Preface

"What I cannot create I do not understand."
Richard P. Feynman

The success of engineering work depends on the recognition and use of several synergic factors. While the analytic approach is the key to solving some well-defined subproblems, creativity helps us to free ourselves of prejudices and to find useful analogies. Moreover, critical thinking opens up the way to argumentation with inexact premises and rules. While engineering is based on such complex mental features, it is perhaps more transparent than some other human activities: its world is that of man-made artifacts that should be useful in a broad sense of the word.

This leads us to our belief that in consideration of the advancements in *Engineering of Intelligent Systems* one may have a proper view of the state of research in the whole of Artificial Intelligence (AI). Knowledge gleaned here is valid not only in this particular application area but provides valuable hints to all perspectives of AI theory and its potential for solving other problems as well.

Having recognized the above features of engineering problem solving, the *International Society of Applied Intelligence (ISAI)*, more than a decade ago, initiated a series of conferences named *Industrial & Engineering Applications of Artificial Intelligence & Expert Systems (IEA/AIE)*. The Hungarian AI community was honored by the invitation of the ISAI to organize and host the IEA/AIE 2001 conference (June 4–7, 2001, Budapest, Hungary), which is the 14 th in the series.

The Call for Papers announcement attracted many researchers and engineers from all over the world. A total of 140 papers was submitted and 104 – representing all continents – were selected for presentation at this conference and are included in these proceedings. Main areas of the AI research and different application domains are represented in the papers that are arranged in conference sections / book chapters as follows: Search, Knowledge Representation, Model-Based Reasoning, Machine Learning, Data Mining, Soft Computing, Evolutionary Algorithms, Distributed Problem Solving, Expert Systems, Pattern and Speech Recognition, Vision, Language Processing, Planning and Scheduling, Robotics, Autonomous Agents, Design, Control, Manufacturing Systems, Finance and Business, Software Engineering, and Tutoring.

In addition to ISAI, the main sponsor of the conference, our special thanks are due to the American Association for Artificial Intelligence (AAAI); the Association for Computing Machinery (ACM/SIGART); the Canadian Society for Computational Studies of Intelligence (CSCSI); the European Coordinating Committee for Artificial Intelligence (ECCAI); the European Research Consortium for Informatics and Mathematics (ERCIM); the Hungarian Academy of Sciences (HAS); the Institution of Electrical Engineers (IEE); the International Neural

Network Society (INNS); the Japanese Society of Artificial Intelligence (JSAI); the Ministry of Education, Hungary (OM); and the Southwest Texas State University (SWT) who all supported the 14th IEA/AIE conference.

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March 2001   László Monostori
                                                                                        József Váncza
                                                                                          Moonis Ali

Organization

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