

Proceedings

19th IEEE International Conference on Tools with Artificial Intelligence

ICTAI 2007

*Patras, Greece
29-31 October 2007*

Co-sponsored by
IEEE Computer Society
Biological and Artificial Intelligence Society
University of Patras
ATRC of the Wright State University



Los Alamitos, California
Washington • Tokyo



19th IEEE International Conference on Tools
with Artificial Intelligence

ICTAI 2007

TABLE OF CONTENTS

Message from the General Chairs
Message from the Program Chair
Conference Committee
Additional Reviewers

KEYNOTE SPEECHES

Knowledge Acquisition from Multimedia Documents Using Evolving Ontologies

Constantine D. Spyropoulos

Semantic Web: The Story So Far

Ian Harrocks

Probabilistic Graphical Models for Data Mining and Planning in Automotive Industry

Rudolf Kruse

SESSION 1: AI ALGORITHMS I

Hypergraph Partitioning for Exploiting Localities in Nonlinear Constrained Optimization 1

Benjamin W. Wah, Soomin Lee

Natural Gradient Policy for Average Cost SMDP Problem 9

Ngo Anh Vien, TaeChoong Chung

A Q'tron Neural-Network Approach to Solve the Graph Coloring Problems..... 17

Tai-Wen Yue, Zou Zhong Lee

Unconstrained Influence Diagram Solver: Guido 22

Jiří Iša, Viliam Lisý, Zuzana Reitermanová, Ondřej Sýkora

SESSION 2: AI ALGORITHMS II

M²ICAL: A Tool for Analyzing Imperfect Comparison Algorithms..... 26

Wee-Chong Oon, Martin Henz

An Intelligent Cellular Automaton Model for Crowd Evacuation in Fire Spreading Conditions 34

Ioakeim Georgoudas, Georgios Sirakoulis, Ioannis Andreadis

Real Time Scheduling by Coordination for Optimizing Operations of Equipments in a Container Terminal	42
<i>Eun Yeong Ahn, Kiyeok Park, Byungho Kang, Kwang Ryel Ryu</i>	
New Improvements of Immune Inspired Optimizer SILO.....	47
<i>Konrad Wojdan, Konrad ?wirski, Michał Warcho?, Tomasz Chomiak</i>	

SESSION 3: AI ALGORITHMS AND MODELS

Exploiting CPU Bit Parallel Operations to Improve Efficiency in Search	51
<i>Pablo San Segundo, Diego Rodríguez-Losada, Ramón Galán, Fernando Matía, Agustín Jiménez</i>	
Incorporating Risk Attitude and Reputation into Infinitely Repeated Games and an Analysis on the Iterated Prisoner's Dilemma.....	58
<i>Ka-man Lam, Ho-fung Leung</i>	
A New Feature Transformation Method Based on Rotation for Speaker Identification	66
<i>Min-Seok Kim, Ha-Jin Yu</i>	
Qualitative Constraints Representation for the Time and Space in SAT	72
<i>Jean-François Condotta, Dominique D'Almeida</i>	

SESSION 4: AI IN BIOINFORMATICS

GNAS: A Tool for Analyzing Performance of Gene Networks Generated from Bayesian Network Algorithms	76
<i>Austin H. Chen, Ching-Heng Lin</i>	
Prostate Cancer Biomarker Selection through a Novel Combination of Sequential Global Thresholding, Particle Swarm Optimization, and PNN Classification of MS-Spectra	83
<i>Panagiotis Bougioukos, Dionisis Cavouras, Antonis Daskalakis, Spiros Kostopoulos, George Nikiforidis, Anastasios Bezerianos</i>	
Knowledge Discovery Scientific Workflows in Clinico-Genomics	89
<i>George Potamias, Lefteris Koumakis, Alexandros Kanterakis, Stelios Sfakianakis, Anastasia Analyti, Vassilis Moustakis, Dimitris Kafetzopoulos, Stefan Rueping, Manolis Tsiknakis</i>	
Accurate Classification of SAGE Data Based on Frequent Patterns of Gene Expression	94
<i>George Tzanis, Ioannis Vlahavas</i>	

