Lecture Notes in Artificial Intelligence 3809

Edited by J. G. Carbonell and J. Siekmann

Subseries of Lecture Notes in Computer Science

Shichao Zhang Ray Jarvis (Eds.)

AI 2005: Advances in Artificial Intelligence

18th Australian Joint Conference on Artificial Intelligence Sydney, Australia, December 5-9, 2005 Proceedings



Series Editors

Jaime G. Carbonell, Carnegie Mellon University, Pittsburgh, PA, USA Jörg Siekmann, University of Saarland, Saarbrücken, Germany

Volume Editors

Shichao Zhang University of Technology, Sydney Faculty of Information Technology Broadway, NSW 2007, Sydney, Australia E-mail: zhangsc@it.uts.edu.au

Ray Jarvis Monash University Department of Electrical and Computer Systems Engineering Victoria 3800, Melbourne, Australia E-mail: Ray.Jarvis@eng.monash.edu.au

Library of Congress Control Number: 2005936732

CR Subject Classification (1998): I.2, F.4.1, H.3, H.2.8, F.1

ISSN 0302-9743

ISBN-10 3-540-30462-2 Springer Berlin Heidelberg New York ISBN-13 978-3-540-30462-3 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springeronline.com

© Springer-Verlag Berlin Heidelberg 2005 Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India Printed on acid-free paper SPIN: 11589990 06/3142 5 4 3 2 1 0

Preface

The 18th Australian Joint Conference on Artificial Intelligence (AI 2005) was held at the University of Technology, Sydney (UTS), Sydney, Australia from 5 to 9 December 2005.

AI 2005 attracted a historical record number of submissions, a total of 535 papers. The review process was extremely selective. Out of these 535 submissions, the Program Chairs selected only 77 (14.4%) full papers and 119 (22.2%) short papers based on the review reports, making an acceptance rate of 36.6% in total. Authors of the accepted papers came from over 20 countries. This volume of the proceedings contains the abstracts of three keynote speeches and all the full and short papers. The full papers were categorized into three broad sections, namely: AI foundations and technologies, computational intelligence, and AI in specialized domains.

AI 2005 also hosted several tutorials and workshops, providing an interacting mode for specialists and scholars from Australia and other countries. Ronald R. Yager, Geoff Webb and David Goldberg (in conjunction with ACAL05) were the distinguished researchers invited to give presentations. Their contributions to AI 2005 are really appreciated.

It was a great pleasure for us to organize this event. However, we could not have done it without the valuable help of many colleagues around the world. First, we would like to thank the Program Committee members and referees for their extremely hard work and timely return of their comprehensive reports. Without them, it would have been impossible to make decisions and to produce such high-quality proceedings on time. Second, we would like to acknowledge the contributions of all the authors of the 535 papers submitted. Thanks to Mr. Yanchang Zhao for his contribution in helping us manage the paper reviewing process. We are indebted to Dr. Aizhong Lin, Ms. Li Liu and Mr. Zhenxing Qin for maintaining CyberChair and for managing the paper submission and reviewing process. Thanks also go to Dr. Debbie Zhang for organizing the poster session.

Thanks to the general Co-chairs, Tharam Dillon and Paul Compton, for their guidance and especially to the Organizing Chair, Jie Lu, for looking after everything for the conference to run smoothly.

We wish to thank the following for their financial contributions to the success of this conference: Air Force Office of Scientific Research (AFOSR), Asian Office of Aerospace Research and Development (AOARD). AFOSR/AOARD support is not intended to express or imply endorsement by the U.S. Federal Government. The Faculty of Information Technology at the University of Technology, Sydney, was also the financial sponsor for this event.

December 2005 Sydney Ray Jarvis Shichao Zhang

Organization

AI 2005 was hosted and organized by the University of Technology, Sydney, Australia. The conference was held at the Carlton Crest Hotel, Sydney, from 5 to 9 December 2005.

Conference Committee

Conference General Co-chairs

Prof. Tharam Dillon (University of Technology, Sydney)

Prof. Paul Compton (University of New South Wales)

Program Committee Co-chairs

Dr. Shichao Zhang (University of Technology, Sydney)

Prof. Ray Jarvis (Monash University)

Organizing Committee Chair

A/Prof. Jie Lu (University of Technology, Sydney)

Sponsorship Chair

Prof. John Debenham (University of Technology, Sydney)

Publicity Chair

Dr. Hussein Abbass (University of New South Wales)

Workshop Chair

A/Prof. Brijesh Verma (Central Queensland University)

Tutorial Chair

Dr. Fei Liu (La-Trobe University)

Web-Master

Dr. Aizhong Lin (University of New South Wales)

Program Committee

Hussein Abbass, Australia David Albrecht, Australia Leila Alem, Australia James Bailey, Australia Mike Bain, Australia Nick Barnes, Australia Mohammed Bennamoun, Australia Mike Brooks, Australia

