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Preface

This book contains 22 long papers and 13 short ones which have been selected for the Scientific Track of the Third Congress of the Italian Association for Artificial Intelligence. Long papers are intended to report completed work, whereas short papers are mainly devoted to ongoing research. The Program Committee has strictly enforced the rule that only original and unpublished work can be considered for inclusion in the Scientific Track.

The papers report on significant work carried out in the different subfields of Artificial Intelligence, not only in Italy, but also in other European countries as well as outside Europe. Although the congress is organized by the Italian Association for Artificial Intelligence, it has a truly international character because of the invited speakers (Prof. Tom Mitchell, CMU, USA, Prof. Jean-Paul Barthes, Université de Technologie de Compiegne, France, Dr. Bernhard Nebel, DFKI, Germany), the number of papers presented by foreign authors, and the large number of submissions (roughly 40% of the total) coming from abroad.

The Program Committee had a hard job in evaluating the manuscripts submitted for publications since for most papers three independent reviews have been obtained (in some cases four).

Therefore, we believe that the book is a relevant source of information for understanding which are the currently active areas of research and the new promising directions in the AI field. Even if a single book cannot provide a complete picture of what is going on in AI (for example the areas of Perception and Vision, Qualitative Reasoning and Distributed Artificial Intelligence are somewhat underrepresented with respect the amount of activity carried on in Italy), some directions can be singled out.

Areas such as Automated Reasoning, Knowledge Representation and Natural Language (which have a well-established tradition in Italy) continue to attract significant amount of interest.

Machine Learning has recently attracted a lot of attention (not only among Italian scientists): the area has matured rapidly and a variety of approaches are currently being investigated, ranging from logical approaches (such as in Inductive Logic Programming) to numeric ones (as in genetic algorithms). This variety of approaches is well documented in the papers collected in the book.

Connectionism (or, more generally, subsymbolic approaches) has recently attracted significant interest within the AI community. In the book the application of subsymbolic approaches to perception and vision as

well as to quite different problems is documented. Moreover, a increasing attention is being paid to the mechanisms for integrating symbolic and subsymbolic methods.

Inspecting the contents of the book, a growing interest for an explicit representation of time is apparent. The capability of developing an explicit representation of time and the need of performing temporal reasoning in an efficient way is relevant not only in the area of knowledge representation, but also in planning, robotics and reasoning about physical systems.

In achieving the goal of organizing a congress of high scientific level, the contribution and the efforts of many persons have to be acknowledged: beside authors, the Program Committee members and the referees (whose names are listed in the following pages) deserve my gratitude.

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Torino, July 1993

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