SESSION 5: AI IN ROBOTICS I

SAPED: System of Assistance for PEople with Disabilities	99
<i>Ali Aich, Sophie Lorient</i>	
Coordinated Team Play in the Four-Legged RoboCup League	107
<i>Georgios Kontes, Michail Lagoudakis</i>	
Dynamic Coalition of Resource-Bounded Autonomous Agents	115
<i>Abdel-Ilah Mouaddib, Laurent Jeanpierre</i>	

A Metaheuristic Controller for Cooperative Manipulators	122
<i>Maria P. Tzamtzi, Fotis N. Koumboulis</i>	

SESSION 6: AI IN ROBOTICS II

Knowledge Representation and Reasoning for Perceptual Anchoring	127
<i>Jonas Melchert, Silvia Coradeschi, Amy Loutfi</i>	
Multiple Target Tracking for Mobile Robots Using the JPDAF Algorithm	135
<i>Aliakbar Gorji Daronkolaei, Saeed Shiry, Mohammad Bagher Menhaj</i>	
Multi-sensor Fusion Method Using Dynamic Bayesian Network for Precise Vehicle Localization and Road Matching	144
<i>Cherif Smaili, Maan E. El Najjar, François Charpillat</i>	
Maximum Likelihood SLAM in Dynamic Environments	150
<i>Nikos Mitsou, Costas Tzafestas</i>	

SESSION 7: AI IN SOFTWARE ENGINEERING I

Batch-Optimistic Test-Cases Generation Using Genetic Algorithms	155
<i>Anastasis A. Sofokleous, Andreas S. Andreou</i>	
Evolving Conditional Value Sets of Cost Factors for Estimating Software Development Effort	163
<i>Andreas S. Andreou, Efi Papatheocharous, Christos Skouroumounis</i>	
Employing Agents Towards Database Applications Testing	171
<i>Spyridon K. Gardikiotis, Vasilios S. Lazarou, Nikolaos Malevris</i>	
Software Effort Estimation Using Machine Learning Techniques with Robust Confidence Intervals	179
<i>Petrônio L. Braga, Adriano L.I. Oliveira, Silvio R.L. Meira</i>	

SESSION 8: AI IN SOFTWARE ENGINEERING II

Towards a Dynamic Ontology Based Software Project Management Antipattern Intelligent System	184
<i>Dimitrios Settas, Ioannis Stamelos</i>	
CompoNet: Programmatically Embedding Neural Networks into AI Applications as Software Components	192
<i>Uzair Ahmad, Andrey Gavrilov, Sungyoung Lee, Young-Koo Lee</i>	
A Hybrid Software Component Clustering and Retrieval Scheme Using an Entropy-Based Fuzzy k-Modes Algorithm	200
<i>Constantinos Stylianou, Andreas S. Andreou</i>	
Comparative Study of Clustering Techniques for the Organization of Software Repositories	208
<i>Ronaldo C. Veras, Silvio R.L. Meira, Adriano L.I. Oliveira, Bruno J.M. Melo</i>	

SESSION 9: CONSTRAINT PROGRAMMING I

Strong Inverse Consistencies for Non-Binary CSPs	213
<i>Kostas Stergiou</i>	
AllDifferent: Softening AllDifferent in Weighted CSPs	221
<i>Jean-Philippe Métivier, Patrice Boizumault, Samir Loudni</i>	
On Portfolios for Backtracking Search in the Presence of Deadlines	229
<i>Huayue Wu, Peter van Beek</i>	
Hyperarc Consistency for the Stable Admissions Problem	237
<i>Pavlos Eirinakis, Dimitris Magos, Ioannis Mourtos, Panayiotis Miliotis</i>	

SESSION 10: CONSTRAINT PROGRAMMING II

The Design of COMMA: An Extensible Framework for Mapping Constrained Objects to Native Solver Models	241
<i>Ricardo Soto, Laurent Granvilliers</i>	
Semiring-Based Constraint Acquisition	249
<i>Xuan-Ha Vu, Barry O'Sullivan</i>	
A Value Ordering Heuristic for Weighted CSP	257
<i>Nicolas Levasseur, Patrice Boizumault, Samir Loudni</i>	
Light Integration of Path Consistency for Solving CSPs	261
<i>Assef Chmeiss, Vincent Krawczyk, Lakhdar Saïs</i>	