Longbing Cao, Australia Steve Cassidy, Australia Qingfeng Chen, Australia Wanli Chen, Australia

William Cheung, Hong Kong,

SAR China

Vic Ciesielski, Australia Honghua Dai, Australia John Debenham, Australia Lance Fung, Australia Michael Georgeff, Australia Raj Gopalan, Australia Guido Governatori, Australia Xuetao Guo, Australia Qing He, PR China Tim Hendtlass, Australia Philip Hingston, Australia

Shu-Chuan Chu, Taiwan

Jun Hu. PR China He Huang, PR China

VIII Organization

Andrew Jennings, Australia Huidong Jin, Australia Graham Kendall, UK Shamim Khan, Australia Jong-Hwan Kim, Korea Irwin King, Hong kong Michelle Kinsman, Australia Vincent Lee, Australia Chris Leckie, Australia Chunsheng Li, PR China Jinyan Li, Singapore Wei Li, Australia Xiaodong Li, Australia Yuefeng Li, Australia Aizhong Lin, Australia Li Lin. Australia Jie Lu. Australia Jingli Lu, Australia Xudong Luo, UK Cara MacNish, Australia Frederic Maire, Australia Bob McKay, Australia Matthew Mitchell, Australia Abhaya Nayak, Australia Douglas Newlands, Australia Ann Nicholson, Australia Kok-Leong Ong, Australia Mehmet Orgun, Australia Lin Padgham, Australia Maurice Pagnucco, Australia Adrian Pearce, Australia Mikhail Prokopenko, Australia Zhenxing Oin, Australia Bernard Rolfe, Australia Muhammad Sarfraz, Saudi Arabia Ruhul Sarker, Australia Abdul Sattar, Australia Zhiping Shi, PR China

Zhongzhi Shi, PR China Goh Ong Sing, Malaysia Simeon J. Simoff, Australia Joaquin Sitte, Australia John Slaney, Australia Liz Sonenberg, Australia Eric Soubeiga, UK David Squire, Australia Markus Stumptner, Australia Kaile Su. PR China Ah Chung Tsoi, Australia Toby Walsh, Australia Chao Wang, Australia Dianhui Wang, Australia Jiaqi Wang, Australia Kewen Wang, Australia Lipo Wang, Singapore Ruili Wang, New Zealand Geoff West, Australia Janet Wiles, Australia Graham Williams, Australia Mary-Anne Williams, Australia Wayne Wobcke, Australia Kok Wai WONG, Singapore Boris Wu, Australia Fengjie Wu, Australia Zhuoming Xu, PR China Ying Yang, Australia Dingrong Yuan, PR China Chengqi Zhang, Australia Guangquan Zhang, Australia Jilian Zhang, PR China Minjie Zhang, Australia Yan Zhang, Australia Zili Zhang, Australia Yanchang Zhao, Australia Ingrid Zukerman, Australia

Referees

Rukshan Athauda Bernd Meyer
Quan Bai Ajmal Mian
David Billington Vineet Nair
Tim Cleaver Jiarui Ni
Lavindra de Silva Michael Nico

Lavindra deSilva Michael Niemann David Dowe Bhavna Orgun Hongjian Fan Udaya Parampalli Laurence Park Sarah George Vadim Gerasimov Mira Park Ying Guo Dan Popescu Peter Hebden Iyad Rahwan Hong Hu Sid Ray

Jian Alan Huang Sebastian Sardina
Ri Huang Rolf Schwitter
Geoff James Tatiana Semenova

Xiaonan Ji
Xiaonan Ji
Chuan Shi
Yinjie Jia
Andy Song
Ryan Kelly
Angel Kennedy
Michael Kirley
Rex Bing Hung Kwok
Ronny Tjahya

Rex Bing Hung Kwok
Eric Lam
Richard Thomas
Henry Lee
Vu Binh Tran
Jiaming Li
Kevin Sin Yee Lee
Bao Quoc Vo

Li Li

Qingyong Li

Xiaodong Li

Xin Li

Yanrong Li

Yong Liang

Weiqiang Lin

Jiaqi Wang

Mei Wang

Jie Wu

Zhili Wu

Hui Yang

Shan Yin

Hongchuan Yu

Mingzhe Liu Yiming Zeng
Wei Liu Huaifeng Zhang
Elsa Loekito Sulan Zhang
Gordon Lowe Xiaofeng Zhang
Ping Luo Zhiyong Zhang

