

(AI EDAM)

ARTIFICIAL INTELLIGENCE FOR ENGINEERING DESIGN, ANALYSIS AND MANUFACTURING

Editor Clive L. Dym

VOLUME 6

ACADEMIC PRESS

Harcourt Brace Jovanovich, Publishers

London San Diego New York Boston
Sydney Tokyo Toronto

ISSN 0890-0604

Author Index

Bicharra Garcia, A. C. and Howard, H. C. Acquiring design knowledge through design decision justification	59
Bond, A. H. A predicate logic approach to CAD/CAM modeling	39
Books	123
Chen, C. L. P., see Westhoven, T. E.	177
Chou, Y.-C. A theoretical framework for automatic layout of machining fixtures	111
Cost, T. L., see Hofmann, M. O.	131
Dimitropoulos, A. Deriving a construct from site specific data: a knowledge level analysis	163
Egilmez, K. and Kim, S. H. Deployment of robotic agents in uncertain environments: game theoretic rules and simulation studies	1
Esterline, A. and Kota, S. A general paradigm for routine design—theory and implementation	73
Finn, D. P., Hurley, N. J. and Sagawa, N. AI-DEQSOL. A knowledge-based environment for numerical simulation of engineering problems described by partial differential equations	199
Hayes-Roth, B., see Tommelein, I. D.	19
Hofmann, M. O., Cost, T. L. and Whitley, M. Model-based diagnosis of the space shuttle main engine	131
Howard, H. C., see Bicharra Garcia, A. C.	59
Hurley, N. J., see Finn, D. P.	199
Kim, S. H. see Egilmez, K.	1
Kota, S., see Esterline, A.	73
LeClair, S. R., see Westhoven, T. E.	177
Lee, H., Williams, J. S. and Tannock, J. Knowledge-based inspection planning	149
Levitt, R. E., see Tommelein, I. D.	19
Pao, Y.H., see Westhoven, T. E.	177
Sagawa, N., see Finn, D. P.	199
Soo, V.-W. and Wang, T.-C. Integration of qualitative and quantitative reasoning in iterative parametric mechanical design	95
Tannock, J., see Lee, H.	149
Tommelein, I. D., Hayes-Roth, B. and Levitt, R. E. Altering the SightPlan knowledge-based systems .	19
Wang, T.-C., see Soo, V.-W.	95
Westhoven, T. E., Chen, C. L. P., Pao, Y.-H. and LeClair, S. R. Episodal associative memory approach for sequencing interactive features in process planning	177
Whitley, M., see Hofmann, M. O.	131
Williams, J. S., see Lee, H.	149

Volume 6, No. 1

Egilmez, K. and Kim, S. H. Deployment of robotic agents in uncertain environments: game theoretic rules and simulation studies	1
Tommelein, I. D., Hayes-Roth, B. and Levitt, R. E. Altering the SightPlan knowledge-based systems .	19
Bond, A. H. A predicate logic approach to CAD/CAM modeling	39
Bicharra Garcia, A. C. and Howard, H. C. Acquiring design knowledge through design decision justification	59

Volume 6, No. 2

Esterline, A. and Kota, S. A general paradigm for routine design—theory and implementation	73
Soo, V.-W. and Wang, T.-C. Integration of qualitative and quantitative reasoning in iterative parametric mechanical design	95
Chou, Y.-C. A theoretical framework for automatic layout of machining fixtures	111
Books	123

Volume 6, No. 3

Hofmann, M. O., Cost, T. L. and Whitley, M. Model-based diagnosis of the space shuttle main engine	131
Lee, H., Williams, J. S. and Tannock, J. Knowledge-based inspection planning	149
Dimitropoulos, A. Deriving a construct from site specific data: a knowledge level analysis	163
Westhoven, T. E., Chen, C. L. P., Pao, Y.-H. and LeClair, S. R. Episodal associative memory approach for sequencing interactive features in process planning	177
Finn, D. P., Hurley, N. J. and Sagawa, N. AI-DEQSOL. A knowledge-based environment for numerical simulation of engineering problems described by partial differential equations	199

(*AI EDAM*): *Artificial Intelligence for Engineering Design, Analysis and Manufacturing* is a journal intended for engineers and designers who see artificial intelligence technologies as powerful tools for handling difficult engineering problems and for research workers in artificial intelligence and computer science who are interested in applications of artificial intelligence and in the theoretical issues that arise from such applications. The Editor is particularly seeking articles that develop new and interesting applications based on the most up-to-date research in chemical, civil, industrial and mechanical (i.e. non-VLSI) engineering. Specifically,

the Journal is interested in the use of artificial intelligence in planning, design, finite element analysis, simulation, spatial reasoning and graphics, process planning, optimization and manufacturing. Areas of special interest include: expert (knowledge-based) systems, including knowledge acquisition and representation, control, and system architectures; spatial reasoning and the integration of graphics and solid modelers; artificial intelligence languages and machines, including exploratory programming environments and expert system shells.

