Analysis	445
Emotional Communication with the Robot Head MEXI	450
Road Scene Analysis by Stereovision: a Robust and Quasi-Dense Approach	457
Paddle Juggling of one Ball by Robot Manipulator with Visual Servo	463
A Hybrid Markov Model based on EM Algorithm	469
Dynamic Contour Modeling of Wet Material Objects using Periodic Smoothing Spline Surfaces	474

A Formal Linearization for a General Class of Time-varying Nonlinear Systems by the Cubic Hermite  Interpolation and a Nonlinear Observer	180
Circuit Tolerance Design using an Improved Genetic Algorithm	186
Research on a Method to Reduce Ship Roll at Zero Speed	192
Vision-based Monte Carlo - Kalman Localization in a Known Dynamic Environment	196
Optimal Fusion Reduced-Order Kalman Filters Weighted by Scalars for Stochastic Singular Systems	503
A Life-detection System for Special Rescuing Robots	509
Self-Motion Analysis on a Redundant Robot with a Parallel/Series Hybrid Configuration	514
Robust Fixed Order Lateral H2 controller for Micro Air Vehicle	520
A Simplified Dynamic Analysis Modeling on a Full Parallel Manipulator System with Flexure Hinges	526
Robotic Pheromones: Using Temperature Modulation in Tin Oxide Gas Sensor to Differentiate Swarm's Behaviours	532
Reliable Linear Quadratic Control for a Helicopter with Actuator Faults: State-Feedback Case	538
Tracking Accuracy Improvement by Sliding Phase-in Iterative Learning Control	543
A Unified Approach for Multi-fingered Manipulation with Non-sliding Contact in a Horizontal Plane	549
A Novel BP Algorithm based on Three-term and Application in Service Selection of Ubiquitous  Computing	555
Generalized Predictive Control for a Class of Bilinear Hammerstein Model	561
Motion Planning and Coordinated Control for Mobile Manipulators	564
Self-tuning Fuzzy Logic Control of Greenhouse Temperature using Real-coded Genetic Algorithm	570
Nonlinear System Identification using Extreme Learning Machine	576
A Novel Voltage Sensor-less Control Technique Synthesis for a Boost AC/DC Pre-regulator	580
Object-based Surveillance Video Compression using Foreground Motion Compensation	584
Adaptive Neural Network Control of Uncertain Nonlinear Systems in the Presence of Input Saturation	590

Synchronization of Time-delayed Systems via Learning Control	595
Preprocessing of Fingerprint Images Captured with a Digital Camera	600
On Central Pattern Generator of Biological Motor System	606
Studies of Stock Market Discrete Event Risk based on Asymmetric Effect Models	611
3D Face Recognition with Geometrically Localized Surface Shape Indexes	614
Adaptive Control for Stabilizing Nonnecessarily Inversely Stable Plants by using Multiple Estimation Models with Multirate Input and Fractional-Order Holds	620
Sensitivity Minimization by Stable Controllers for a Class of Unstable Time-Delay Systems	627
Characteristics of Fixed Timing Strategy in Oversaturated Network Traffic Control	632
Improved Robust Model Predictive Control with Structural Uncertainty	638
Point-to-Point Control Command for Suppressing Residual Vibration	643
Automatic Tracking Camera System Utilizing the Position of Faces in the Shot Image	649
A Study on Piecewise Polynomial Smooth Approximation to the Plus Function	655
Nonfragile Guaranteed Cost Control for Nonlinear Discrete-Time Systems with Time-Varying State Delay Nan Xie, Gong-You Tang	661
An Efficient Temperature Monitoring and Controlling Protocol	667
How Autonomous Mapping can Help a Road Lane Detection System?	673
Fuzzy Logic Thermal Error Compensation for Computer Numerical Control Noncircular Turnning System	679
Hong'en Wu, Guili Li, Daguang Shi, Hong'en Wu, Chengrui Zhang	
Accuracy Investigations of a Vision Based System for Pose Measurements	684
Intelligent Structure Selection of Polynomial Nonlinear Systems using Evolutionary Programming	690
Frequency Domain Identification of Multiple Input Multiple Output Nonlinear Systems	696
Symbolic Representations for Autonomous Vehicle Perception and Control in Urban Environments	702
Coordination Optimization-based Variable Structure Control for Main Steam Pressure of Power Plant	708
Prediction in Dynamic Environments for Autonomous On-Road Driving	713