SESSION 11: DATA MINING I

Multisets and Clustering XML Documents	265
<i>Swami Iyer, Dan A. Simovici</i>	
A Partial Coverage Based Approach to Classification	273
<i>Yu Huang, Gongde Guo, Daniel Neagu</i>	
Spatial Outlier Detection: A Graph-Based Approach	279
<i>Yufeng Kou, Chang-Tien Lu, Raimundo F. Dos Santos</i>	
A Visual Data Analysis Tool for Sport Player Performance Benchmarking, Comparison, and Change Detection	287
<i>Sebastian Lühr, Mihai Lazarescu</i>	

SESSION 12: DATA MINING II

A Hybrid Approach to Frequent Itemset Hiding	295
<i>Aris Gkoulalas-Divanis, Vassilios S. Verykios</i>	
Towards Rare Itemset Mining	303
<i>Laszlo Szathmary, Amedeo Napoli, Petko Valtchev</i>	
Finding Hotspots in Document Collection	311
<i>Wei Peng, Chris Ding, Tao Li, Tong Sun</i>	

A New Web Usage Mining and Visualization Tool	319
<i>Nicolas Labroche, Marie-Jeanne Lesot, Lionel Yaffi</i>	

SESSION 13: DATA MINING III

Conceptual Clustering Categorical Data with Uncertainty	327
<i>Yuni Xia, Bowei Xi</i>	
Granule Based Intertransaction Association Rule Mining	335
<i>Wanzhong Yang, Yuefeng Li, Yue Xu</i>	
Gestalt of an Approach for Multidimensional Data Mining on Concept Taxonomy Forest to Discover Association Patterns with various Data Granularities	339
<i>Johannes K. Chiang</i>	
A Probabilistic Substructure-Based Approach for Graph Classification	344
<i>H.D.K. Moonesinghe, Hamed Valizadegan, Samah Fodeh, Pang-Ning Tan</i>	

SESSION 14: DATA MINING IN SYSTEMS

Prediction of Cerebral Aneurysm Rupture	348
<i>Qiangfeng Peter Lau, Wynne Hsu, Mong Li Lee, Ying Mao, Liang Chen</i>	
k-Attractors: A Clustering Algorithm for Software Measurement Data Analysis	356
<i>Yiannis Kanellopoulos, Panos Antonellis, Christos Tjortjis, Christos Makris</i>	
An Intelligent TV-Shopping Application that Provides Recommendations	364
<i>Maria Virvou, Anastasios Savvopoulos</i>	
Mutual Information Based Clustering of Market Basket Data for Profiling Users	372
<i>Bartholomäus Ende, Rüdiger Brause</i>	

SESSION 15: EVOLUTIONARY COMPUTING I

A Path Relinking Approach for Delay-Constrained Least-Cost Multicast Routing Problem	381
<i>Nejla Ghaboosi, Abolfazl Toroghi Haghighat</i>	
Assessing Hierarchical Cooperative CoEvolution	389
<i>Michail Maniadakis, Panos Trahanias</i>	
Incremental Construction of Neighborhood Graphs Using the Ants Self-Assembly Behavior	397
<i>Julien Lavergne, Hanane Azzag, Christiane Guinot, Gilles Venturini</i>	
Guided Mutations in Cooperative Coevolutionary Algorithms for Function Optimization	405
<i>Chun-Kit Au, Ho-Fung Leung</i>	

SESSION 16: EVOLUTIONARY COMPUTING II

Recombinative CLA-EC	413
<i>Borna Jafarpour, Mohammad reza Meybodi</i>	

Optimizing Interleaver for Turbo Codes by Genetic Algorithms	421
<i>Pavel Krömer, Václav Snášel, Jan Platoš, Nabil Ouddane</i>	
Administration and Exploitation of Qualitative Aspects in Declarative 3D Scene Synthesis	427
<i>Dimitrios Makris, Georgios Bardis, Georgios Miaoulis, Dimitri Plemenos</i>	
A Java-Based Distributed Genetic Algorithm Framework.....	435
<i>Gabi Escuela, Yudith Cardinale, Jorge González</i>	

