# TABLE OF CONTENTS

## SESSION 1

**A Needs-Driven Technology Roadmap for RFID Land of Opportunities in Australia** ........................................1  
*Venkatesh Mahadevan, Suresh Radhakrishnan*

**Learning the Point Gathering Task Using Shared Value Function In Mobile Robots** ........................................7  
*Sriram Raghavan, Raghavan S.V.*

**Stochastic Robustness Controller Design upon Different Ranking Criteria** ..................................................12  
*Hao Wu, Yali Xue, Tingjin Ren*

**ANFIS Controller with Fuzzy Subtractive Clustering Method to Reduce Coupling Effects in Twin Rotor MIMO System (TRMS) with Less Memory and Time Usage** ........................................17  
*Thair Sh. Mahmoud, Mohammed H. Marhaban, Tang S. Hong, Sokchoo Ng*

**Porous Media Reconstruction Using a Cross-Section Image and Multiple-Point Geostatistics** ..................................................22  
*Ting Zhang, Detang Lu, Daolun Li*

**Wheelchair Driving Control with Passenger’s Posture Behavior Suppression and Evaluation of Comfort of Ride by Emotional Sweating** ..................................................28  
*Daisuke Yamagami, Yuta Sato, Yoshiyuki Noda, Takanori Miyoshi, Kazuhiko Terashima*

**T-S Fuzzy Control of Uncertain Nonlinear Networked Control Systems** .................................................34  
*Weihua Deng, Minrui Fei, Kang Li*

**User Localization for Large Artifacts Prebuffering and Safety Possibilities in Mobile Embedded Systems** .................................................39  
*Ondrej Krejcar*

**Modeling and Simulation of Freeway Short-Term Traffic Flow Prediction** .................................................44  
*Chai Gan, Zhu Canghui*

**Multi-target Tracking in Wireless Sensor Networks Using Distributed Joint Probabilistic Data Association and Average Consensus Filter** .................................................49  
*M.A. Tinati, T. Yousefi Rezaii*

**Efficient Hybrid Packet Classification in Traffic Control System Using Network Processors** .................................................55  
*Yizhen Liu, Daxiong Xu, Zhixin Mu, Jiayi Qin*

## SESSION 2

**Realization on PSO Based Induction Motor Design Via SPEED/PC-IMD** ..................................................60  
*C. Thanga Raj, S.P. Srivastava, Pramod Agarwal*

**Decision Tree Based Simulation Research of Specific Reheating Furnaces** .............................................65  
*Helan Liang, Sijian Li, Mugang Liu*

**Adaptive Traffic Monitoring and Controlling System (ATMC)** ..................................................69  
*Sameer Mishra, Vibhav Lohani*

**Enterprise Organization Oriented Workflow Task Assignment Language** .................................................74  
*Tao Wang, Qingping Tan, Yonglin Guo*

**Input-Output Exact Feedback Linearization for Depth Positioning of Spherical URV** .................................................82  
*Bambang Sumantri, M.N. Karsiti, Salman Ahmed*
### SESSION 3

**An Adaptive Multi-agent Routing Algorithm Combining AntNet and Interconnected Learning Automata**

Z. Farhadpour, M.R. Meybodi

**Application of Modified Genetic Algorithm in Feature Extraction of the Unstructured Data**

Nan Du, Hong Peng, Wenfeng Zhang

**Using Computer-Assisted Test to Harmlessly Improve the Efficiency of Heterogeneous Grouping in Collaborative Learning**

Chih-Kai Chang, Chang-Shing Lee

**A Way to Reduce ICI of Multi-user MIMO-OFDM System with Precoding**

Jingjing Wang, Xianzhong Xie, Qian Zhang

**General Integral Control**

Bai-Shun Liu, Bing-Li Tian

**The Area Partition of 3-D Basic Body Surface Based on Ant Colony Algorithm**

Meiling Zhuang, Jianan Fang, Xiaofeng Zhang

**Design & Development of a GSM Based Vehicle Theft Control System**

B. G. Nagaraja, Ravi Rayappa, M. Mahesh, Chandrasekhar M. Patil, T.C. Manjunath

**Solving Undersampled Problem of LDA Using Gram-Schmidt Orthogonalization Procedure in Difference Space**

Yunhui He

**Cross-Coupled Model Predictive Control for Multi-axis Coordinated Motion Systems**

Xu Zhang, Kuanyi Zhu, Xueyou Yang

**Comparison about the Three Central Composite Designs with Simulation**

Zhihong Zhang, Bai Xiaofeng

### SESSION 4

**Application of Clustering Algorithm to Blast Furnace Expert System**

Guo Hongwei, Zhang Jianliang, Zuo Haibin, Zhang Xu

**Optimization of Input Pulse Considering Both High-Speed Response and Rebound Suppression for Solenoids**

Yohei Okada, Yoshiyuki Noda, Takanori Miyoshi, Kazuhiko Terashima, Masayuki Nishida, Naohiko Suganuma
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft Target Recognition Based on Recursive Inference of Fuzzy Discrete DBNs</td>
<td>172</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Huang Wang, Xiaoguang Gao, Chris P. Thompson_ |