Implementation of Drug Delivery System for Blood Pressure Regulation	719
Target Detection based on the Artificial Neural Network Technology	724
Modeling and Decoupled Sliding Mode Control of Maglev Train Module	729
Research on Integrated Automation of Cement Enterprise in Low Cost	735
RBFN based Static Synchronous Series Compensator (SSSC) for Transient Stability Improvement	741
Graphical Inference Methods for Fault Diagnosis based on Information from Unreliable Sensors	748
Emotional Nonverbal Communication based on Fuzzy Dynamic Bayesian Network	754
A Kernel PCA Radial Basis Function Neural Networks and Application	759
Neural Network Control Approach for Improving Vehicle Stability	763
An Unsupervised Learning Algorithm for Intelligent Image Analysis	767
Baseline Independent Binocular Vergence Control of 2 DOF Pan-Tilt Cameras using a Visual Cortical  Model	772
Research of Image Compression based on Optical Wavelet Transform	778
Research of Vision Localization and Measuring System for Magnetic Field Distribution	783
Optimum Efficiency of U-shaped Flexible Production Line	789
Millimeter-Wave Radar for Rescue Helicopters	793
Uniformly Interpolated Elements of SE(3) and their Application to Manipulator Design	799
Robust Adaptive Single Neural Control for Yaw Angle with Input Nonlinearity on Helicopter Testbed	805
Design and Test of a Capsule Type Endoscope Robot with Novel Locomotion Principle	811
Delay-dependent Robust H∞ Controller Design for Uncertain Linear Systems with Time-varying State and Input Delays	817
Multiagent Cooperation through Egocentric Modeling	823
A Biometric Approach to Linux Login Access Control	829
A New Digital Electronic Governor based on 32 bits DSP for a Gas Engine	834

Tracking of a Moving Object using One-Dimensional Optical Flow with a Rotating Observer	840
Evidential versus Bayesian Estimation for Radar Map Building	846
The Extensive Game Model of Electric Power Transaction between Generator and Large Customer	854
GestureCam: A Smart Camera for Gesture Recognition and Gesture-Controlled Web Navigation	858
Prediction and Identification of Urban Traffic Flow based on Features	864
Simultaneous Localization and Mapping with Stereo Vision	870
A Soft Sensor based on Multiple Neural Networks Combined with two Information Fusion Methods	876
Outer Approximation of the Minimal Disturbance Invariant Set of PWL Systems with Bounded Disturbances	882
A Study of Robotizing Daily Items for an Autonomous Carrying System -Development of Person Following Shopping Cart Robot	887
Submerged Robotic Micromanipulation and Dielectrophoretic Micro-object Release	893
Technology for Automatic Ceramic Powder Storing and Continuous Proportional Weighing:  Establishment of a Flexible Design Platform	899
Stability Analysis of λ-model for Human Motor System	904
Guaranteed Cost Control of Linear Uncertain Fuzzy Systems with Time Delay: An LMI Approach	910
An ANFIS Controller for Vision-based Lateral Vehicle Control System	915
Soft Sensor based on Support Vector Machine for Effective Wind Speed in Large Variable Wind	919
Smooth Transition from Motion to Force Control in Robotic Manipulation using Vision	923
Hough-Domain Image Registration By Metaheuristics	929
Stabilization of Switched Systems	934
Dynamic Modeling of Linear Object Deformation Considering Contact with Obstacles	937
Finger Localization and Classification in Images based on Generalized Hough Transform and Probabilistic Models  J'org Barrho, Mathias Adam, Uwe Kiencke	943
Parallel Grammatical Evolution with Backward Processing	949