SESSION 17: EVOLUTIONARY COMPUTING III

Swarm Approaches for the Patrolling Problem, Information Propagation vs. Pheromone Evaporation.....	440
<i>Hoang- Nam Chu, Arnaud Glad, Olivier Simonin, François Sempé, Alexis Drogoul, François Charpillat</i>	
Ant Colony Optimization for Multi-Objective Optimization Problems	448
<i>Inès Alaya, Christine Solnon, Khaled Ghédira</i>	
Rule Based Classifier Generation Using Symbiotic Evolutionary Algorithm.....	456
<i>Ramin Halavati, Saeed Bagheri Shouraki, Pooya Esfandiar, Sima Lotfi</i>	
A Dynamic Fuzzy-Based Crossover Method for Genetic Algorithms	463
<i>Saman Amirpour Amraii, Mostafa Ajalloeian, Caro Lucas</i>	

SESSION 18: IMAGE PROCESSING AND UNDERSTANDING I

Ontology-Based Object Recognition for Remote Sensing Image Interpretation	470
<i>Nicolas Durand, Sebastien Derivaux, Germain Forestier, Cédric Wemmert, Pierre Gançarski, Omar Boussaïd, Anne Puissant</i>	
A Cognitive Vision Approach for Image Segmentation	478
<i>Vincent Martin, Monique Thonnat</i>	
Thresholding Images of Historical Documents with Back-to-Front Interference Based on Color Quantization by Genetic Algorithms	486
<i>Carmelo J.A. Bastos Filho, Carlos A.B. Mello, Júlio D. Andrade, Davi M.A. Falcão, Marília P. Lima, Wellington P. Santos, Adriano L.I. Oliveira</i>	
Selective Attention Guided Contour Extraction for Perceptual Grouping	490
<i>Jingjing Zhong, Siwei Luo, Qi Zou</i>	

SESSION 19: IMAGE PROCESSING AND UNDERSTANDING II

A Robust Document Skew Estimation Algorithm Using Mathematical Morphology	494
<i>Duc Thanh Nguyen, Dai Binh Vo, Tu Mi Nguyen, Thuy Giang Nguyen</i>	
A Methodology for Automatically Detecting Texture Paths and Patterns in Images	502
<i>Nikolaos Bourbakis, Raj Patil</i>	
Automatic Segmentation of Abdominal Organs from CT Scans	511
<i>Paola Campadelli, Elena Casiraghi, Stella Pratisoli</i>	
Real-Time 3D Head Tracking Based on Time-of-Flight Depth Sensor	515
<i>Ehsan Parvizi, Q.M. Jonathan Wu</i>	

SESSION 20: IMAGE PROCESSING AND UNDERSTANDING III

Photometric Invariant Projective Registration Using ECC Maximization	520
<i>Georgios D. Evagelidis, Emmanouil Z. Psarakis</i>	
Curve Clustering with Spatial Constraints for Analysis of Spatiotemporal Data	527
<i>Konstantinos Blekas, Christoforos Nikou, Nikolaos Galatsanos, Nikolaos V. Tsekos</i>	
Automated Iris and Gaze Detection Using Chrominance: Application to Human-Computer Interaction Using a Low Resolution Webcam	534
<i>Leonidas G. Kourkoutis, Konstantinos I. Panoulas, Leontios J. Hadjileontiadis</i>	
An Affine Invariant Region Detector Using the 4th Differential Invariant	538
<i>Hongping Cai, Lin Lei, Yi Su</i>	

SESSION 21: IMAGE RETRIEVAL

Facial Image Retrieval through Compound Queries Using Constrained Independent Component Analysis	542
<i>Bilal Ahmed, Tahir Rasheed, Young-Koo Lee, Sungyoung Lee, Tae-Seong Kim</i>	
Robust Face Recognition and Retrieval Using Neural-Network-Based Quantization of Gabor Jets and Statistical Graph Matching	547
<i>Vasileios Pothos, Christos Theoharatos, George Economou</i>	
Adaptive Image Retrieval through the Use of a Genetic Algorithm	555
<i>Sérgio F. Da Silva, Marcos A. Batista, Celia A.Z. Barcelos</i>	
Coupling Visual Semantics and High-Level Relational Characterization within a Transparent and Penetrable Image Retrieval Framework	563
<i>Mohammed Belkhatir</i>	

