

The knowledge engineering review

VOLUME 26 NUMBER 3 SEPTEMBER 2011

Contents

- Guest editorial preface: Computational intelligence for neuro-oncological diagnosis
HORACIO GONZÁLEZ-VÉLEZ 243
- A knowledge-rich distributed decision support framework: a case study for brain
tumour diagnosis
DAVID DUPPLAW, MADALINA CROITORU, SRINANDAN DASMAHAPATRA,
ALEX GIBB, HORACIO GONZÁLEZ-VÉLEZ, MIGUEL LURGI, BO HU,
PAUL LEWIS and ANDREW PEET 247
- The design and implementation of a novel security model for HealthAgents
LIANG XIAO, SRINANDAN DASMAHAPATRA, PAUL LEWIS, BO HU,
ANDREW PEET, ALEX GIBB, DAVID DUPPLAW, MADALINA CROITORU,
FRANCESC ESTANYOL, JUAN MARTÍNEZ-MIRANDA,
HORACIO GONZÁLEZ-VÉLEZ and MAGÍLLUCH I ARIET 261
- A generic and extensible automatic classification framework applied to brain
tumour diagnosis in HealthAgents
CARLOS SÁEZ, JUAN MIGUEL GARCÍA-GÓMEZ, JAVIER VICENTE,
SALVADOR TORTAJADA, JAN LUTS, DAVID DUPPLAW,
SABINE VAN HUFFEL and MONTSERRAT ROBLES 283
- The HealthAgents ontology: knowledge representation in a distributed decision
support system for brain tumours
BO HU, MADALINA CROITORU, ROMAN ROSET, DAVID DUPPLAW,
MIGUEL LURGI, SRINANDAN DASMAHAPATRA, PAUL LEWIS,
JUAN MARTÍNEZ-MIRANDA and CARLOS SÁEZ 303
- A Web-accessible distributed data warehouse for brain tumour diagnosis
FRANCESC ESTANYOL, XAVIER RAFAEL, ROMAN ROSET, MIGUEL LURGI,
MARIOLA MIER and MAGÍ LLUCH-ARIET 329
- The development of a graphical user interface, functional elements and
classifiers for the non-invasive characterization of childhood brain tumours
using magnetic resonance spectroscopy
ALEXANDER GIBB, JOHN EASTON, NIGEL DAVIES, YU SUN,
LESLEY MACPHERSON, KAL NATARAJAN, THEODOROS ARVANITIS
and ANDREW PEET 353

Cambridge Journals Online
For further information about this journal
please go to the journal web site at:
journals.cambridge.org/ker

CAMBRIDGE
UNIVERSITY PRESS

The knowledge engineering review

Notes for Contributors

Editorial policy

The Knowledge Engineering Review has been established to provide a general source of information and analysis in all areas relevant to research and development in knowledge based systems and applied artificial intelligence. The editors wish to encourage careful preparation of original papers analysing developments in the field. In particular we wish to see tutorial and survey articles, and commentary, criticism and debate. Primary research papers on specialised technical topics are unlikely to be appropriate but research papers on broad topics such as development methodology or general evaluations of tools and techniques, are of interest. Descriptions of specific projects or particular computer systems will be considered if their presentation draws out general issues in the design, implementation or impact of knowledge based systems.

Submission of manuscripts

Contributions for publication should be submitted as PDF files in an email attachment to either Professor Simon Parsons, Department of Computer and Information Science, Brooklyn College, City University of New York (parsons@sci.brooklyn.cuny.edu) or to Dr Peter McBurney, Department of Computer Science, University of Liverpool, UK (mcburney@liverpool.ac.uk). Submission implies that the manuscript has not been published previously, nor currently submitted for publication elsewhere. Upon acceptance of a manuscript, the author will be asked to transfer copyright to the publisher.

All contributions, whether articles, correspondence or reviews, must be sent in electronic form. Authors are encouraged to provide the final version of the contribution in LaTeX, TeX, or Word format.