Model and Fault Inference with the Framework of Probabilistic SDG	955
Fuzzy Multi-objective Evaluating Method for Hybrid Assembly Line Design	961
Motion Estimation to a Failed Satellite on Orbit using Stereo Vision and 3D Model Matching	966
Intelligent Fault Identification based on Wavelet Packet Energy Analysis and SVM	974
A Clustering-Based Bounded-Error Approach for Identification of PWA Hybrid Systems	979
Feature based Face Localization and Recognition on Mobile Devices	985
Robust Observer Design for Lipschitz Nonlinear Discrete-time Systems with Time-delay	991
Solution Existence and Stabilization for Bilinear Descriptor Systems with Time-delay	996
SnakeFighter - Development of a Water Hydraulic Fire Fighting Snake Robot	1001
Towards Automatic Image Modificiation as an Emperical Test of Image Segmentation	1007
Global Localization Robust to GPS Outages using a Vertical Ladar	1013
Real Time Control for 4-wheeled Vehicles via Algorithmic Control Incorporating Computation Time	1019
Fault Isolation using Extrinsic Curvature of Nonlinear Fault Models	1025
Finding Disaster Victims: Robot-Assisted 3D Mapping of Urban Search and Rescue Environments via Landmark Identification	1030
A Survivability Framework for the Development of Autonomous Unmanned Systems	1036
Low Area-time Complexity Averaging Scheme for Thumbnail Generation	1042
Coordinated Search-and-Capture using Particle Filters	1046
Non-locality Preserving Projection and its Application to Palmprint Recognition	1052
Control Performance Analysis of Feedforward and Maximum Peak Power Tracking for Small- and Medium-Sized Fixed Pitch Wind Turbines	1056
Field Programmable Gate Array Implementation of a Neural Network-based Intelligent Sensor System	1063
3D Mapping of Surface Temperature using Thermal Stereo	1068
Sliding Mode Control of Fuzzy Dynamic Systems	1072

Modified LMS and NLMS Algorithms with a New Variable Step Size
Guided Formation Control for Wheeled Mobile Robots
Walking Stability of a Humanoid Robot based on Fictitious Zero-Moment Point
A Novel Miniature Mobile Robot System for Micro Operation Task
Road-Junction Traffic Signal Timing Optimization by an Adaptive Particle Swarm Algorithm1103  Juan Chen, Lihong Xu
A New Auto-focusing Algorithm for Optical Microscope Based Automated System
Active Vibration Suppression of Beams with Discrete Actuators using Optimal Dynamic Inversion
Decentralized Reinforcement Learning Control of a Robotic Manipulator
Platform Enhancements and System Identification for Control of an Unmanned Helicopter
Multi-Agent Reinforcement Learning: A Survey
Dynamic Model of a Holonomic Mobile Robot with Actuated Caster Wheels
Decouple Analysis on Distributed Architecture of Urban Traffic System
Craniofacial Landmark Detection by Layered Diffusion and Dilated Skeleton Maps
Estimation of Inverse Kinematics Model by Forward-Propagation Rule with a High-Order Term
An Algorithm of General Closeness Degree based on Evidence Theory and its Applications in Fuzzy  Pattern Recognition
Petri Nets Based Deadlock-free Scheduling for Flexible Manufacturing Systems
An Engineering Interaction Measure with Application in Vapor Compression Cycle Control
Static Model of Flexible Pneumatic Bending Joint
About Gain Scheduled State Feedback Controllers for Rational LPV Systems
Estimating Malaria Parasitaemia from Blood Smear Images
Non-linear Algorithm for Contrast Enhancement for Image using Wavelet Neural Network
Automatic Analysis of Cos-7 Binding Assay Imagery for Malaria Vaccination Experiments