SESSION 22: INFORMATION RETRIEVAL I

Webpage Genre Identification Using Variable-Length Character n-Grams	567
<i>Ioannis Kanaris, Efstathios Stamatatos</i>	
Document Length Normalization by Statistical Regression	575
<i>Sylvain Lamprier, Tassadit Amghar, Bernard Levrat, Frédéric Saubion</i>	
On Evaluation Methodologies for Text Segmentation Algorithms	583
<i>Sylvain Lamprier, Tassadit Amghar, Bernard Levrat, Frédéric Saubion</i>	
A Music Information Retrieval Approach Based on Power Laws	591
<i>Patrick Roos, Bill Manaris</i>	

SESSION 23: INFORMATION RETRIEVAL II

Versatile RDF Representation for Multimedia Semantic Search	596
<i>Dario Bonino, Fulvio Corno, Paolo Pellegrino</i>	
First Steps towards an Intelligent Catalogue within the Open European Nephrology Science Center—OpEN.SC	603
<i>Danilo Schmidt, Gabriela Lindemann, Thomas Schrader</i>	
Usage of Mined Word Associations for Text Retrieval	609
<i>John D. Holt, Soon M. Chung, Yanjun Li</i>	

A Bayesian Network Model for Information Retrieval from Greek Texts	614
<i>Manolis Maragoudakis</i>	

SESSION 24: INTELLIGENT AGENTS I

An Agent-Based System for the Prevention of Earthquake-Induced Disasters.....	619
<i>Takashi Kokawa, Yoshiya Takeuchi, Ryota Sakamoto, Hitoshi Ogawa, Victor V. Kryssanov</i>	
Rational-Emotional Agent Decision Making Algorithm Design with OWA	627
<i>Benjamin Fonooni</i>	
Application of Reactive Multiagent System to Linear Vehicle Platoon	631
<i>Jean-Michel Contet, Franck Gechter, Pablo Gruer, Abderrafiaa Koukam</i>	
Command Agents with Human-Like Decision Making Strategies	635
<i>Masood Raza, Venkat V.S.S. Sastry</i>	

SESSION 25: INTELLIGENT AGENTS II

Discrepancy-Based Method for Hierarchical Distributed Optimization	639
<i>Jonathan Gaudreault, Jean-Marc Frayret, Gilles Pesant</i>	
A Distributed Mechanism for Non-transferable Utility Buyer Coalition Problem.....	646
<i>Chi-Kong Chan, Ho-fung Leung</i>	
Multi-criteria Decision Making for Local Coordination in Multi-agent Systems.....	651
<i>Matthieu Boussard, Maroua Bouzid, Abdel-Ilah Mouaddib</i>	
Designing Embedded Collective Systems: The DIAMOND Multiagent Method	655
<i>Jean-Paul Jamont, Michel Occello</i>	

SESSION 26: INTELLIGENT TUTORING AND E- LEARNING SYSTEMS

Knowledge Based Mechanisms for Tutoring Systems in Science and Engineering.....	659
<i>Chun-Wai Liew, Joel A. Shapiro, Don E. Smith</i>	
MASHA-EL: A Multi-Agent System for Supporting Adaptive E-Learning	667
<i>Salvatore Garruzzo, Domenico Rosaci, Giuseppe M.L. Sarnè</i>	
Competency-Based Learning Object Sequencing Using Particle Swarms	675
<i>Luis de-Marcos, Carmen Pages, José-Javier Martínez, José-Antonio Gutiérrez</i>	
A Group Formation Tool in an E-Learning Context.....	681
<i>Christos E. Christodouloupoulos, Kyparisia A. Papanikolaou</i>	

