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# Methods and Applications of Artificial Intelligence

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# 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

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 Panayiotopoulos

# Organization

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