

George A. Vouros
Themistoklis Panayiotopoulos (Eds.)

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Methods and Applications of Artificial Intelligence

Third Hellenic Conference on AI, SETN 2004
Samos, Greece, May 2004
Proceedings



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as the constant need for learning point to the development of systems that are more oriented to the way humans reason and act in social settings. Recent advances in artificial intelligence may give us answers to these new questions in intelligence.

The 41 contributed papers were selected from 110 full papers by the program committee, with the invaluable help of additional reviewers; 13% of the submitted papers were co-authored by members of non-Greek institutions. We must emphasize the high quality of the majority of the submissions. Many thanks to all who submitted papers for review and for publication in the proceedings.

This proceedings volume also includes the two prestigious papers presented at SETN 2004 by two distinguished keynote speakers:

- “*Dynamic Discovery, Invocation and Composition of Semantic Web Services*” by Prof. Katia Sycara (School of Computer Science, Carnegie Mellon University); and
- “*Constraint Satisfaction, Complexity, and Logic*” by Prof. Phokion Kolaitis (Computer Science Department, University of California, Santa Cruz).

Three invited sessions were affiliated with the conference:

- *AI in Power System Operation and Fault Diagnosis*, Assoc. Prof. Nikos Hatziargyriou (Chair);
- *Intelligent Techniques in Image Processing*, Dr. Ilias Maglogiannis (Chair);
- *Intelligent Virtual Environments*, Assoc. Prof. Themis Panagiotopoulos (Chair).

Members of the SETN 2004 program committee did an enormous amount of work and deserve the special gratitude of all participants. Our sincere thanks to the Conference Advisory Board for its help and support.

Special thanks go to Alfred Hofmann and Tatjana Golea of Springer-Verlag for their continuous help and support.

May 2004

George Vouros
Themis Panagiotopoulos

Preface

Artificial intelligence has attracted a renewed interest from distinguished scientists and has again raised new, more realistic this time, expectations for future advances regarding the development of theories, models and techniques and the use of them in applications pervading many areas of our daily life. The borders of human-level intelligence are still very far away and possibly unknown. Nevertheless, recent scientific work inspires us to work even harder in our exploration of the unknown lands of intelligence.

This volume contains papers selected for presentation at the 3rd Hellenic Conference on Artificial Intelligence (SETN 2004), the official meeting of the Hellenic Society for Artificial Intelligence (EETN). The first meeting was held in the University of Piraeus, 1996 and the second in the Aristotle University of Thessaloniki (AUTH), 2002.

SETN conferences play an important role in the dissemination of the innovative and high-quality scientific results in artificial intelligence which are being produced mainly by Greek scientists in institutes all over the world. However, the most important effect of SETN conferences is that they provide the context in which people meet and get to know each other, as well as a very good opportunity for students to get closer to the results of innovative artificial intelligence research.

SETN 2004 was organized by the Hellenic Society for Artificial Intelligence and the Artificial Intelligence Laboratory of the Department of Information and Communication Systems Engineering, the University of the Aegean. The conference took place on the island of Samos during 5–8 May 2004. We wish to express our thanks to the sponsors of the conference, the University of the Aegean and the School of Sciences, for their generous support.

The aims of the conference were:

- To present the high-quality results in artificial intelligence research which are being produced mainly by Greek scientists in institutes all over the world.
- To bring together Greek researchers who work actively in the field of artificial intelligence and push forward collaborations.
- To put senior and postgraduate students in touch with the issues and problems currently addressed by artificial intelligence.
- To make industry aware of new developments in artificial intelligence so as to push forward the development of innovative products.

Artificial intelligence is a dynamic field whose theories, methods and techniques constantly find their way into new innovative applications, bringing new perspectives and challenges for research. The growth in the information overload which makes necessary its effective management, the complexity of human activities in relation to the constant change of the environment in which these activities take place, the constantly changing technological environment, as well

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Table of Contents

Invited Talks

Constraint Satisfaction, Complexity, and Logic	1
<i>Phokion G. Kolaitis</i>	
Dynamic Discovery, Invocation and Composition of Semantic Web Services	3
<i>Katia Sycara</i>	