SESSION 27: KNOWLEDGE DISCOVERY I

Exploratory Quantitative Contrast Set Mining: A Discretization Approach.....	688
<i>Mondelle Simeon, Robert J. Hilderman</i>	
Mining Data with Rare Events: A Case Study	696
<i>Chris Seiffert, Taghi M. Khoshgoftaar, Jason Van Hulse, Amri Napolitano</i>	
Mining Prevalence-Based Ratio Patterns	704
<i>Minghua Zhang, Wynne Hsu, Mong Li Lee</i>	

Incorporating Background Knowledge for Subjective Rule Evaluation	712
<i>Samah Jamal Fodeh, Pang-Ning Tan</i>	

SESSION 28: KNOWLEDGE DISCOVERY II

A Text Mining Model for Hypothesis Generation.....	720
<i>Wei Jin, Rohini K. Srihari, Hung Hay Ho</i>	
Onto Confounding-Aware Subgroup Discovery	727
<i>Martin Atzmueller, Frank Puppe, Hans-Peter Buscher</i>	
Finding Orientation-Sensitive Patterns in Snapshot Databases	735
<i>Minghua Zhang, Wynne Hsu, Mong Li Lee</i>	
Unsupervised Event Detection in Videos	743
<i>Ali Mustafa, Ishwar Sethi</i>	

SESSION 29: KNOWLEDGE DISCOVERY III

An Adaptive Distributed Ensemble Approach to Mine Concept-Drifting Data Streams	747
<i>Gianluigi Folino, Clara Pizzuti, Giandomenico Spezzano</i>	
Applying Data Mining to Define TSP Asymptotic Time Complexity	752
<i>Paula Cecilia Fritzsche, Dolores Rexachs, Emilio Luque</i>	
Combining Burst Extraction Method and Sequence-Based SOM for Evaluation of Fracture Dynamics in Solid Oxide Fuel Cell	757
<i>Ken-ichi Fukui, Kazuhisa Sato, Junichiro Mizusaki, Kazumi Saito, Masayuki Numao</i>	
Dragon Toolkit: Incorporating Auto-Learned Semantic Knowledge into Large-Scale Text Retrieval and Mining	761
<i>Xiaohua Zhou, Xiaodan Zhang, Xiaohua Hu</i>	

SESSION 30: KNOWLEDGE EXTRACTION

Establishing Logical Rules from Empirical Data	766
<i>John L. Pfaltz</i>	
A Scalable and Efficient Outlier Detection Strategy for Categorical Data	774
<i>Anna Koufakou, Enrique G. Ortiz, Michael Georgiopoulos, Georgios C. Anagnostopoulos, Kenneth M. Reynolds</i>	
A Methodology for Reader's Emotional State Extraction to Augment Expressions in Speech Synthesis	782
<i>Dimitrios Tsonos, Gerasimos Xydias, Georgios Kouroupetroglou</i>	
ExOpaque: A Framework to Explain Opaque Machine Learning Models Using Inductive Logic Programming	790
<i>Yunsong Guo, Bart Selman</i>	

SESSION 31: KNOWLEDGE REPRESENTATION AND REASONING I

Adaptive Lookahead for Answer Set Computation	794
<i>Guohua Liu, Jia-Huai You</i>	

Visual Stratification of Defeasible Logic Rule Bases	802
<i>Efstratios Kontopoulos, Nick Bassiliades, Grigoris Antoniou</i>	
Temporal Conditional Preferences over Sequences of Objects	810
<i>Sandra de Amo, Arnaud Giacometti</i>	
Harnessing Ontologies for Argument-Based Decision-Making in Breast Cancer	818
<i>Matt Williams, Anthony Hunter</i>	

SESSION 32: KNOWLEDGE REPRESENTATION AND REASONING II

A New Model for Belief Representation and Belief Revision Based on Inconsistencies Locality	826
<i>Omar Doukari, Eric Würbel, Robert Jeansoulin</i>	
A Tool for Portfolio Generation Using an Argumentation Based Decision Making Framework	834
<i>Nikolaos Spanoudakis, Konstantina Pendaraki</i>	
The Ramification Problem in Temporal Databases: Concurrent Execution with Conflicting Constraints	838
<i>Nikos Papadakis, Grigoris Antoniou, Dimitris Plexousakis</i>	
Eikonomia—An Integrated Semantically Aware Tool for Description and Retrieval of Byzantine Art Information	843
<i>Konstantinos N. Vavliakis, Andreas L. Symeonidis, Georgios T. Karagiannis, Pericles A. Mitkas</i>	