<table>
<thead>
<tr>
<th>Implementation of Alamouti Encoder Using FPGA for Mimo Testbed</th>
<th>177</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Mostafa Wasiuddin Numan, Mohammad Tariqul Islam, Norbahiah Misran_ |

<table>
<thead>
<tr>
<th>A New Method of Self-Calibration for Surface Wave Radar Antenna</th>
<th>182</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Zhong Zhifeng, Huang Jian_ |

<table>
<thead>
<tr>
<th>Simulation &amp; Implementation of Shortest Path Algorithm with a Mobile Robot Using Configuration Space Approach</th>
<th>186</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_T. C. Manjunath, B. G. Nagaraja, Ashok Kusagur, Gopala_ |

<table>
<thead>
<tr>
<th>A Study on the Method of Image Pre-processing for Recognition of Crop Diseases</th>
<th>191</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Geng Ying, Li Miao, Yuan Yuan, Hu Zelin_ |

<table>
<thead>
<tr>
<th>A Novel Visual Cryptography Scheme</th>
<th>196</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Debasis Jena, Sanjay Kumar Jena_ |

<table>
<thead>
<tr>
<th>Cooperative Spectrum Sensing Based on SNR Comparison in Fusion Center for Cognitive Radio</th>
<th>201</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Yi Zheng, Xianzhong Xie, Lili Yang_ |

<table>
<thead>
<tr>
<th>Study on ARM Processor based Embedded Intelligent Yield System Controller</th>
<th>206</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Yuan Yanwei, Zhang Xiaochao, Zhao Huaping_ |

**SESSION 5**

<table>
<thead>
<tr>
<th>An LMI Approach to Mixed $H_2/H_\infty$ Synthesis via Dynamic Output-Feedback for Active Magnetic Bearing</th>
<th>211</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Fatemeh Jamshidi, Mehdi Ghasem Moghadam, Mohammad T.H. Beheshti_ |

<table>
<thead>
<tr>
<th>Active Vibration Control for Smart Structure Base on the Fuzzy Logic</th>
<th>217</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Zhang Jing-jun, Cao Li-ya, Yuan Wei-ze_ |

<table>
<thead>
<tr>
<th>New Algorithm to Control TCP Behavior over Lossy Links</th>
<th>222</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_M. Alnuem, J. Mellor, R. Fretwell_ |

<table>
<thead>
<tr>
<th>The Minimax Distribution Free Procedure for an Inventory Model in Mixed Fuzzy and Stochastic Environment</th>
<th>227</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Xiaobin Wang, Lin Xu, Quanxheng Wu_ |

<table>
<thead>
<tr>
<th>A Novel Remote User Authentication Scheme Using Smart Card Based on ECDLP</th>
<th>232</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Debasis Jena, Sanjay Kumar Jena, Debashis Mohanty, Saroj Kumar Panigrahy_ |

<table>
<thead>
<tr>
<th>Behavioral Animation Model for Real-Time Crowd Simulation</th>
<th>236</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_He Xiao, Chunlin He_ |

<table>
<thead>
<tr>
<th>Selection of Robots for Task Assignment</th>
<th>241</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_B.B. Choudhury, B.B. Biswal_ |

<table>
<thead>
<tr>
<th>Grid Resource Domain Split Technique Base on Association Rule</th>
<th>246</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Feng Yin_ |

<table>
<thead>
<tr>
<th>Multi-view Shape Recognition Based on Principal Component Analysis</th>
<th>251</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Kosorl Thourn, Yuttana Kitjaidure_ |

<table>
<thead>
<tr>
<th>Mining Weighted Negative Association Rules Based on Correlation from Infrequent Items</th>
<th>256</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_Yuanyuan Zhao, He Jiang, Runian Geng, Xiangjun Dong_ |
SESSION 6

Research of Portable Information Terminal Based on MIPS Processor and Windows CE
Yunzhou Zhang, Dingyu Xue, Chengdong Wu, Peng Ji

