

BIBLIOTHEQUE DU CERIST

ADVANCES IN ARTIFICIAL INTELLIGENCE

edited by
TIM O'SHEA

North-Holland

Sixth European Conference on
Artificial Intelligence, ECAI-84
Pisa, Italy, September 5-7, 1984

Organised under the auspices of
The European Coordinating Committee for
Artificial Intelligence

Sponsored by
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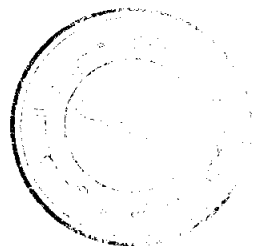
Tim O'SHEA
The Open University
Milton Keynes
United Kingdom



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for the European Coordinating Committee for Artificial Intelligence



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PREFACE

This book is an edited version of the Proceedings of the Sixth European Conference on Artificial Intelligence held in Pisa in September, 1984. The conference was organised under the auspices of the European Co-ordinating Committee for Artificial Intelligence and sponsored by AICA and AISB.

251 papers were submitted for consideration in 15 different subfields. Each subfield was chaired by an experienced and respected worker in A.I. who received reports on each submission from two referees with appropriate publication records. Papers on which there was not an initial consensus were sent to additional members of the Programme Committee. This Committee was nominated by the various European A.I. societies. The paper selection process depended on considerable work from the Subfield Chairmen, Referees and Programme Committee.

For the purposes of this volume, I have made a selection from the prize-winning papers and the long papers in the Proceedings volume and have organised them into five main general areas, namely, Expert Systems, Robotics and Vision, Cognitive Modelling and Learning, Natural Language and Knowledge Representation. I regret that limitations of space made it impossible to include more of the papers presented at the conference. This selection consists of about 15% of the papers originally submitted.

On the acknowledgements page I have listed all those who helped in the preparation of the conference programme and proceedings. I would like to single out two people, the Programme Secretary, Diane Mason for her patient and heroic contributions to the conference, the proceedings and this edited book, and the General Chairman, Stefano Cerri who ensured that the whole event was carried out with tremendous flair, efficiency and style.

Tim O'Shea
Programme Chairman,
SIXTH European Artificial Intelligence Conference.

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ACKNOWLEDGEMENTS

Subfield Chairmen

L. Aiello (Rome) - Theorem Proving
 G. Albers (Karlsruhe) - Industrial Applications
 P. Ambler (Edinburgh) - Robotics
 W. Bibel (Munich) - Automatic Programming
 M. Boden (Brighton) - Philosophical Implications
 J. Breuker (Amsterdam) - Cognitive Modelling
 H. Coelho (Lisbon) - Knowledge Representation
 P. Greussay (Paris) - System Support
 G. Hagert (Uppsala) - Learning
 G. Koch (Copenhagen) - Logic Programming
 J. Laubsch (Stuttgart) - Lisp Systems
 C. Mellish (Brighton) - Natural Language
 B. Neumann (Hamburg) - Vision
 M. Somalvico (Milan) - Planning and Search
 L. Steels (Brussels) - Expert Systems

Other Members of Programme Committee

E. Sára (Milan), J. de Bruin (Amsterdam), I. Futo (Budapest), W. Horn (Vienna)
 J-P. Jounnaud (Nancy), D. Kayser (Paris), R. Mantaras (Barcelona), R. Mohr (Paris),
 S. Ohlsson (Uppsala), G. Prini (Pisa), P. Ross (Edinburgh), P. Szerdi (Budapest),
 H. Trost (Vienna), K. Vershinin (Kiev), W. Wahlster (Saarbruecken), Y. Wilks
 (Clacton).

Referees

M. Allard, H. Alshawi, P.B. Andersen, G. Attardi, D.P. Barnes, M. Bidoit,
 B. Boguraev, M. Borillo, M.A. Bramer, I. Bratko, M. Bruynooghe, B. Buchberger,
 A. Bundy, S. Busemann, J. Campbell, J. Castaing, R. Chatila, E. Chouraqui,
 M. Cordier, E.J.F. Costa, D. Davies, J. Doran, W. Dzida, E. Eder, M. Eisenstadt,
 H. Farreny, A. Feldmann, L. Ferinas del Cerro, R. Fisher, W. Frey, L. Fribourg,
 M. Gehrke, M. Ghallab, A. Giordana, G. Goerz, P.M.D. Gray, H. Grumbach, G. Guida,
 J. Hallam, N.W. Hardy, T.A. Harley, J-P. Haton, U. Hein, E. Hollnagel, J. Howe,
 H. Jappinen, H. Kaindl, Y. Kodratoff, L. Konst, K. Koskenniemi, P. Laface,
 M. Latombe, J-P. Laurent, M. Lee, A. Lux, R.L. de Mantaras, H. Marburger,
 A. Martelli, B. Mayoh, L. Mero, K. Morik, J. Mudler, F. Nef, R. Nossun, H-J. Novak,
 L. Ny, J.J. Ohlbach, H. Pain, G. Papou, J. Pitrat, G.S. Pospelow, A. Ramsay,
 U. Reyle, C. Rohrer, M. Rosner, A. Schubert, J. Siekmann, B. Silver, F. Sirovich,
 A. Sloman, I. Steinacker, H. Tropic, H. Trost, J. Virbel, M. Yazdani, R. Young,
 G.P. Zarri, Z. Zdrahal.