SESSION 33: MACHINE LEARNING I

A Novel Model of Working Set Selection for SMO Decomposition Methods	847
<i>Zhen-Dong Zhao, Lei Yuan, Yu-Xuan Wang, Forrest Sheng Bao, Shun-Yi Zhang, Yan-Fei Sun</i>	
Automatic Personalized Spam Filtering through Significant Word Modeling	855
<i>Khurum Nazir Junejo, Asim Karim</i>	
Combating Good Word Attacks on Statistical Spam Filters with Multiple Instance Learning	862
<i>Yan Zhou, Zach Jorgensen, Meador Inge</i>	
Deep Belief Networks for Spam Filtering	870
<i>Grigorios Tzortzis, Aristidis Likas</i>	

SESSION 34: MACHINE LEARNING II

An Empirical Study of Learning from Imbalanced Data Using Random Forest	874
<i>Taghi M. Khoshgoftaar, Moiz Golawala, Jason Van Hulse</i>	
Multi-agent Reinforcement Learning Using Strategies and Voting	882
<i>Ioannis Partalas, Ioannis Feneris, Ioannis Vlahavas</i>	
Using Clustering and Co-5raining to Boost Classification Performance	889
<i>Antonia Kyriakopoulou</i>	

A Machine Learning Approach to Predict Turning Points for Chaotic Financial Time Series	895
<i>Xiuquan Li, Zhidong Deng</i>	

SESSION 35: MACHINE LEARNING III

Design of OBF-TS Fuzzy Models Based on Multiple Clustering Validity Criteria	900
<i>Jeremias B. Machado, Wagner C. Amaral, Ricardo J.G.B. Campello</i>	
Using Reactive Tabu Search in Semi-supervised Classification	904
<i>Mahmoud Zennaki, Ahmed Ech-cherif, Jean Charles Lamirel</i>	
Abstract Description Refinement Using Incremental Learning and Scene Reconstruction	909
<i>Georgios Bardis, Vassilios Golfinopoulos, Georgios Miaoulis, Dimitri Plemenos</i>	
Two-Dimensional Logistic Regression	913
<i>Woo-han Yun, Do-Hyung Kim, Su-young Chi, Ho-Sub Yoon</i>	

SESSION 36: MACHINE LEARNING IV

One-Sided Sampling for Learning Taxonomic Relations in the Modern Greek Economic Domain	918
<i>Katia Kermanidis, Nikos Fakotakis</i>	
Local and Global Structures Preserving Projection	926
<i>Hao Cheng, Kien Hua, Khanh Vu</i>	
An Intelligent Artificial Neural Network Evaluation System Using Fuzzy Set Hedges: Application in Wood Industry	930
<i>Lazaros S. Iliadis</i>	
Segmentation of Greek Text by Dynamic Programming	934
<i>Pavlina Fragkou, Vassilios Petridis, Athanassios Kehagias</i>	

SESSION 37: NEURAL NETWORKS I

Adaptive Nonmonotone Conjugate Gradient Training Algorithm for Recurrent Neural Networks	938
<i>Chun-Cheng Peng, George D. Magoulas</i>	
Time Series Prediction Using Robust Radial Basis Function with Two-Stage Learning Rule	946
<i>Chien-Cheng Lee, Cheng-Yuan Shih</i>	
Conformal Prediction with Neural Networks	952
<i>Harris Papadopoulos, Volodya Vovk, Alex Gammerman</i>	
A Gridified Artificial Neural Network Resource	960
<i>Erich Schikuta, Peter Beran</i>	

SESSION 38: NEURAL NETWORKS II

Solving Resource Management Optimization Problems in Contact Centers with Artificial Neural Networks	969
<i>Efstathios F. Georgopoulos, Sotiris M. Giannaropoulos</i>	
Author Identification of E-mail Messages with OLMAM Trained Feedforward Neural Networks	977
<i>Nikolaos Ampazis, Helen Iakovaki, George Dounias</i>	
Character Recognition Based on Neural Network and Dempster-Shafer Theory	982
<i>Bae-Muu Chang, Hung-Hsu Tsai, Pao-Ta Yu</i>	
Optimal Recursive Designers' Profile Estimation in Collaborative Declarative Environment	988
<i>Nikolaos Doulamis, Georgios Bardis, John Dragonas, George Miaoulis</i>	