Yuval Marom Zheng Zheng Kim Marriott

Table of Contents

Invited Talks

K-Optimal Pattern Discovery: An Efficient and Effective Approach to Exploratory Data Mining Geoffrey I. Webb	1
Providing Semantics for the WEB Using Fuzzy Set Methods Ronald R. Yager	3
Little Models, Big Results David E. Goldberg	4
PART I: AI Foundations and Technologies	
Logic and Reasoning	
Model Updating CTL Systems Yulin Ding, Yan Zhang	5
Model Checking for PRS-Like Agents Wayne Wobcke, Marc Chee, Krystian Ji	17
A Fibred Belief Logic for Multi-agent Systems Chuchang Liu, Maris A. Ozols, Mehmet A. Orgun	29
Inconsistency-Based Strategy for Clarifying Vague Software Requirements Kedian Mu, Zhi Jin, Ruqian Lu	39
Conditioning Graphs: Practical Structures for Inference in Bayesian Networks Kevin Grant, Michael C. Horsch	49
Reasoning with the Outcomes of Plan Execution in Intentional Agents Timothy William Cleaver, Abdul Sattar, Kewen Wang	60
Tie Breaking in Clause Weighting Local Search for SAT Valnir Ferreira Jr., John Thornton	70

Syntactic and Semantic Disambiguation of Numeral Strings Using an N-Gram Method	
Kyongho Min, William H. Wilson, Yoo-Jin Moon	82
Machine Learning	
Locating Regions of Interest in CBIR with Multi-instance Learning Techniques	0.0
Zhi-Hua Zhou, Xiao-Bing Xue, Yuan Jiang	92
Ensemble Selection for SuperParent-One-Dependence Estimators Ying Yang, Kevin Korb, Kai Ming Ting, Geoffrey I. Webb	102
Global Versus Local Constructive Function Approximation for On-Line Reinforcement Learning	
Peter Vamplew, Robert Ollington	113
Any-Cost Discovery: Learning Optimal Classification Rules Ailing Ni, Xiaofeng Zhu, Chengqi Zhang	123
Preprocessing Time Series Data for Classification with Application to CRM	
Yiming Yang, Qiang Yang, Wei Lu, Jialin Pan, Rong Pan, Chenhui Lu, Lei Li, Zhenxing Qin	133
Combining Contents and Citations for Scientific Document Classification Minh Duc Cao, Xiaoying Gao	143
Machine Learning Approach to Realtime Intrusion Detection System Byung-Joo Kim, Il Kon Kim	153
Structural Abstraction Experiments in Reinforcement Learning Robert Fitch, Bernhard Hengst, Dorian Šuc, Greg Calbert, Jason Scholz	164
A Hybrid Adaptive Multi-objective Memetic Algorithm for 0/1 Knapsack Problem XiuPing Guo, ZhiMing Wu, GenKe Yang	176
Game Theory	210
Probability Estimation in Error Correcting Output Coding Framework	
Using Game Theory Mikhail Petrovskiy	186

Table of Contents	XIII
Evaluation of Strings in Computer Go Using Articulation Points Check and Seki Judgment Hyun-Soo Park, Kyung-Woo Kang	197
The Value of Stealth in the Game of Chess Peter Smet, Don Gossink, Greg Calbert	207
Robotic Technology	
Coordinated Collision Avoidance of Multiple Biomimetic Robotic Fish Dandan Zhang, Long Wang, Guangming Xie, Weicun Zhang	215
The Virtual Room Inhabitant – Intuitive Interaction with Intelligent	
Environments Michael Kruppa, Lübomira Spassova, Michael Schmitz	225
Evaluating Techniques for Resolving Redundant Information and Specularity in Occupancy Grids Thomas Collins, J.J. Collins, Mark Mansfield,	
Shane O'Sullivan	235
PART II: Computational Intelligence	
Data Mining	
Analyzing Security Protocols Using Association Rule Mining Qingfeng Chen, Yi-Ping Phoebe Chen	245
Redundant Association Rules Reduction Techniques Mafruz Zaman Ashrafi, David Taniar, Kate Smith	254
Construction Algorithm of Principal Curves in the Sense of Limit Lianwei Zhao, Yanchang Zhao, Siwei Luo, Chao Shao	264
Collateral Missing Value Estimation: Robust Missing Value Estimation for Consequent Microarray Data Processing Muhammad Shoaib B. Sehgal, Iqbal Gondal, Laurence Dooley	274
Neural Networks	_, _
Using Neural Networks to Support Early Warning System for Financial Crisis Forecasting Kyong Joo Oh, Tae Yoon Kim, Hyoung Yong Lee, Hakbae Lee	284

