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IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

> *IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.*

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

Harris Papadopoulos
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Artificial Intelligence Applications and Innovations

6th IFIP WG 12.5 International Conference, AIAI 2010
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Proceedings

Springer

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Preface

The abundance of information and increase in computing power currently enable researchers to tackle highly complicated and challenging computational problems. Solutions to such problems are now feasible using advances and innovations from the area of Artificial Intelligence. The general focus of the AIAI conference is to provide insights on how Artificial Intelligence may be applied in real-world situations and serve the study, analysis and modeling of theoretical and practical issues.

This volume contains papers selected for presentation at the 6th IFIP Conference on Artificial Intelligence Applications and Innovations (AIAI 2010) and held in Larnaca, Cyprus, during October 6–7, 2010. IFIP AIAI 2010 was co-organized by the University of Cyprus and the Cyprus University of Technology and was sponsored by the Cyprus University of Technology, Frederick University and the Cyprus Tourism Organization. AIAI 2010 is the official conference of the WG12.5 "Artificial Intelligence Applications" working group of IFIP TC12, the International Federation for Information Processing Technical Committee on Artificial Intelligence (AI).

AIAI is a conference that grows in significance every year attracting researchers from different countries around the globe. It maintains high quality, standards and welcomes research papers describing technical advances and engineering and industrial applications of intelligent systems. AIAI 2010 was not confined to introducing how AI may be applied in real-life situations, but also included innovative methods, techniques, tools and ideas of AI expressed at the algorithmic or systemic level.

The AIAI 2010 conference encouraged the submission of research papers describing prototypes, innovative systems, tools and techniques of AI, as well as applications of AI in real-world problems. General survey papers indicating future directions and professional work-in-progress reports were also of equal interest. The response to the call for papers was quite satisfactory, with 111 papers initially submitted and 48 finally accepted for presentation after peer reviewing of each paper by at least two referees; where needed, a third referee was consulted to resolve any reviewing conflicts. The acceptance rate of the AIAI 2010 conference was 43%, while the authors of accepted papers came from 16 countries. The collection of papers included in this volume of proceedings offers the latest advances in the AI field and describes innovative applications of AI on a number of challenging issues and real-life situations. Therefore, the proceedings of AIAI 2010 will be useful not only to researchers of the AI field but also to IT professionals and consultants, as well as to the general scientific community, that are interested in new technologies of the artificial world and their practical applications/benefits.

Three keynote speakers were invited to lecture about innovative and state-of-the-art subjects in AI:

1. Zbigniew Michalewicz, University of Adelaide, Adelaide, Australia. Title of the talk: "How Artificial Intelligence May Be Applied in Real World Situations."
2. Alexander Gammerman, Royal Holloway, University of London, UK. Title of the talk: "Modern Machine Learning Techniques and Their Applications to Medical Diagnostics."
3. Masoud Mohammadian, Faculty of Information Sciences and Engineering, University of Canberra ACT 2601. Title of the talk: "Innovative Applications of Artificial Intelligence Techniques in Software Engineering."

The AIAI 2010 conference consisted of the following main thematic sessions:

- Machine Learning
- Fuzzy Logic Techniques
- Evolutionary Computation
- Medical Informatics and Biomedical Engineering
- Text Mining and Natural Language Processing
- Knowledge Representation and Reasoning
- Planning and Scheduling
- Feature Selection and Dimensionality Reduction
- Engineering Intelligent Systems
- Intelligent User Environments and HCI
- Environmental Modeling

Additionally, the technical program featured one workshop and two tutorials that covered advances on AI and applications in various areas, including Software Engineering, Multi-Agent Technologies and Information Detection.

The wide range of topics covered, the high quality of contributions and the innovative ideas proposed by the authors guaranteed a successful conference. We would like to express our thanks to the Program Committee Chair, Lazaros Iliadis, the Workshops Chair, Nicos Mateou and the Tutorials Chair, Anastasios Sofokleous. Special thanks are also due to the Proceedings Co-editors, Efthyvoulos Kyriakou and Ilias Maglogiannis.

Andreas S. Andreou
Harris Papadopoulos

In Memoriam

On 9th August 2010 the Department of Computer Science at the University of Cyprus was filled with profound sadness following the news of the untimely death of one of its most beloved undergraduate students, Polyvios Polyviou. Polyvios was part of the AIAI 2010 team and played an active role in the creation and maintenance of the conference's website. Though we are forced to say goodbye to him, his courage and fighting spirit will forever remind us to never submit nor surrender in hard times.

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