Logistic Support and Practical Help

Olwyn Wilson, Coral Long, Frances Thomas, Carole Fulcher, Debbie Skeats, Kim
 Curtis, Christine Love, Jonathan Davies, Tim Rajan, John Domingue, Tony Hasemer,
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BIBLIOTHEQUE DU CERIST

CONTENTS

Preface	v
Acknowledgements	vii
EXPERT SYSTEMS	
Interpretation of Verbal Data for Knowledge Acquisition B.J. Wielinga and J.A. Breuker	3
An Intelligent Front End for Ecological Modelling M. Uschold, N. Harding, R. Muetzelfeldt, and A. Bundy	13
ESTRAC-II: An Expert System for Train Traffic Control in Disturbed Situations S. Araya and K. Fukumori	23
SESAM: An Explanatory Medical Aid System P. Ferrand	33
On When Diagnostic Systems Want to Do Without Causal Knowledge G. Kahn	41
Personal Construct Theory and the Transfer of Human Expertise J.H. Boose	51
AI-SPEAR: Computer System Failure Analysis Tool M.A. Billmers and M.W. Swartwout	61
Diagnostic Expertise and Its Use in Commercially Viable Expert Systems S. Hayward	71
ROBOTICS AND VISION	
The Mechanic's Mate M. Brady, P.E. Agre, D.J. Braunegg, and J.H. Connell	79
On Detecting Collisions Between Polyhedra J. Canny	95
3D Solutions to the Aperture Problem B.F. Buxton, H. Buxton, D.W. Murray, and N.S. Williams	105
Learning Stiffness Control for Compliant Motion P.K. Bose	115

The Smoothest Velocity Field and Token Matching Schemes A.L. Yuille	127
COGNITIVE MODELLING AND LEARNING	
From Descriptions to Images: What Reasoning in Between? G. Adorni, M. Di Manzo, and F. Giunchiglia	139
A Powerful Prolog Trace Package M. Eisenstadt	149
Using Memory in Text Understanding M. Lebowitz	159
The Role of Distributed Memory in Natural Language Parsing J.M. Slack	169
Modeling Mental Models: Experiments in Cognitive Modeling of Spatial Reasoning G. Hagert	179
MacSolo/AURAC: A Programming Environment for Novices T. Hasemer	189
RADAR: Reasoning on ADA Rubbish S.A. Cerri, C. Colombini, M. Grillo, and R. Mallozzi	199
An Analysis of a Simple Learning System N. Seel	209
A General Selection Criterion for Inductive Inference M.P. Georgeff and C.S. Wallace	219
Careful Generalization for Concept Learning Y. Kodratoff, J.G. Canascia, B. Clavieras, T. Bollinger, and G. Tecuci	229
Use of Derivation Trees in Discrimination P.B. Brazdil	239
Novice Physics Problem Solving Behaviour E. Scanlon, C. Hawkrige, R. Evertsz, and T. O'Shea	245
NATURAL LANGUAGE	
A Model of Action that Supports Natural Language Database Update S. Salveter	257
Speech Transcription: An Incremental, Interactive Approach H. Thompson	267
Plan Formation and Failure Recovery in Communicative Acts G. Airenti, B.G. Bara, and M. Colombetti	275
Simulating a Turing Machine Using Functional Unification Grammar G. Ritchie	285
Ace: Associating Language with Meaning P.S. Jacobs and L.F. Rau	295

A Set-Oriented Semantic Network Formalism for the Representation of Sentence Meaning J.-L. Binot	305
Default Reasoning in Anaphora Resolution B. Dunin-Kępicz	315
Parsing an Inflectional Free Word Order Language with Two-Way Finite Automata E. Nelimarkka, H. Jäppinen, and A. Lehtola	325
KNOWLEDGE REPRESENTATION	
DAL - A Logic for Data Analysis L. Farinas-del-Cerro and E. Orłowska	337
A Prolog Meta-Interpreter for Partial Evaluation and Its Application to Source to Source Transformation and Query-Optimisation R. Venken	347
The Successive SA* Search and Its Computational Complexity Ling Zhang and Bo Zhang	357
The Ubiquitous Dialectic E.L. Rissland	367
Reveur 4: A System for Validating Conditional Algebraic Specifications of Abstract Data Types J.L. Remy and Hantao Zhang	373
Unification in Many-Sorted Theories C. Walther	383
A New Data-Structure for Type Trees R.A. O'Keefe	393
Nonmonotonic Logic for Default Theories W. Łukaszewicz	403
Metalanguage and Reasoning Across Viewpoints G. Attardi and M. Simi	413
Author Index	423