

Lecture Notes in Artificial Intelligence

1303

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

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Gerhard Brewka Christopher Habel
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KI-97: Advances in Artificial Intelligence

21st Annual German Conference
on Artificial Intelligence
Freiburg, Germany, September 9-12, 1997
Proceedings



Springer

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Cataloging-in-Publication Data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

Advances in artificial intelligence : proceedings / KI-97, 21th Annual German Conference on Artificial Intelligence, Freiburg, Germany, September 9 - 12, 1997. Gerhard Brewka ... (ed.). - Berlin ; Heidelberg ; New York ; Barcelona ; Budapest ; Hong Kong ; London ; Milan ; Paris ; Santa Clara ; Singapore ; Tokyo : Springer, 1997

(Lecture notes in computer science ; Vol. 1303 : Lecture notes in artificial intelligence)
ISBN 3-540-63493-2

CR Subject Classification (1991): I.2

ISBN 3-540-63493-2 Springer-Verlag Berlin Heidelberg New York

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- Printed in Germany

Typesetting: Camera ready by author
SPIN 10545921 06/3142 - 5 4 3 2 1 0 Printed on acid-free paper

Preface

This volume contains the invited contributions, accepted papers and poster presentations of the 21st German Artificial Intelligence Conference, KI-97, held in Freiburg, Sept. 9–12, 1997.

In recent years the German AI conference has turned from a more local event which remained almost unnoticed outside Germany into a meeting of international character attracting submissions from all over the world. This trend has continued this year: we have received about 70 submissions from many different countries including Austria, Brazil, Finland, France, Hungary, India, Italy, Mexico, the Netherlands, Norway, Spain, Romania, UK, Ukraine, USA, and Yugoslavia. We believe that this is at least partly due to the excellent international reputation of German AI research.

The program committee selected 26 contributions in the full paper category and 10 contributions in the poster category for presentation at the conference. In addition, three of the leading international researchers in the field were invited to present their recent work. In his contribution *Anthony Cohn* (Leeds) investigates qualitative methods for spatial reasoning. These methods are based on advanced philosophical logics, and the calculi developed by Cohn are highly relevant for a number of applications, such as geographical information systems, to name an example. *Kurt Konolige* (Stanford), well known for his fundamental work on epistemic and nonmonotonic logics, presents new results on multi-agent systems which are particularly relevant for robotics. *Pat Langley* (Palo Alto) discusses machine learning methods for adaptive advisory systems. His work demonstrates how AI methods can successfully be combined with user modeling approaches that have their roots in cognitive psychology.

The invited and accepted contributions cover a large variety of different AI topics: advances in the logical foundations of AI, new deduction methods, reasoning about action, spatial reasoning, diagnosis, search, computational linguistics, robotics, computer vision, and neural networks. Moreover, much of the work contained in this volume clearly demonstrates that different AI methods – which often have been considered as competing – can support each other in an extremely fruitful manner and thus should be integrated. A very good example is the paper

M. Haag, W. Theilmann, K. Schäfer, H.-H. Nagel,
Integration of image sequence evaluation and fuzzy metric temporal logic
programming

This paper was selected by the program committee for the Springer best paper award. The authors show that considerable advances in the interpretation of image sequences can be achieved through the integration of techniques from image processing, logic programming, and fuzzy reasoning. We would like to congratulate the authors for this excellent piece of work.

As usual, there is a large number of people who helped to make the conference a success. First of all, we would like to thank the members of the program committee and the reviewers for the tremendous work they had to do in an

extremely short period of time. All reviews arrived in time, many hours were spent discussing difficult cases, and we strongly believe that a fair decision was reached in each case. Of course, there could be no conference without submissions and we also thank all authors – successful or not – for submitting to KI.

Thanks also go to the many people who helped organize the conference, in particular to our excellent organization team headed by Christine Harms and Andrea Hemprich. It was fun to work with them.

We would also like to thank our sponsors Daimler Benz, Sun Microsystems, Infix Verlag, SICK, Valtech-IO, and Springer-Verlag. Springer not only provided the best paper award but also made producing these proceedings a rather easy undertaking. Special thanks to Alfred Hofmann for supporting the editors whenever a problem came up.

Finally, we thank Steffen Lange, Leipzig, for his help in producing the final version of these proceedings.

July 1997

Gerhard Brewka
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KI-97

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