Information Management

Data Brokers: Building Collections through Automated Negotiation	13
<i>Fillia Makedon, Song Ye, Sheng Zhang, James Ford, Li Shen, and Sarantos Kapidakis</i>	
P2P-DIET: Ad-hoc and Continuous Queries in Peer-to-Peer Networks Using Mobile Agents	23
<i>Stratos Idreos and Manolis Koubarakis</i>	
Taxonomy-Based Annotation of XML Documents: Application to eLearning Resources	33
<i>Birahim Gueye, Philippe Rigaux, and Nicolas Spyrtatos</i>	
Precise Photo Retrieval on the Web with a Fuzzy Logic\Neural Network-Based Meta-search Engine	43
<i>Ioannis Anagnostopoulos, Christos Anagnostopoulos, George Kouzas, and Vergados Dimitrios</i>	
Intelligent Web Prefetching Based upon User Profiles – The WebNaut Case	54
<i>George Kastaniotis, Nick Zacharis, Themis Panayiotopoulos, and Christos Douligeris</i>	
An Intelligent System for Aerial Image Retrieval and Classification	63
<i>Antonios Gasteratos, Panagiotis Zafeiridis, and Ioannis Andreadis</i>	
Computationally Intelligent Methods for Mining 3D Medical Images	72
<i>Despina Kontos, Vasileios Megalooikonomou, and Fillia Makedon</i>	
Text Area Identification in Web Images	82
<i>Stavros J. Perantonis, Basilios Gatos, Vassilios Maragos, Vangelis Karkaletsis, and George Petasis</i>	

A Mixed Reality Learning Environment for Geometry Education	93
<i>George Nikolakis, George Fergadis, Dimitrios Tzouvaras, and Michael G. Strintzis</i>	
A Multi-criteria Protocol for Multi-agent Negotiations	103
<i>Nikolaos F. Matsatsinis and Pavlos Delias</i>	
Clustering XML Documents by Structure	112
<i>Theodore Dalamagas, Tao Cheng, Klaas-Jan Winkel, and Timos Sellis</i>	
Machine Learning	
Music Performer Verification Based on Learning Ensembles	122
<i>Efstathios Stamataatos and Ergina Kavallieratou</i>	
Using the k -Nearest Problems for Adaptive Multicriteria Planning	132
<i>Grigorios Tsoumakas, Dimitris Vrakas, Nick Bassiliades, and Ioannis Vlahavas</i>	
Focused Crawling Using Temporal Difference-Learning	142
<i>Alexandros Grigoriadis and Georgios Paliouras</i>	
A Meta-classifier Approach for Medical Diagnosis	154
<i>George L. Tsirogiannis, Dimitrios Frossyniotis, Konstantina S. Nikita, and Andreas Stafylopatis</i>	
Learning In-between Concept Descriptions Using Iterative Induction	164
<i>George Potamias and Vassilis Moustakis</i>	
Splitting Data in Decision Trees Using the New <i>False-Positives</i> Criterion . .	174
<i>Basilis Boutsinas and Ioannis X. Tsekouronas</i>	
Efficient Training Algorithms for the Probabilistic RBF Network	183
<i>Constantinos Constantinopoulos and Aristidis Likas</i>	
Using k -Nearest Neighbor and Feature Selection as an Improvement to Hierarchical Clustering	191
<i>Phivos Mylonas, Manolis Wallace, and Stefanos Kollias</i>	
Feature Deforming for Improved Similarity-Based Learning	201
<i>Sergios Petridis and Stavros J. Perantonis</i>	
Incremental Mixture Learning for Clustering Discrete Data	210
<i>Konstantinos Blekas and Aristidis Likas</i>	
A Cost Sensitive Technique for Ordinal Classification Problems	220
<i>Sotiris B. Kotsiantis and Panagiotis E. Pintelas</i>	

Pap-Smear Classification Using Efficient Second Order Neural Network Training Algorithms	230
<i>Nikolaos Ampazis, George Dounias, and Jan Jantzen</i>	

Towards an Imitation System for Learning Robots	246
<i>George Maistros and Gillian Hayes</i>	

Data Mining and Diagnosis

Gene Selection via Discretized Gene-Expression Profiles and Greedy Feature-Elimination	256
<i>George Potamias, Lefteris Koumakis, and Vassilis Moustakis</i>	

Automatic Detection of Abnormal Tissue in Bilateral Mammograms Using Neural Networks	267
<i>Ioanna Christoyianni, Emmanouil Constantinou, and Evangelos Dermatas</i>	

Feature Selection for Robust Detection of Distributed Denial-of-Service Attacks Using Genetic Algorithms	276
<i>Gavrilis Dimitris, Tsoulos Ioannis, and Dermatas Evangelos</i>	

An Intelligent Tool for Bio-magnetic Signal Processing	282
<i>Skarlas Lambros, Adam Adamopoulos, Georgopoulos Stratos, and Likothanassis Spiridon</i>	