Some Properties of Algorithmic Control for Real-time Optimization	1207
Research on CAPP Technology Oriented to CNC	1213
Expansion of Hager Belhumeur Inverse Additive Algorithm to Homographies	1218
Crab-Expert: A Web-Based ES for Crab Farming	1222
White: Controlling the Internet Congestion with Integral Controller	1227
The Experiment Research of the Sea-Floor Transient Magnetic Dipole-Dipole Electromagnetic System	1233
A Strategy-driven Framework for Multi-Robot Cooperation System	1237
Wall-Pasted Cell Segmentation based on Gabor Filter with Parameter Constraint	1243
Performance Analysis of an Autonomous Mobile Robot Mapping System for Outdoor Environments	1249
Design and Development of Robotic Hardware-in-the-Loop Simulation	1255
The Dynamic Analysis of a Planar Parallel Manipulator with Joint-Coupling	1261
A New End-effector for On-orbit Assembly of a Large Reflector	1267
A Nonlinear Model Predictive Control System based on Wiener Model	1273
Adaptive Control of Induction Motors with Magnetic Saturation and Uncertainity in Load Torque and Resistances	1279
Mohamed M. Ismail, Hossam A. Abdel Fattah, Ahmed Bahgat	
Neural Networks based ANARX Structure for Identification and Model Based Control Eduard Petlenkov, Sven Nomm, Ulle Kotta	1285
Predictive Time Domain Passivity Control for Delayed Teleoperation using Energy Derivatives	1290
DC-Modulated Power Factor Correction on AC/ AC Luo-Converter	1296
Two-stage Approach for Palmprint Identification using Hough Transform and Hausdorff Distance	1302
Recursive Identification of Piecewise Affine Hybrid Systems	1308
The Gaussian PRM Sampling for Dynamic Configuration Spaces	1314
Robust Pan, Tilt and Zoom Estimation for PTZ Camera by using Meta Data and/or Frame-to-Frame  Correspondences	1319
On the Form-Closure Capability of Robotic Underactuated Hands	1326

Segmenting MR Images using Fully-Tuned Radial Basis Functions (RBF)	1334
Coupling Adaboost and Random Subspace for Diversified Fisher Linear Discriminant	1340
Robust Sensor Fault Reconstruction using a Reduced Order Linear Observer	1345
A Robust Controller of a Flexible Manipulator using Genetic Algorithm	1351
Nonsingular Terminal Sliding Mode Control for a Class of Time Delay Systems	1355
Validation of FE Deformation Models using Ultrasonic and MR Images	1359
Local Positioning System of A Mobile Robot : A Practical Perspective	1365
Scale Normalization for the Distance Maps AAM  Denis Giri, Maxime Rosenwald, Benjamin Villeneuve, Sylvain Le Gallou, Renaud Seguier	1371
Generalized Minimum Variance Implicit Self-tuning Nodal Voltage Regulation in Power Systems with Pole-Assignment Technique	1377
A Force/Displacement Transformation Method for Digitalized Virtual Deformable Object	1383
Modeling Mobility Agents in Supervisory and Controlling Systems based on Nets within Nets	1389
The Algorithm for Berth Scheduling Problem by the Hybrid Optimization Strategy GASA	1393
A Reliable Routing Algorithm for Sensor Network based on Multi-path	1397
Nanorobot Communication Techniques: A Comprehensive Tutorial	1400
Novel Optical Sensor for Precise Tilt Angle Measurement	1406
A Pattern Matching Based Network Intrusion Detection System	1410
Adaptive Tracking for Simple Linear Plants with Unknown Control Direction	1414
An Efficient Method of Nonlinear Feature Extraction based on SVM	1420
Analysis of Relevance Feedback in Content Based Image Retrieval	1426
Two Stage Fuzzy Clustering based on Latent Knowledge Discovery and its Application in the Credit Market	1432
A High Precision Localization Algorithm in Wireless Sensor Network	1437
Development of Control System in a Biped Robot with Heterogeneous Legs	1443