The Multiobjective $H_2/H_\infty$ Impulse-to-Peak Output-Feedback Control via LMI Optimization
Mehdi Ghasem Moghadam, Fatemeh Jamshidi, Mohammad. T.H. Beheshti

Modeling and Simulation of Urban Trunk Road Traffic Signal Coordinated Control Based on Immune Algorithm
Pei Luo, Qian Ma, Hai-xian Huang

A Combined Template-Based and Case-Based Metadata Extraction for Heterogeneous Thai Documents
Krisda Khankasikam, Nopasit Chakpitak, Thana Udomsripaiboon

Analysis of Synergy Marketing in Supply Chain Based on Game Theory
Liu Shuyong, Chen Yan, Zhang Liwei, Hu Jiaxing

Accurate Location Estimation for a Dynamically Moving Object Using Modified Particle Filter Algorithm
N. Karthick, Keshav Prashanth, K. Venkatraman, Amutha Nanmaran, J. Naren

Li Li, Yang Liu

KEEP SLS: An Enhanced ePortfolio System Supporting Constructive Social Learning Activities
Xuesong Zhang, Peter Racicham, Daniel Firpo

Automatic Control Technology in the HVAC System
Ren Tao, Gao Jingmin, Jia Wenwen

A Bayesian Method for Decision of Weight for MADM Model with Interval Data
Sun Xuan, Niu Qinzhou, Xu Hefei

SESSION 7

RBFN Based Motion Blur Parameter Estimation
Ratnakar Dash, Pankaj Kumar Sa, Banshidhar Majhi

The Resource Optimization of Software Evolution Processes
Na Zhao, Tong Li, Lingling Yang, Yong Yu, Fei Dai, Wei Zhang

Location Estimation Using RSSI and Application of Extended Kalman Filter in Wireless Sensor Networks
N. Karthick, Keshav Prashanth, K. Venkatraman, Amutha Nanmaran, J. Naren

Design of Range Correction Fuze Trajectory Calculation and Control Device
Qiang Shen, Dongguang Li

PID Gain Tuning Using Genetic Algorithms and Fuzzy Logic for Robot Manipulator Control
N. Nahapetian, M.R. Jahed Motlagh, M. Analoui

Recognition of Off-Line Handwritten Chinese Character by Using Decision Tree Based on Hiberarchy Decomposition
Dong Liu, Xiangnian Huang

Exponential Functional Link Artificial Neural Networks for Denoising of Image Corrupted by Gaussian Noise
Sudhansu Kumar Mishra, Ganpati Panda, Sukadev Meher, Ajit Kumar Sahoo
Face Recognition Based on Unit-Linking PCNN Time Signature ................................................................. 340
Haiyan Li, Dan Xu, Rong Zong

Methodology for Multi Criteria Group Decision and Negotiation Support on Value-Based Decision ................................................................. 345
Christiono Utomo, Arazu Idrus, Madzlan Napiah

A Cluster Warhead Projection-Time Self-Adaptive Algorithm and Simulation ........................................... 350
Qiang Shen, Mian Ge, Jie Li

SESSION 8

Training Set Ranking and Selection Using Fuzzy Logic for Dynamic Plant Identifiers ......................................................... 355
N. Nahapetian, M. Analoui, M.R. Jahed Motlagh

Research on Distributed Data Mining Tool Used in Control System ............................................................... 361
Yuekun Ma, Zhiqiang Li, Shudi Yu, Lei Chen

A New Differential Evolution Algorithm for Solving Global Optimization Problems ..................................... 366
Miliie Pant, Radha Thangaraj, V.P. Singh

Slab Cluster Based Planning and Scheduling Method of CC-DHCR ................................................................. 371
Sujian Li, Helan Liang, Yanjun Huang, Bo Hu

Lyapunov-Based Nonlinear Output Feedback Control of a Flexible Link ............................................................. 375
H. Bolandi, S.M. Esmaeilzadeh

Design of an Autonomous Surface Vehicle Used for Marine Environment Monitoring ........................................... 383
Jianhua Wang, Wei Gu, Jianxin Zhu

Invertible, Involutory and Permutation Matrix Generation Methods for Hill Cipher System ................................................................. 388
Bibhudendra Acharya, Debasish Jena, Sarat Kumar Patra, Ganapati Panda

Predict-and-Quantize Priority in Application-Level Multicast for Distributed Interactive Applications ................................................................. 393
Ren Chen, Omar F. Hamad, Jin-Han Jeon, Mi-Young Kang, Ji-Seung Nam

Image Segmentation – A State-Of-Art Survey for Prediction .............................................................................. 398
Shital Adarsh Raut, M. Raghuvanshi, R. Dharaskar, Adarsh Raut