A Neural Network Based Methodology for Performance Evaluation of Parallel Systems Sirma Yavuz	297
Fuzzy Theory and Algorithms	
Decomposition and Resolution of Fuzzy Relation Equations (II) Based on Boolean-Type Implications Yanbin Luo, Chunjie Yang, Yongming Li, Daoying Pi	308
Applying a Fuzzy Trust Model to E-Commerce Systems Stefan Schmidt, Robert Steele, Tharam Dillon, Elizabeth Chang	318
Emotion-Based Crowd Simulation Using Fuzzy Algorithm $ \textit{Eun-Young Ahn, Jae-Won Kim, No-Yoon Kwak, Sang-Hoon Han} \ \dots$	330
Evolutionary Computing	
A Genetic Algorithm for Job Shop Scheduling with Load Balancing Sanja Petrovic, Carole Fayad	339
A Co-evolutionary Particle Swarm Optimization-Based Method for Multiobjective Optimization Hong-yun Meng, Xiao-hua Zhang, San-yang Liu	349
The Effect of Mutation on the Accumulation of Information in a Genetic Algorithm John Milton, Paul Kennedy, Heather Mitchell	360
Linear Genetic Programming for Multi-class Object Classification Christopher Fogelberg, Mengjie Zhang	369
Evolutionary Design of Fuzzy Classifiers Using Information Granules Do Wan Kim, Jin Bae Park, Young Hoon Joo	380
Constrained Optimization by the ε Constrained Hybrid Algorithm of Particle Swarm Optimization and Genetic Algorithm Tetsuyuki Takahama, Setsuko Sakai, Noriyuki Iwane	389
Web Intelligence	
Automated Information Mediator for HTML and XML Based Web Information Delivery Service Sung Sik Park, Yang Sok Kim, Gil Cheol Park, Byeong Ho Kang, Paul Compton	401

Table of Contents	XV
Agent-Based Middleware for Web Service Dynamic Integration on Peer-to-Peer Networks Aizhong Lin, Piyush Maheshwari	405
Towards User Profiling for Web Recommendation Guandong Xu, Yanchun Zhang, Xiaofang Zhou	415
A Controlled Natural Language Layer for the Semantic Web Rolf Schwitter	425
GaXsearch: An XML Information Retrieval Mechanism Using Genetic Algorithms $K.G.$ Srinivasa, S. Sharath, K.R. Venugopal, Lalit M. Patnaik	435
Decision Making	
A New Approach on ρ to Decision Making Using Belief Functions Under Incomplete Information Yuliang Fan, Peter Deer	445
A Hybrid Recommendation Approach for One-and-Only Items Xuetao Guo, Guangquan Zhang, Eng Chew, Steve Burdon	457
Exchange Rate Modelling Using News Articles and Economic Data Debbie Zhang, Simeon J. Simoff, John Debenham	467
Adaptive Utility-Based Scheduling in Resource-Constrained Systems David Vengerov	477
PART III: AI in Specialized Domains	
Pattern Recognition	
New Feature Extraction Approaches for Face Recognition Vo Dinh Minh Nhat, Sungyoung Lee	489
EBGM with Fuzzy Fusion on Face Recognition Jialiang Liu, Zhi-Qiang Liu	498
Robust License Plate Segmentation Method Based on Texture Features and Radon Transform	
Jun Kong, Xinyue Liu, YingHua Lu, Xiaofeng Zhou, Qiushi Zhao	510

An Adaptive Selection of Motion for Online Hand-Eye Calibration Jing Zhang, Fanhuai Shi, Yuncai Liu	520
Scene Boundary Detection by Audiovisual Contents Analysis Joon-sik Baek, Soon-tak Lee, Joong-hwan Baek	530
k-Nearest Neighbors Associative Memory Model for Face Recognition Bai-ling Zhang, Yuan Miao, Gopal Gupta	540
A New Spectral Smoothing Algorithm for Unit Concatenating Speech Synthesis Sang-Jin Kim, Kyung Ae Jang, Hyun Bae Han, Minsoo Hahn	550
New Fuzzy Skin Model for Face Detection Moon Hwan Kim, Jin Bae Park, Young Hoon Joo	557
Kernel Nonparametric Weighted Feature Extraction for Classification Bor-Chen Kuo, Cheng-Hsuan Li	567
Iterative Training Techniques for Phonetic Template Based Speech Recognition with a Speaker-Independent Phonetic Recognizer Weon-Goo Kim, MinSeok Jang, Chin-Hui Lee	577
Active Visual Learning and Recognition Using Incremental Kernel PCA Byung-joo Kim	585
Automated Scene Understanding for Airport Aprons James Ferryman, Mark Borg, David Thirde, Florent Fusier, Valéry Valentin, François Brémond, Monique Thonnat, Josep Aguilera, Martin Kampel	593
Semantic Correlation Network Based Text Clustering Shaoxu Song, Chunping Li	604
Time-Varying Prototype Reduction Schemes Applicable for Non-stationary Data Sets Sang-Woon Kim, B. John Oommen	614
Agent Technology	
Multi-agent System Simulating Tumoral Cells Migration Lynda Dib, Zahia Guessoum, Noël Bonnet, Mohamed T. Laskri	624