SmartOSEK Based Design and Verification for In-vehicle Network System: A Model-Based Approach	.449
An Evolving Scale-free Network with Large Clustering Coefficient	455
Design of GPS/MM/GPRS Integrated Location System for the Mobile Robot	.459
Optimal Path Planning for Minimizing Disturbance of Space Robot	465
Method for Automated Discovery of Network Communities within Mobile Communication Data	471
Synthesis of Robust Restructurable/Reconfigurable Control	475
Multi-Scale Robotics Framework for MEMS Assembly	.481
Adaptive Sampling using Non-linear EKF with Mobile Robotic Wireless Sensor Nodes	.487
Optimal Deployment Control for a Heterogeneous Mobile Sensor Network	.493
A New Control Scheme for the Speed Control of PMBLDC Motor Drive	.499
Robust Parallel Filtering for Mobile Agent Tracking	504
Bisection Refinement-Based Real-Time Adaptive Mesh Model for Deformation and Cutting of Soft  Objects	511
Direct Kinematics and Analytical Solution to 3RRR Parallel Planar Mechanisms	519
Experimental Evaluation of Adaptive and Variable Structure Control of Piezoelectric Actuation Systems for Micro/Nano Manipulation	525
Detection and Interpretation of Text Information in Noisy Video Sequences	.531
Stochastic Optimal Control for Investment-Consumption Model with Quadratic Transaction Costs	.535
Inspection and Image Analysis of Nickel Sulphide Inclusions in Toughened Glass Panels	.541
Flexible Fuzzy Co-Clustering with Feature-cluster Weighting	.547
Control of Catalytic Flow Reversal Reactor	.553
A Framework for Tracking Moving Target in a Heterogeneous Camera Suite	.559
Transformation of Images by Radial Basis Functions with Varying Centre Point	564

An Interconnection between Combined Classical Block Diagrams and Linear Fractional Tranformation Block Diagrams	1569
Pantazis Houlis, Victor Sreeram	1307
Approximate Design of Optimal Output Tracking Controller for Time-Delay Systems with Sinusoidal Disturbances	1574
Xiao-Han Wang, Gong-You Tang, Hai-Hong Wang	
Frequency Weighted Balanced Model Reduction: A Survey	1580
<b>Decomposition and Noncausal Realization of Unstable LPTV System</b> <i>Xiaofang Chen, Cishen Zhang, Jingxin Zhang</i>	1586
Autonomous Vehicle Control and Obstacle Avoidance Concepts Oriented to Meet the Challenging Requirements of Realistic Missions	1592
New Cost Function for Multi-Robot Exploration	1598
3D Object Localization using Local Shape Features	1604
Improvement to the Minimization of Hybrid Error Functions for Pose Alignment	1610
VRL, a Novel Environment for Control Engineering Practicing: An Application to a Fault Tolerant Control System	1616
Development of Suture Simulator that can Express 3D Deformation of Wounds and those Vicinities	1622
SmartC: A Component-Based Hierarchical Modeling Language for Automotive Electronics	1628
Minimum Parking Maneuvers for Articulated Vehicles with One-Axle Trailers  Dieter Zobel, Elisabeth Balcerak, Thorsten Weidenfeller	1634
Kinematics and Dynamics Analysis of a Planar Hybrid Five Bar Actuator	1640
A Global Approach for Dexterous Manipulation Planning using Paths in n-fingers Grasp Subspace  Jean-Philippe Saut, Anis Sahbani, Veronique Perdereau	1646
Block Motion Model for Optical Flow with Smoothness Prior Function	1652
Gradient Learning Algorithm for Ensembling Neural Network	1658
2D/3D Vision-Based Mango's Feature Extraction and Sorting	1664
Irreducibility Conditions for Continuous-time Multi-input Multi-output Nonlinear Systems	1670
Review of Machine Vision Applications in Unmanned Underwater Vehicles	1675
Self-position Estimation of Autonomous Mobile Robot with Size-variable Image Template	1681
Uniform Boundedness of Feedback Error Learning for a Class of Stochastic Nonlinear Systems	1687