An Algorithm of Fertilization Model Fitting Based On Mixed Intelligent Computation ........................................... 403
Li Miao, Jian Zhang, Hu Ze-lin, Yuan Yuan, Li Lu-jiu

SESSION 9

Research of Abnormal Target Detection Algorithm in Intelligent Surveillance System ............................................... 408
Tan Jiyuan, Wu Chengdong, Zhou Yun, Hou Jun, Wang Qiaojiao

A New Method for Vertical Handoff between WLANs and UMTS in Boundary Conditions ........................................... 413
Majid Fouladian, Faramarz Hendessi, Alireza Shafieinejad, Morteza Rahimi, Mahdi M. Bayat

Research of Improved GM(1,1) Model Based on Particle Swarm .............................................................................. 419
Jing Li, Xiaodong Mu, Ling Shi, Bin Xiong

Adaptive PID Gain Tuning Using Fuzzy Logic and Additional External Performance Index Reference for Controlling Robot Manipulator ................................................................. 423
Narbeh Nahapatian, Mohamad Reza Jahed Motlagh, Morteza Analoui

Delay-dependent Output Feedback Robust Passivity Controller Design for Uncertain Delayed Systems .............................................................................. 428
Li Gui-Fang, Huang Sheng-Guo, Liu Xing
Attribute-Based Ranking and Selection of Robots for Task Assignment

Bibhuti Bhusan Choudhury, Bibhuti Bhusan Biswal, Rabindra Narayan Mahapatra

Research on the Robustness of a Proportional Integral Switching Surface Based on Sliding Mode Control

Jun Liu, Yang Wang, Meng-zi Huang, Jian-bo Lu

Quantification Analysis for NLPCA-Based Stiction Diagnostic Tool

H. Zabiri, M. Ramasamy, I.S.Y. Teh

Robust Precoding for Multi-user MIMO System with Partial Channel State Information

Qian Zhang, Xiexian Zhong, Jing-jing Wang

Methanol Synthesis Process Control and Simulation

Tie-jun Chen, Dan-dan Cui, Yan-he Shen, Ke-hong Bi

SESSION 10

Towards Virtual Audio/Video Environments Using Semantic Service Composition on a Service Oriented Infrastructure

Pooia Lalbakhsh, Ayub Goodarzi, Mehdi N. Fesharaki

Research on Lifetime Grey Prediction of Electronic Equipment Based on Improved Genetic Algorithm

Jing Li, Xiao-dong Mu, Shuai Zheng, Jing Mao

Honeypot Scheme for Distributed Denial-of-Service

Vina V. Das

A Nonlinear Goal Programming Model for Slot Chartering & Allocation under Containerized Liner Shipping Alliance

Ji-hong Chen, Hong Zhen

The Role of High-Tech TRIMA Software in B747-400 Fuel & Performance Efficiency

Arman Rezaee, M. Amin, J. Nazari

Research on QoS-Based Web Service Composition

Yimei Mao, Jiajin Le

Application of Semantic Web in e-Business and Telecommunication

Aakif Nazeer Khan, M. Hussain

The Transformation of Fuzzy Error Set in a System Intelligent Decision Making

Xiong Haiou, Huang Jize, Guo Kaizhong

A Mathematical Foundation for Chord Overlays

Golnaz Vakili, S. Mehdi Hashemi, Siavash Khorsandi

An Integrated Indicator System for Minesite Rehabilitation and Sustainable Development

Xiang Zhu, Daoliang Li

SESSION 11

Applying Agile Principles for Distributed Software Development

Rashmi Phalnikar, V.S. Deshpande, S.D. Joshi

Active Vibration Control of Flexible Structures Using Piezoelectric Materials

Jingjun Zhang, Lili He, Ercheng Wang, Ruizhen Gao

The Robust Model Predictive Control Design Problem

E. Joelianto, R. I. Simangunsong, D. Chaerani, K. V. Ling
Modelling and Measurement of Active Particle Plasma Chemical Reactions in Water by Pulsed Discharge...............................................................................................................................608
Sheng Lan, Jia-xiang Yang, Jie-ling Jiang

A Study on PSO-Based University Course Timetabling Problem .................................................................612
Sheau Fen Ho Irene, Safaai Deris, Mohd Hashim Siti Zaiton

Research on Gas Explosion IDSS in Coalmines Based on CBR ........................................................................616
Wang Li, Tian Shui-cheng, Yuan Xiao-fang, Ma Xian-min

Performance Analysis of an Efficient TCP Variant under Lossy Environments ........................................621
Amusuya K. V., Krishna Chattanya B.