An Intelligent Agent-Based Framework for Collaborative Information Security M.H. Kuo	633
Agents, Information and Trust John Debenham, Carles Sierra	643
Modelling Partner's Behaviour in Agent Negotiation Jakub Brzostowski, Ryszard Kowalczyk	653
Insurance Services in Multi-agent Systems Yuk-Hei Lam, Zili Zhang, Kok-Leong Ong	664
Dynamic Team Forming in Self-interested Multi-agent Systems Quan Bai, Minjie Zhang	674
N-Learning: A Reinforcement Learning Paradigm for Multiagent Systems	
Mark Mansfield, J.J. Collins, Malachy Eaton, Thomas Collins	684
Preferences of Agents in Defeasible Logic Mehdi Dastani, Guido Governatori, Antonino Rotolo, Leendert van der Torre	695
MAHIS: An Agent-Oriented Methodology for Constructing Dynamic Platform-Based HIS Chunsheng Li, Li Liu	705
3D Game Engine for Real-Time Facial Animation	
Hye Won Pyun	715
AI Applications	
Intelligent 3D Video Avatar for Immersive Telecommunication Sang-Yup Lee, Ig-Jae Kim, Sang C. Ahn, Myo-Taeg Lim, Hyoung-Gon Kim	726
A Lagrangian Heuristic for Winner Determination Problem in Combinatorial Auctions Andrew Lim, Jiqing Tang	736
Moving Cast Shadow Detection and Removal for Visual Traffic Surveillance Jeong-Hoon Cho, Tae-Gyun Kwon, Dae-Geun Jang,	5 46
Chan-Sik Hwang	746

A Hidden Markov Model and Immune Particle Swarm Optimization-Based Algorithm for Multiple Sequence Alignment Hong-Wei Ge, Yan-Chun Liang	756
Design of Intelligent Security Management System Using Simulation-Based Analysis Jang-Se Lee, Dong Seong Kim, Jong Sou Park, Sung-Do Chi	766
Neighborhood Re-structuring in Particle Swarm Optimization Arvind S. Mohais, Rui Mendes, Christopher Ward, Christian Posthoff	776
PART IV: Short Papers	
Understanding the Pheromone System Within Ant Colony Optimization Stephen Gilmour, Mark Dras	786
Model Checking Sum and Product H.P. van Ditmarsch, J. Ruan, L.C. Verbrugge	790
The Proof Algorithms of Plausible Logic Form a Hierarchy David Billington	796
A Maximum Entropy Model for Transforming Sentences to Logical Form Minh Le Nguyen, Akira Shimazu, Hieu Xuan Phan	800
An Information-Theoretic Causal Power Theory Lucas R. Hope, Kevin B. Korb	805
A Fixed-Point Semantics for Plausible Logic David Billington	812
Applying Indiscernibility Attribute Sets to Knowledge Reduction Hong-Ru Li, Wen-Xiu Zhang	816
Dempster Conditioning and Conditional Independence in Evidence Theory Yongchuan Tang, Jiacheng Zheng	822
Case-Based Conflict Resolution in Multi-agent Ship Design System Kyung Ho Lee, Kyu Yeul Lee	826
Reduced MDP Representation of a Logistical Planning Problem Using Petri-Nets	
Sanjeev Naguleswaran, Sarah L. Hickmott, Langford B. White	830

Table of Contents	XIX
Structure-Based Algorithms for Computing Preferred Arguments of Defeasible Knowledge Bases Quoc Bao Vo	834
Solving Job-Shop Scheduling Problems by a Novel Artificial Immune System	
Hong-Wei Ge, Liang Sun, Yan-Chun Liang	839
Agent-Based Ontology Mapping Towards Ontology Interoperability Li Li, Yun Yang, Baolin Wu	843
Dynamic Negative Selection Algorithm Based on Match Range Model Jungan Chen, Feng Liang, Dongyong Yang	847
A Virtual Prolog Approach to Implementing Beliefs, Desires and Intentions in Animat Agents	
K.A. Hawick, H.A. James, C.J. Scogings	852
Obstacle Avoidance and Path Planning Based on Flow Field for Biomimetic Robotic Fish Jinyan Shao, Guangming Xie, Long Wang, Weicun Zhang	857
A Facial Control Method Considering Internal Emotion of Sensibility Robot	
Hiroshi Shibata, Masayoshi Kanoh, Shohei Kato, Hidenori Itoh	861
An Object Store Model for Diagnosing Java Programs Rong Chen, Franz Wotawa	865
A Multi-exchange Heuristic for a Production Location Problem Yunsong Guo, Yanzhi Li, Andrew Lim, Brian Rodrigues	871
The Car-Sequencing Problem as n-Ary CSP – Sequential and Parallel Solving	
Mihaela Butaru, Zineb Habbas	875
Normalized Gaussian Networks with Mixed Feature Data Shu-Kay Ng, Geoffrey J. McLachlan	879
A Comparative Study for WordNet Guided Text Representation Jian Zhang, Chunping Li	883
Application of Bayesian Techniques for MLPs to Financial Time Series	

