

Lecture Notes in Artificial Intelligence

992

Subseries of Lecture Notes in Computer Science

Edited by J. G. Carbonell and J. Siekmann

Lecture Notes in Computer Science

Edited by G. Goos, J. Hartmanis and J. van Leeuwen

Marco Gori Giovanni Soda (Eds.)

Topics in Artificial Intelligence

4th Congress of the Italian Association
for Artificial Intelligence AI*IA '95
Florence, Italy, October 11-13, 1995
Proceedings



Springer

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Cataloging-in-Publication Data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

Topics in artificial intelligence : Florence, Italy, October 11 - 13, 1995 ; proceedings / Marco Gori ; Giovanni Soda (ed.). - Berlin ; Heidelberg ; New York ; Barcelona ; Budapest ; Hong Kong ; London ; Milan ; Paris ; Tokyo : Springer, 1995

(Lecture notes in computer science ; Vol. 992 : Lecture notes in artificial intelligence) (... conference of the Italian Association for Artificial Intelligence, AIIA ; 4)

ISBN 3-540-60437-5

NE: Gori, Marco [Hrsg.]; 1. GT; Italian Association for Artificial Intelligence: ... congress of ...

CR Subject Classification (1991): I.2

ISBN 3-540-60437-5 Springer-Verlag Berlin Heidelberg New York

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© Springer-Verlag Berlin Heidelberg 1995
Printed in Germany

Typesetting: Camera ready by author
SPIN 10485804 06/3142 - 5 4 3 2 1 0 Printed on acid-free paper

Preface

This book collects the 43 (31 long and 12 short) papers that have been selected for the scientific track of the Fourth Congress of the Italian Association for Artificial Intelligence. In the selection of the papers, the Program Committee has selected long papers from contributions presenting more complete work and short papers from those reporting ongoing research or results whose presentation could be kept short.

The papers have been distributed into 10 specific topics and report significant research, with a truly international character, in the most attractive fields of artificial intelligence.

Besides consolidated and traditional topics, with a well-established tradition in Italy, such as knowledge representation, automated reasoning, natural language processing, machine learning, and robotics and planning, there are papers on cognitive models, distributed artificial intelligence, connectionist models, model based reasoning, and fuzzy systems. We warmly encourage a rich and profitable interaction among these areas, and we welcome the presence of new approaches as a sign of liveliness in the research on artificial intelligence. Although the presence of papers on apparently loosely related topics requires different formalisms and theoretical background, we are confident that many intriguing aspects involving artificial intelligence lie in these differences.

Inspecting the book we can see significant interest in natural language processing, machine learning, knowledge representation, robotics and planning, which are all topics for which two sessions are reserved in the congress. The highest number of papers is in machine learning, an area that has been receiving growing attention, and that is also likely to interact strongly with emerging models based on neural networks and fuzzy systems.

Although far from representing a comprehensive volume on artificial intelligence research, we believe that this book gives a clear picture of most interesting active areas and most promising directions in the field.

Finally, we warmly acknowledge the financial support of the Consiglio Nazionale delle Ricerche (Comitato Scienze d'ingegneria e Architettura e Comitato Scienze e Tecnologia dell'informazione) for having partially covered the publication of this book.

Florence, July 1995

Marco Gori and Giovanni Soda

Foreword

The Congress of the Italian Association for Artificial Intelligence is a traditional calendar event in the field of artificial intelligence for both researchers interested in methodological aspects and practitioners involved in applications. The congress is the most relevant Italian event in the field of artificial intelligence and receives the attention of many researchers from different countries.

The fourth meeting, this year, is held in Florence and is organized into 14 scientific tracks with 43 papers and one application track with 5 papers.

In addition to the contributed papers collected in this book, the program includes invited talks and tutorials covering advanced topics. Invited speakers are Robert Milne of the Intelligent Applications Ltd (Scotland) and Jude Shavlik of the University of Wisconsin (USA), who give talks on building intelligent applications and on the integration of symbolic and connectionist models, respectively.

Two additional workshops are scheduled with the purpose of illustrating significant applications in the field of artificial intelligence. The first one deals with the role of knowledge-based technologies in management, while the second one covers the application of artificial intelligence to public administration. These workshops have been mainly conceived for potential users of artificial intelligence technologies so as to stimulate active interactions with them. I am confident that such interactions are fundamental to building significant applications, and that they are also likely to provide a useful feedback to theoretical investigations.

Many people have contributed in different ways to the success of the congress. First of all, the members of the Program Committee who efficiently handled the reviewing of the 101 submitted papers for the scientific track. They provided three in-depth reviews for each manuscript by relying on the support of valuable reviewers. The Organizing Committee worked hard to solve all typical problems related to local arrangements. I thank them all very much for their support.

Special thanks go to Piero Torasso, who chaired the last edition of the congress, for his valuable support in solving of a number of different problems arising during the organization.

The last word is for Marco Gori and Elisabetta Grazzini who have shared with me all the problems related to the arrangement of the events of the congress.

Florence, July 1995

Giovanni Soda, AI*IA95 Program Chairman

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