Synthetic Modeling and Control of Networked Control Systems with Multi-Packet Transmission .................................................................625
Huiying Chen, Wanliang Wang, Zuxin Li

Architecture of Virtual Instrumentation and Its Exploration through Implementation of CAB Test Automation, VoCODER, ECG and QAM ...............................................................................................................................630
S. Mohan Mahalakshmi Naidu, Abhishek Shukla

Milling Wear Monitoring Study Based on Cutting Power ..................................................................................635
Chuangwen Xu, Wu Xiaohong, Luo Wencui, Fan Xing

Optimal Placement of Detection Nodes Against Distributed Denial of Service Attack ..................................639
Muhammad Hasan Islam, Kamran Nadeem, Shoaib A. Khan

The Simulation Algorithm Design of the Safety Margin for an Aircraft Accident .........................................644
Zhao Wenzhi, Yang Weiwei

SESSION 14

TCP Westwood with Limited Congestion Window ..........................................................................................649
Mohamed Tekala

Finite Time Synchronization of Sprott Circuits with Uncertain Parameters ..................................................655
Xia Xiao-dong, Yang Wan-li, Zheng Su-wen

New Call Admission Control and Handoff Techniques for 3-G Mobile Networks ........................................659
Geetam Singh Tomar, Shekhar Verma

Mechanical Structure and Motion Control System Design for Continuously Sintering Furnace ................664
Shukun Cao, Heng Zhang, Changsheng Ai, Lei Shi, Xiangbo Ze

Transforming Business Tasks to Data Flow Models for Decrease Process in Analysis Systems ..................668
Ahmad Habibizad_Navin, Farzad Kiyani, Jahanigir Kheyri, Hamidreza Tahmasebi_Rad

The Decision-Making Analysis of Adoption Subjects of Financial Innovation .............................................673
Wuwei Li, Shuzhen Zhu, Mingli Zhong

Sea Clutter Modeling Improvement and Target Detection by Tsallis Distribution ........................................677
Vahid Tabataba Vakily, Mohammad Yahedi

The Performance Of The 3G Long-Term Evolution Adoption Peer-to-Peer Network Mode .........................682
Ran Wan, Xian Zhong Xie

Central Management and Tree Based Auto-configuration in MANET .........................................................686
Zhang Ning, Sanmin Lee, Kiho Nam, Jongwan Kim, Jaepil Yoo, Kee-Cheon Kim

A Study of the Grid Technology .....................................................................................................................691
Xu Bing
SESSION 15

Mobility Management Incorporating Pattern Recognition in the Handoff Decision ........................................ 696
Kwong Chiew Foong, Lee Sze Wei, Sim Moh Lim

Research and Application of Predictive Control Based on EMRAN in Superheated Steam Temperature Control System .......................................................... 701
Xiao-zhi Qiu, Lin-meng Zhang, Jian-xin Zhou, Feng-qi Si, Zhi-gao Xu

Bluetooth Enabled Mobile Phone Remote Control for PC ................................................................. 706
Mohammed A. Qadeer, Rahul Agrawal, Amit Singhal, Sarosh Umar

Multi-Attribute Decision-Making Model Based on Grey Game Theory with Mixed Strategy .................................................... 711
Chen Wang, Jun Chen

GMSK Demodulator Using Costas Loop for Software-Defined Radio ......................................................... 716
Santosh Shah, V. Sinha

Research on Multilevel Control Model of Network Performance Based on Multi-Agent ........................................... 721
Bin Wu, Hongying Zhang, He Sun

A Scenario Based Virtual Military Sandbox Implementation Using Web Services ............................................. 726
Baki Koyuncu, Erkan Bostanci

Network Topology Inference Based on Delay Variation ..................................................................................... 731
Hong-Hua Zhao, Ming Chen

Three Way Challenge-Response Authentication in Smart Card Using Elliptic Curve Cryptosystem ................................................................. 736
Khaing Khaing Thinn

Unequal Error Protection for SPIHT-Coded Image Transmission Based on MIMO Adaptive Channel Assignment Policy ........................................................................ 740
Yong Liu, Ai-dong Men, Zi-yi Quan, Bo Yang

Effect of Bit Precision on Hardware Complexity for DDFS Architecture ........................................................ 745
Aqib Perwaiz, Shoub A. Khan

Vehicle Detection and Counting by Using Real Time Traffic Flux through Differential Technique and Performance Evaluation ......................................................... 750
H. S. Mohana, M. Ashwathakumar, G. Shivakumar

Author Index