Communication Robots in the Network Robot Framework	1692
Switched Linear Control of a Model Helicopter	1698
An FPGA Based Motion Control IC and its Application to Robotic Manipulators	1706
Genetic Algorithms for Silhouette Matching	1712
Personal Identification System based on Multiple Palmprint Features	1718
Robust H∞ Filtering of Stochastic Time-Delay Systems with State Dependent Noise	1724
Stability Analysis for Time-Delay Hamiltonian Systems	1729
Performance Limitation in Output Regulation of an Uncertain Nonlinear System	1735
Optimal Quarantine and Isolation Control in SEQIJR SARS Model	1741
Random Access in Wireless Ad Hoc Networks for Throughput Maximization	1747
A Combined Positive Position Feedback and Variable Structure Approach for Flexible Spacecraft under Input Nonlinearity	1753
Output Feedback H2 Control of Multiple Input Delay Systems with Application to Congestion Control	1759
Robust Tracking Control of Electrical Driven Free-Floating Space Robot Manipulators	1765
New Results in Robust Observation and Fault Reconstruction	1771
Fault Tolerance of a Flexible Manipulator	1777
Incremental Path Planning using Partial Map Information for Mobile Robots	1782
A Strategy of Maximizing the Sum of Weighted Margins for Ranking Multi Classification Problem	1788
Robust Asymptotic Control for Intelligent Unknown Mechatronic Systems	1793
Output Feedback Regulation of a Brushed DC Motor: An IDA-PBC Approach	1800
Discrete-time Robust Nonlinear Feedback Control for an HDD Servo System Design	1806
Kinematics of Spherical Multi-Lobe-Cams for the Design of a Pitch-Roll Wrist	1812
Block Control Structure Selection based on Relative Interaction Decomposition	1818

Particle Swarm Fuzzy Controller for Behavior-based Mobile Robot	1824
Input-Output Decoupling of Affine Nonlinear Descriptor Control Systems	1830
Selection and Design of Input Devices for Assistive Technologies	1834
What Determines Appropriate Trust of and Reliance on an Automated Collaborative System? Effects of Error Type and Domain Knowledge	1840
Emergent Behaviour Real-time Programming of a Six-Legged Omni-Directional Mobile Robot: Strategy of Viennese Waltz behaviour	1846
Human Behavior Recognition for Daily Task Assistance using Sparse Range Data Observations	1852
Vision-based Control of Constrained Robots using Neural Networks	1858
H∞ Guaranteed Cost Control for Time-Delay Uncertain Discrete Systems	1864
Exploring Possibilities for RSS-Adaptive Power Control in MICA2-based Wireless Sensor Networks	1870
Intermittent Model Predictive Control of an Autonomous Underwater Vehicle	1876
Robust Output Feedback Control for Polytopic Linear Systems	1882
Reliable Memory Feedback H <sup>\infty</sup> Control for Linear Time-delay Systems with Adaptive Mechanism	1888
Application of Millimeter Wave Radar Sensor to Environment Mapping in Surface Mining	1894
An Approach to Estimating Human Behaviors by using an Active Vision Head	1900
The Effect of Prior Interaction Experience with Real/virtual Robot on Participants' Leaving Message  Task	1906
Takanori Komatsu, Tomoki Iwaoka, Misako Nambu	
Stochastic H2/H∞ Control with (x,u,v)-Dependent Noise: Finite Horizon Case	1912
PID Tuning for Dominant Poles and Phase Margin	1918
Why Ti=4Td for PID Controller Tuning Wei Tang, Qing-Guo Wang, Xiang Lu, Zhiping Zhang	1921
Determining Geometrical Parameters by Particle Filter for Automatic Reconstruction of Surface Model of Proximal Femur from Biplanar Calibrated Fluoroscopic Images	1923
Image Segmentation Methods for Detecting Blood Vessels in Angiography	1929
Soft Motion Trajectory for Planar Redundant Manipulator	1935