Andrew Skabar

888

Forecasting

An Incremental Nonlinear Dimensionality Reduction Algorithm Based on ISOMAP Lukui Shi, Pilian He, Enhai Liu	892
Robust Speaker Identification Based on t-Distribution Mixture Model Younjeong Lee, Hernsoo Hahn, Youngjoon Han, Joohun Lee	896
Inducing Sequential Patterns from Multidimensional Time Series Data Chang-Hwan Lee	900
Fitness Approximation in Estimation of Distribution Algorithms for Feature Selection Haixia Chen, Senmiao Yuan, Kai Jiang	904
Automatic Feature Selection for Classification of Health Data Hongxing He, Huidong Jin, Jie Chen	910
BP Learning and Numerical Algorithm of Dynamic Systems Jiuzhen Liang, Hong Jiang	914
Ant Colony Optimization Combining with Mutual Information for Feature Selection in Support Vector Machines Chunkai Zhang, Hong Hu	918
A Preliminary MML Linear Classifier Using Principal Components for Multiple Classes Lara Kornienko, David W. Albrecht, David L. Dowe	922
Content-Based Classification of Music Using VQ-Multifeature Clustering Technique Won-Jung Yoon, Kyu-Sik Park	927
Individual Clustering and Homogeneous Cluster Ensemble Approaches Applied to Gene Expression Data Shirlly C.M. Silva, Daniel S.A. de Araujo, Raul B. Paradeda, Valmar S. Severiano-Sobrinho, Marcilio C.P. de Souto	930
Joint Spatial and Frequency Domains Watermarking Algorithm Based on Wavelet Packets Yinghua Lu, Wei Wang, Jun Kong, Jialing Han, Gang Hou	934
Hybrid Agglomerative Clustering for Large Databases: An Efficient Interactivity Approach Ickjai Lee, Jianhua Yang	938

Table of Contents	XXI
Constructing Multi-resolution Support Vector Regression Modelling Hong Peng, Zheng Pei, Jun Wang	942
Revised Entropy Clustering Analysis with Features Selection Ching-Hsue Cheng, Jing-Rong Chang, I-Ni Lei	946
IC ² : An Interval Based Characteristic Concept Learner Pramod K. Singh	950
A Comparative Study for Assessing the Reliability of Complex Networks Using Rules Extracted from Different Machine Learning Approaches Douglas E. Torres D., Claudio M. Rocco S	954
Machine Learning for Time Interval Petri Nets Vadim Bulitko, David C. Wilkins	959
Model Based Abnormal Acoustic Source Detection Using a Microphone Array Heungkyu Lee, Jounghoon Beh, June Kim, Hanseok Ko	966
Improving the Mobile Phone Habitat - Learning Changes in User's Profiles Robert Bridle, Eric McCreath	970
A Stigmergy Based Approach to Data Mining Manu De Backer, Raf Haesen, David Martens, Bart Baesens	975
Mining Domain-Driven Correlations in Stock Markets Li Lin, Dan Luo, Li Liu	979
Selective Data Masking Design in Intelligent Knowledge Capsule for Efficient Data Mining Jeong Yon Shim	983
On a Mathematical Relationship Between the Fixed Point and the Closed Itemset in Association Rule Mining Tian-rui Li, Da Ruan, Tianmin Huang, Yang Xu	989
A Data Mining Approach in Opponent Modeling Remedios de Dios Bulos, Conirose Dulalia, Peggy Sharon L. Go, Pamela Vianne C. Tan, Ma. Zaide Ilene O. Uy	993
Automated Design and Knowledge Discovery of Logic Circuits Using a Multi-objective Adaptive GA Shuguang Zhao, Licheng Jiao, Min Tang	997