SESSION 39: NL PROCESSING AND UNDERSTANDING I

Using the Levenshtein Edit Distance for Automatic Lemmatization: A Case Study for Modern Greek and English.....	992
<i>Dimitrios P. Lyras, Kyriakos N. Sgarbas, Nikolaos D. Fakotakis</i>	
Word Segmentation Using Domain Knowledge Based on Conditional Random Fields	1000
<i>Takuya Fukuda, Masataka Izumi, Takao Miura</i>	
Using NLP Techniques for Tagging Events in Arabic Text	1004
<i>Saleem Abuleil</i>	
Towards an Automatic Validation of Answers in Question Answering	1008
<i>Anne-Laure Ligozat, Brigitte Grau, Anne Vilnat, Isabelle Robba, Arnaud Grappy</i>	

SESSION 40: NL PROCESSING AND UNDERSTANDING II

Extraction-Based Single-Document Summarization Using Random Indexing	1012
<i>Niladri Chatterjee, Shiwali Mohan</i>	
Constructing VEGGIE: Machine Learning for Context-Sensitive Graph Grammars.....	1020
<i>Keven Ates, Kang Zhang</i>	
Enriching OWL Ontologies with Linguistic and User-Related Annotations: The ELEON System	1028
<i>Dimitris Bilidas, Maria Theologou, Vangelis Karkaletsis</i>	
Natural Language Queries in CBR Systems	1032
<i>Belén Díaz-Agudo, Juan A. Recio-García, Pedro A. González-Calero</i>	

SESSION 41: SEARCH AND HEURISTICS

Determining the Basis for Performance Variations in CSP Heuristics	1037
<i>Richard J. Wallace</i>	
Approaches to the Subnet Generation Problem.....	1045
<i>Cheuk Fun Bede Leung, Olli Kamarainen, Barry Richards</i>	

Incremental Move for 2D Strip-Packing	1053
<i>Bertrand Neveu, Gilles Trombettoni, Ignacio Araya</i>	
Consistent Neighborhood for the Satisfiability Problem.....	1061
<i>Djamal Habet, Lionel Paris, Belaïd Benhamou</i>	

SESSION 42: SPEECH PROCESSING AND UNDERSTANDING

Detection of Negative Emotional States in Real-World Scenario	1066
<i>Theodoros Kostoulas, Todor Ganchev, Iosif Mporas, Nikos Fakotakis</i>	
Comparative Evaluation of Speech Parameterizations for Speech Recognition	1074
<i>Iosif Mporas, Todor Ganchev, Mihalis Siafarikas, Theodoros Kostoulas</i>	
Wavelet Packet Bases for Speaker Recognition	1078
<i>Mihalis Siafarikas, Todor Ganchev, Nikos Fakotakis</i>	
Segmental Duration Modeling for Greek Speech Synthesis	1082
<i>Alexandros Lazaridis, Panagiotis Zervas, Georgios Kokkinakis</i>	

SESSION 43: VISION AND VIDEO PROCESSING

Multi-modal Interfaces for Interaction-Communication between Hearing and Visually Impaired Individuals: Problems and Issues	1086
<i>Nikolaos Bourbakis, Anna Esposito, D. Kabraki</i>	
Eye Synthesis Using the Eye Curve Model	1095
<i>Lei Xiong, Nanning Zheng, Qubo You, Jianyi Liu, Shaoyi Du</i>	
Robust Lane Detection for Video-Based Navigation Systems.....	1099
<i>Sunghoon Kim, Jeong-Ho Park, Seong Ik Cho, Soonyoung Park, Kisung Lee, Kyoungho Choi</i>	
Caption Localization and Detection for News Videos Using Frequency Analysis and Wavelet Features	1103
<i>Chien-Cheng Lee, Yu-Chun Chiang, Cheng-Yuan Shih, Hau-Ming Huang</i>	

Author Index