INSTRUCTIONS FOR AUTHORS

Submission of manuscripts

Three (3) copies of articles, in English, should be submitted to the Editor. Research briefs and books for review should be submitted to the appropriate section editor.

Typescripts

Paper should be typed in *double* spacing throughout, including tables, footnotes, references and legends to tables and figures. One side of the paper, only, should be used and there should be a margin of at least 2.5 cm all round. The position of tables and figures should be clearly indicated, in sequence, in the text. Tables, footnotes and legends to figures should be typed separately. Where it is essential for clear cross-referencing, particularly in mathematically-orientated material, paragraphs and subparagraphs may be numbered, and the decimal system should be used, i.e. 1.1.1., 1.1.2., etc. A short running title of not more than 40 characters (including spaces) should be indicated if the full title is longer than this. The name of the laboratory where the work has been carried out should be indicated on the title page and the full postal address for the despatch of proofs and offprints should be included on a separate page. Photocopies of typescripts will not be accepted for publication. For refereeing purposes only, good photocopies may be submitted. Upon acceptance of the manuscript the top copy and the original illustrations should be submitted for publication.

Abstract

An abstract will be printed at the head of all papers: this should not exceed 300 words, and should be intelligible to the general reader without reference to the main text. Abbreviations should be avoided.

Author biographies

Brief author biographies will be printed at the end of each paper: they should not exceed 100 words for each author.

Conventions

References should be listed alphabetically by first author at the end of the paper. All authors' names should be given, followed by the year of publication, the full title of the journal, volume, issue number, and inclusive page numbers. For books, the full title should be given, followed by the volume number (if any), page numbers, place of publication and publisher. Citations in the text should read: Brown and

Smith (1973). Where there are more than two authors the citation should read: Brown *et al.* (1973). The convention Brown (1973a), Brown (1973b) should be used where more than one paper by the author(s) has appeared in the same year. Authors are responsible for checking the accuracy of all references and that all references cited in the text also appear in the list of references at the end of the paper. Examples of the style to be used are:

Reyling, G. Jr 1974. Performance and control of multiple multiprocessor systems. *Computer Design* **13**, 81–86.

Enslow, P.H. 1974. *Multiprocessors and Parallel Processing*. New York: John Wiley.

Abbreviations

Customary abbreviations will be accepted and the authors are recommended to employ *Système Internationale* (metric) units. Special and unusual symbols should be clearly identified, especially if handwritten.

Preparation of illustrations

Artwork, preferably no larger than 30 cm × 22 cm, may be submitted in any medium providing that the image is very sharp. When submitting illustrations it should be borne in mind that the page area is 222 mm × 177 mm and that computer output and program listings cannot be reduced by more than 20% before the clarity of the image is affected. Authors are requested to use the reverse side of the printout paper and to ensure that conditions, generally, are such as to assist maximum clarity in reproduction. Photographs will be accepted only if the information cannot be presented easily in any other form. Explanation and keys should, as far as possible, be placed in the legends.

Copyright/offprints

Authors submitting a manuscript do so on the understanding that if it is accepted for publication, exclusive copyright in the paper shall be assigned to the Publisher. In consideration for assignment of copyright, the Publisher will supply 50 offprints of each paper. Further offprints may be ordered at extra cost; the copyright assignment form and offprint order form will be sent with the proofs. The Publisher will not put any limitation on the personal freedom of the author to use material contained in the paper in other works which may be published elsewhere.

Contents

Hofmann, M. O., Cost, T. L. and Whitley, M. Model-based diagnosis of the space shuttle main engine	131
Lee, H., Williams, J. S. and Tannock, J. Knowledge-based inspection planning	149
Dimitropoulos, A. Deriving a construct from site specific data: a knowledge level analysis	163
Westhoven, T. E., Chen, C. L. P., Pao, Y.-H. and LeClair, S. R. Episodal associative memory approach for sequencing interactive features in process planning	177
Finn, D. P., Hurley, N. J. and Sagawa, N. AI-DEQSOL. A knowledge-based environment for numerical simulation of engineering problems described by partial differential equations	199

Indexed and abstracted in *Computer Journal*



0890-0604(199212)6:3:1-6

This journal is printed on acid-free paper
Filmset and printed in Northern Ireland by The Universities Press (Belfast) Ltd.