XXII Table of Contents

Mining with Constraints by Pruning and Avoiding Ineffectual Processing Mohammad El-Hajj, Osmar R. Zaïane	1001
Rough Association Mining and Its Application in Web Information Gathering Yuefeng Li, Ning Zhong	1005
Intrusion Detection Using Text Mining in a Web-Based Telemedicine System J.J. García Adeva, J.M. Pikatza, S. Flórez, F.J. Sobrado	1009
Web Usage Mining Using Evolutionary Support Vector Machine Sung-Hae Jun	1015
Optimization of Genetic Algorithm Parameters for Multi-channel Manufacturing Systems by Taguchi Method A. Sermet Anagun, Feristah Ozcelik	1021
UAV Controller Design Using Evolutionary Algorithms Sergey Khantsis, Anna Bourmistrova	1025
River Flow Forecasting with Constructive Neural Network Mêuser Valença, Teresa Ludermir, Anelle Valença	1031
A Novel License Plate Location Method Based on Neural Network and Saturation Information Yinghua Lu, Lijie Yu, Jun Kong, Canghua Tang	1037
Verification and Validation of Artificial Neural Network Models Fei Liu, Ming Yang	1041
A Simulation Based Multi-criteria Scheduling Approach of Dual-Resource Constrained Manufacturing Systems with Neural Networks	1047
Ozlem Uzun Araz Quantitative Analysis of the Varieties of Apple Using Near Infrared Spectroscopy by Principal Component Analysis and BP Model	1047
Yong He, Xiaoli Li, Yongni Shao	1053
Ramazan Coban, Burhanettin Can	1057

Differential Evolution Algorithm for Designing Optimal Adaptive Linear Combiners Nurhan Karaboga, Canan Aslihan Koyuncu	1063
A Comparison of Evolutionary Methods for the Discovery of Local Search Heuristics Stuart Bain, John Thornton, Abdul Sattar	1068
Evolutionally Optimized Fuzzy Neural Networks Based on Fuzzy Relation Rules and Evolutionary Data Granulation Sung-Kwun Oh, Hyun-Ki Kim, Seong-Whan Jang, Yong-Kab Kim	1075
Evolving While-Loop Structures in Genetic Programming for Factorial and Ant Problems Guang Chen, Mengjie Zhang	1079
Evolutionary Optimisation of Distributed Energy Resources Ying Guo, Jiaming Li, Geoff James	1086
Can Evolutionary Computation Handle Large Datasets? A Study into Network Intrusion Detection Hai H. Dam, Kamran Shafi, Hussein A. Abbass	1092
Automatic Loop-Shaping of QFT Controllers Using GAs and Evolutionary Computation Min-Soo Kim, Chan-Soo Chung	1096
Investigating the Effect of Incorporating Additional Levels in Structured Genetic Algorithms Angelos Molfetas	1101
Accelerating Real-Valued Genetic Algorithms Using Mutation-with- Momentum Luke Temby, Peter Vamplew, Adam Berry	1108
A Fuzzy Inference Method for Spam-Mail Filtering Jong-Wan Kim, Sin-Jae Kang, Byeong Man Kim	1112
Genetically Optimized Hybrid Fuzzy Polynomial Neural Networks Based on Polynomial and Fuzzy Polynomial Neurons Sung-Kwun Oh, Hyun-Ki Kim	1116
Multi-item Fuzzy Inventory Model with Three Constraints: Genetic Algorithm Approach Jafar Rezaei Mansoor Davoodi	1120

XXIV Table of Contents

Fuzzy Attribute Implications: Computing Non-redundant Bases Using Maximal Independent Sets	
Radim Bělohlávek, Vilém Vychodil	1126
Fuzzy Classifier with Bayes Rule Consequent Do Wan Kim, Jin Bae Park, Young Hoon Joo	1130
Identification of T-S Fuzzy Classifier Via Linear Matrix Inequalities Moon Hwan Kim, Jin Bae Park, Weon Goo Kim, Young Hoon Joo	1134
An Adaptive Fuzzy c -Means Algorithm with the L_2 Norm $Nicomedes\ L.\ Cavalcanti\ Júnior,\ Francisco\ de\ A.T.\ de\ Carvalho\$	1138
Design of Information Granules-Based Fuzzy Systems Using Clustering Algorithm and Genetic Optimization	
Sung-Kwun Oh, Keon-Jun Park, Witold Pedrycz, Tae-Chon Ahn	1142
A Personalized Recommendation System for Electronic Program Guide Jin An Xu, Kenji Araki	1146
An Effective Recommendation Algorithm for Clustering-Based Recommender Systems Taek-Hun Kim, Sung-Bong Yang	1150
An Intelligent Decision Making System to Support E-Service Management Gülçin Büyüközkan, Mehmet Şakir Ersoy, Gülfem Işıklar	1154
OWL, Proteins and Data Integration Amandeep S. Sidhu, Tharam S. Dillon, Elizabeth Chang, Baldev S. Sidhu	1158
Web Site Improvements Based on Representative Pages Identification Sebastían A. Ríos, Juan D. Velásquez, Hiroshi Yasuda, Terumasa Aoki	1162
Unsupervised Bilingual Word Sense Disambiguation Using Web Statistics	44.5-
Yuanyong Wang, Achim Hoffmann	1167
Optimal Production Policy for a Two-Stage Production System Under Lumpy Demand	
Ding-zhong Feng, Mitsuo Yamashiro	1173