Cross-Coupled Contouring Control of a Rotary Based Biaxial Motion System	1941
Study of Grey Rough Set Model based on Tolerance Relation	1947
Explicit Constructions of Global Stabilization Control Laws for a Class of Nonminimum Phase Nonlinear Systems  Weiyao Lan, Ben M. Chen	1953
Interregional Functional Connectivity via Pattern Synchrony	1959
Fast and Robust Segmentation of Head in T1-weighted Magnetic Resonance Volumes	1965
Fast Distance Preserving Level Set Evolution for Medical Image Segmentation	1969
A Set-based Hybrid Approach (SHA) for MRI Segmentation	1976
A Novel Visual Perception Framework	1982
The Method of Data Pre-processing in Grey Information Systems	1988
Sensor Registration and Calibration using Moving Targets	1992
Learning Graphical Model for Human Motion Characterization using Genetic Optimization	1998
Active Learning with Support Vector Machines in the Relevance Feedback Document Retrieval	2004
Fast Object Extraction from Bayesian Occupancy Grids using Self Organizing Networks	2010
Lyapunov-Based Switching Control for a Remotely Operated Vehicle	2016
A Supervised Switching Technique for the Robust Stabilization of a Class of Linear Discrete-Time Time- Varying Systems	2022
Extracting Keywords of Web Users' Interests and Visualizing their Routine Visits	2028
Modeling Errors in Small Baseline Stereo for SLAM	2034
An Efficient Early Termination Algorithm of Intra Prediction for H.264/AVC	2040
Quotient Set-based Nonlinear Manifold for Image Restoration	2044
A Switching Design Approach for Discrete-time Linear Hybrid Systems	2048
Examination of Arrangement Support Functions for Emphasizing User's Intentions on Keyword Map	2053
Nonlinear Modeling Method of a Large-Displacement and Decoupled XYZ Flexure Parallel Mechanism	2058

Accuracy Based Adaptive Sampling and Multi-Sensor Scheduling for Collaborative Target Tracking	2064
Semantic Sensor Network for Physically Grounded Applications	2070
Copyright Management Using Progressive Image Delivery, Visible Watermarking and Robust Fingerprinting	2076
Iterative Image Resolution Enhancement using MAP Estimator	2080
People Counting by Video Segmentation and Tracking	2083
Distributed Self-Deployment in Visual Sensor Networks	2087
Adaptive Smart Neural Network Tracking Control of Wheeled Mobile Robots	2093
Dynamic Environment Modeling with Gridmap: A Multiple-Object Tracking Application	2099
Discrimination of Lies in Communication by using Automatic Measuring System of Nonverbal  Information	2105
Modelling of an Orifice-type Aerostatic Thrust Bearing	2111
Cardiac Motion Estimation from Echocardiographic Image Sequence using Unsupervised Active Contour Tracker	2117
Autonomous Planned Color Learning on a Mobile Robot without Labeled Data	2123
Biophasor: Token Supplemented Cancellable Biometrics	2129
Uniformly Partitioning Images on Virtual Hexagonal Structure	2134
Mean Field Annealing Deformable Contour Method: A Constrained Global Optimization Approach	2140
Learning-based Number Recognition on Spiral Architecture	2148
Phase Lead Reset Control Design with an Application to HDD Servo Systems	2153
A Generalized Disturbance Filter Design and its Applications to a Spinstand Servo System with Microactuator	2159
Servo Systems using Multi-rate Notch Filters to Attenuate Resonances beyond Nyquist Rate	2165
A Neuropsychology-inspired Learning System for Human Uncertainty Monitoring	2171
Predicting the Stock Market using Multiple Models	2179