Knowledge Representation and Search

Hierarchical Bayesian Networks: An Approach to Classification and Learning for Structured Data	291
<i>Elias Gyftodimos and Peter A. Flach</i>	

Fuzzy Automata for Fault Diagnosis: A Syntactic Analysis Approach	301
<i>Gerasimos G. Rigatos and Spyros G. Tzafestas</i>	

A Discussion of Some Intuitions of Defeasible Reasoning	311
<i>Grigoris Antoniou</i>	

Knowledge Representation Using a Modified Earley's Algorithm	321
<i>Christos Pavlatos, Ioannis Panagopoulos, and George Papakonstantinou</i>	

Fuzzy Causal Maps in Business Modeling and Performance-Driven Process Re-engineering	331
<i>George Xirogiannis and Michael Glykas</i>	

Construction and Repair: A Hybrid Approach to Search in CSPs	342
<i>Konstantinos Chatzikokolakis, George Boukeas, and Panagiotis Stamatopoulos</i>	

Arc Consistency in Binary Encodings of Non-binary CSPs:
Theoretical and Experimental Evaluation 352
Nikos Samaras and Kostas Stergiou

Inherent Choice in the Search Space
of Constraint Satisfaction Problem Instances 362
*George Boukeas, Panagiotis Stamatopoulos, Constantinos Halatsis,
and Vassilis Zissimopoulos*

Natural Language Processing

Part-of-Speech Tagging in Molecular Biology Scientific Abstracts
Using Morphological and Contextual Statistical Information 371
Gavrilis Dimitris and Dermatas Evangelos

A Name-Matching Algorithm for Supporting Ontology Enrichment 381
*Alexandros G. Valarakos, Georgios Paliouras, Vangelis Karkaletsis,
and George Vouros*

Text Normalization for the Pronunciation of Non-standard Words
in an Inflected Language 390
Gerasimos Xydias, Georgios Karberis, and Georgios Kouroupertoglou

Multi-topic Information Filtering with a Single User Profile 400
Nikolaos Nanas, Victoria Uren, Anne de Roeck, and John Domingue

Exploiting Cross-Document Relations
for Multi-document Evolving Summarization 410
*Stergos D. Afantenos, Irene Doura, Eleni Kapellou,
and Vangelis Karkaletsis*

Invited Session:
AI in Power System Operation and Fault Diagnosis

Diagnosing Transformer Faults with Petri Nets 420
*John A. Katsigiannis, Pavlos S. Georgilakis, Athanasios T. Souflaris,
and Kimon P. Valavanis*

Short-Term Load Forecasting Using Radial Basis Function Networks 432
Zbigniew Gontar, George Sideratos, and Nikos Hatziargyriou

Reinforcement Learning (RL) to Optimal Reconfiguration
of Radial Distribution System (RDS) 439
John G. Vlachogiannis and Nikos Hatziargyriou

A Multi-agent System for Microgrids 447
Aris Dimeas and Nikos Hatziargyriou

Invited Session: Intelligent Techniques in Image Processing

Automated Medical Image Registration Using the Simulated Annealing Algorithm.....	456
<i>Ilias Maglogiannis and Elias Zafropoulos</i>	
Adaptive Rule-Based Facial Expression Recognition	466
<i>Spiros Ioannou, Amaryllis Raouzaïou, Kostas Karpouzis, Minas Pertselakis, Nicolas Tsapatsoulis, and Stefanos Kollias</i>	
Locating Text in Historical Collection Manuscripts	476
<i>Basilios Gatos, Ioannis Pratikakis, and Stavros J. Perantonis</i>	
Semi-automatic Extraction of Semantics from Football Video Sequences ..	486
<i>Vassilis Tzouvaras, Giorgos Stamou, and Stefanos Kollias</i>	

Invited Session: Intelligent Virtual Environments

Agents and Affect: Why Embodied Agents Need Affective Systems	496
<i>Ruth S. Aylett</i>	
Synthetic Characters with Emotional States	505
<i>Nikos Avradinis, Themis Panayiotopoulos, and Spyros Vosinakis</i>	
Control and Autonomy for Intelligent Virtual Agent Behaviour	515
<i>Daniel Thalmann</i>	
Reflex Movements for a Virtual Human: A Biology Inspired Approach	525
<i>Mario Gutierrez, Frederic Vexo, and Daniel Thalmann</i>	
Integrating miniMin-HSP Agents in a Dynamic Simulation Framework....	535
<i>Miguel Lozano, Francisco Grimaldo, and Fernando Barber</i>	
Author Index	545