A Preliminary Investigation of a Linguistic Perceptron Sansanee Auephanwiriyaku	1180
Skeleton Driven Limb Animation Based on Three-Layered Structure Jiarong Yu, Jiaoying Shi, Yongxia Zhou	1187
Answer Set Programming for Distributed Authorization: The Language, Computations, and Application Shujing Wang, Yan Zhang	1191
Multiagent Architecture (BlueAgents) with the Dynamic Pricing and Maximum Profit Strategy in the TAC SCM David Han	1195
Agent-Based Plot Planning for Automatic Generation of Computer Animation Wei Tang, Lei Zheng, Chunnian Liu	1199
Mobile Agent Migration: An Optimal Policy Salah El Falou, François Bourdon	1204
Human Action Understanding Using Motion Verbs in WordNet Miyoung Cho, Dan Song, Junho Choi, Pankoo Kim	1209
Partitional Approach for Estimating Null Value in Relational Database Jia-Wen Wang, Ching-Hsue Cheng, Wei-Ting Chang	1213
A Robust Face Recognition System Ying-Han Pang, Andrew Teoh Beng Jin, David Ngo Chek Ling	1217
Resampling LDA/QR and PCA+LDA for Face Recognition Jun Liu, Songcan Chen	1221
Curvature Based Range Face Recognition Analysis Using Projection Vector by Subimage Yeunghak Lee, Ik-Dong Kim	1225
Multiple Face Tracking Using Kalman Estimator Based Color SSD Algorithm Kyunghwan Baek, Byoungki Kim, Sangbum Park, Youngjoon Han, Hernsoo Hahn	1229
Target Word Selection for Korean Verbs Using a Bilingual Dictionary and WordNet Kweon Yang Kim, Byong Gul Lee, Dong Kwon Hong	1233

XXVI Table of Contents

A Color Image Segmentation Algorithm by Using Region and Edge Information Yuchou Chang, Yue Zhou, Yonggang Wang, Yi Hong	1237
Recognition of Passports Using FCM-Based RBF Network Kwang-Baek Kim, Jae-Hyun Cho, Cheol-Ki Kim	1241
A Vision System for Partially Occluded Landmark Recognition Quoc V. Do, Peter Lozo, Lakhmi C. Jain	1246
Diversity Control in GP with ADF for Regression Tasks Huayang Xie	1253
Some Propositions of Information Fusion for Pattern Recognition with Context Task Michal Wozniak	1258
A Personal Locating System Using the Vision-Based Augmented Reality J.B. Kim, J.M. Lee, H.S. Jun	1262
Fast Candidate Generation for Template Matching Using Two 1-D Edge Projections Jong-Eun Ha, Dong-Joong Kang	1267
Finding Similar Patterns in Microarray Data Xiangsheng Chen, Jiuyong Li, Grant Daggard, Xiaodi Huang	1272
A Stereo Matching Using Variable Windows and Dynamic Programming Won-Pyo Dong, Yun-Seok Lee, Chang-Sung Jeong	1277
Detection of Auto Programs for MMORPGs Hyungil Kim, Sungwoo Hong, Juntae Kim	1281
Automated Classification of Dementia Subtypes from Post-mortem Cortex Images David Cornforth, Herbert Jelinek	1285
Metrics for Model Selection in Consumer Finance Problems Debjit Biswas, Babu Narayanan, Ramasubramanian Sundararajan	1289
Microcontroller Based Temperature Control of Oven Using Different Kinds of Autotuning PID Methods Emine Doğru Bolat, Kadir Erkan, Seda Postalcıoğlu	1295
Aggregation of Preferences Based on FSAM Dae-Young Choi	1301

A Novel Particle Swarm Optimization for Constrained Optimization Problems	
Xiangyong Li, Peng Tian, Min Kong	1305
A Framework for Relational Link Discovery Dan Luo, Chao Luo, Chunzhi Zhang	1311
IPQDA: A Software Tool for Intelligent Analysis of Power Quality Disturbances	
Aini Hussain, Azah Mohamed, Mohd Hanif Md Saad, Mohd Haszuan Shukairi, Noor Sabathiah Sayuti	1315
Bio-inspired Control of Dexterous Manipulation Rosana Matuk Herrera, Fabio Leoni	1319
A Lagrangian Relaxation Based Heuristic for Solving the Length-Balanced Two Arc-Disjoint Shortest Paths Problem Yanzhi Li, Andrew Lim, Hong Ma	1323
Optimizing Coupled Oscillators for Stability David Newth, Markus Brede	1327
A Novel Approach for Vendor Combination Selection in Supply Chain Management	
Ding-zhong Feng, Mitsuo Yamashiro, Lei-lei Chen	1331
A Robust SVM Design for Multi-class Classification Minkook Cho, Hyeyoung Park	1335
Author Index	1339