Robot Space Exploration using Peano Paths Generated by Self-Organizing Maps	2185
Computational Capabilities of Soft-Computing Frameworks: An Overview	2191
Repetitive Controller Design for Track Following of Hard Disk Drive Servo System	2197
Effective Low Frequency Disturbance Feed Forward Compensation Scheme for Mobile HDD Application Shuyu Cao, Qiang Bi, Mingzhong Ding, Jianyi Wang, KianKeong Ooi	2201
Modeling the Sampled-data System with a Discontinuous Hold for Hard Disk Ramp Loading	2205
Effect of CG Eye Movement on Social Attitude	2211
Stock Market Price Prediction using Cyclic Self-Organizing Hierarchical CMAC	2217
Dynamic Vision in the Dynamic Scene: An Algebraic Approach	2223
Indexing and Matching of Video Shots based on Motion and Color Analysis	2229
Role Assignment Strategy for Heterogeneous Robots based on Fuzzy Evaluation and Fuzzy Inference	2235
Two-dimensional Control of Self-servo Track Writing for Hard Disk Drives	2240
Segmentation of Kidney Cortex in MRI Studies using a Constrained Morphological 3D H-maxima Transform	2246
H. K. Koh, Weijia Shen, Borys Shuter, Ashraf A. Kassim	
TMR Analysis and Controller Design for Self - ServoWriting in High-Density Hard Disk Drives	2251
Genetic Algorithmic Filter Approach to Mobile Robot Simultaneous Localization and Mapping  Dong Jun Feng, Sardha Wijesoma, Andrew P Shacklock	2258
A Practical Chaotic Secure Communication Scheme based on Chen's System	2264
A Low Complexity Frequency-domain Approach to SIMO System Identification	2269
ELM-based Multiple Classifier Systems  Dianhui Wang	2273
Image Quality Measurement using Sparse Extreme Learning Machine Classifier	2278
ELM for the Classification of Music Genres	2284
Interactive & Immersive VR Image Processing and Visualization	2290
Functional Prediction of Snake Neurotoxins	2295
Terrain Modeling using Machine Learning Methods	2299

Integrative Modeling of Liver Organ for Simulation of Flexible Needle Insertion	2303
Multimodal Biometrics of Lip Movements and Voice using Kernel Fisher Discriminant Analysis	2309
Automatic 3D Segmentation of the Liver from Computed Tomography Images, a Discrete Deformable  Model Approach	2315
Decision Level Fusion in Standardized Fingerprint Match-on-Card	2321
Optimal Occlusion of Teeth	2327
Biomechanical Modeling of Bone-Needle Interaction for Haptic Rendering in Needle Insertion Simulation	2332
Can Fingerprints be Reconstructed from ISO Templates?	2338
Verifying a User in a Personal Face Space	2344
The Effect of Image Resolution on the Performance of a Face Recognition System	2348
Recognizing People's Faces: From Human to Machine Vision	2354
3D Boundary Reconstruction of Mouse Brain Cells	2361
Sensor Interoperability and Fusion in Fingerprint Verification: A Case Study using Minutiaeand Ridge-Based Matchers	2364
Real-Time Face Identification using Two Cooperative Active Cameras	2370
Automated Optic Disk Segmentation via a Modified Snake Technique	2376
Texture Generation for Fashion Design using Genetic Programming	2382
Mechanical Component Dimension Tolerance and Damping Effect on Controller	2387
Singular Points Detection using Interactive Mechanism in Fingerprint Images	2392
Two-Degree-of-Freedom Control of a Self-Sensing Micro-Actuator for HDD using Neural Networks	2398
Hybrid Deformable Models for Medical Segmentation and Registration	2404
Acquisition of Obstacle Avoidance Behaviors for a Quadruped Robot using Visual and Ultrasonic Sensors	2410
Robust MR Image Segmentation using 3D Partitioned Active Shape Models	2416
Online Center of Gravity Estimation in Automotive Vehicles using Multiple Models and Switching	2422