Authors using LaTeX should ideally use the KER LaTeX style file which can be obtained using anonymous FTP from the internet address <ftp://ftp.cambridge.org/pub/texarchive/journals/latex/ker-cls>. In case of difficulties obtaining these files, there is a help-line available via e-mail; please contact texline@cup.cam.ac.uk. Tables and figures should be embedded in the article in the usual way, with figures in .eps form, which should be also supplied as separate files.

Contributions should follow the general style of papers in recent issues of The Knowledge Engineering Review. The author is invited to nominate up to five possible referees, who will not necessarily be used.

Articles must be accompanied by a brief, informative rather than indicative, abstract.

If you are not using the ker.cls file, then please adopt the following layout rules. Headings should be set out clearly but not underlined. Primary headings should be in lower case, at margin, with Arabic numeral; subheadings should be numbered 2.a., 2.b., etc., and tertiary headings, 2.a.1., 2.a.2. No cross-references should be given by page number, but 'above' and 'below' should be used with the section specified, e.g. Section 2.a.2. The SI system of units should be used. The author should mark in the margin of the manuscript where figures and tables may be inserted. References to points in larger works should, where possible, quote the page reference, e.g. Ager, 1981, p. 102.

Tables should be typed with double-line spacing on sheets separate from the running text. Each table must have a caption that will make the data in the table intelligible without reference to the text.

Illustrations should be drafted for reproduction as full page (148 mm) width. Originals should normally be drawn at twice final area and must be sent in a flat package; larger drawings may delay publication. Lettering should be of a size so that when reduced the smallest lower-case letters will not be less than about 1 mm. Avoid gross disparities in lettering size on a drawing. Duplicates of illustrations should be sent, and may be prints or, preferably, photocopies reduced to final size. Illustrations in the text, both line drawings and photographs for halftone reproductions, will be referred to as figures (Fig. 2, 2a, etc.). Folding plates will not be accepted. Figures composed of photographs should be glossy prints presented at publication scale. Figure captions must be typed with double-line spacing on sheets separate from the running text.

The preferred graphics package is Freehand 5 but files from many others can be accepted. Please indicate clearly the file format (e.g. TIFF, EPS, DCS, Freehand etc), computer operating system and graphics software used for originating the artwork files. The typefaces used in electronic artwork supplied should be restricted to Monotype, Adobe and Bitstream font libraries. Illustrations should be supplied as EPS files and never as Postscript files, or as the native format files from the graphics package used. They should be accompanied by laser proofs with the name and version number of the graphics package used, and also the names of the fonts used.

References

The accuracy of references is the responsibility of authors. References must be double-spaced and spelt out in full, e.g.:
Gale, W A, ed 1986. *Artificial Intelligence and Statistics*, Reading, Massachusetts: Addison-Wesley.
Pearl, J 1984. *Heuristics. Intelligent search strategies for problem solving*, Reading, Massachusetts: Addison-Wesley.
Tie-Cheng Wang and Bledsoe, W W, 1987. "Hierarchical deduction" *Journal of Automated Reasoning* 3 (1) pp 1–34.
Pau, L F, 1986. "Survey of expert systems for fault detection, test generation and maintenance" *Expert Systems*, 3 (2) pp 100–111.
Unpublished work should normally be referred to in the text parentheses as, for example, 'private communication' or 'unpub. Ph.D. thesis, Univ. London, 1988', and not included in the reference list unless in the press.

Proof Reading:

Typographical or factual errors only may be changed at proof stage. The publisher reserves the right to charge authors for correction of non-typographical errors. No page charge is made.

Offprints:

No paper offprints are provided, but the corresponding author will be sent the pdf of the published article. Print offprints may be purchased at extra cost at proof stage.

© Cambridge University Press 2011

(Revised 11 June 2010)

ISSN 0269-8889

CAMBRIDGE UNIVERSITY PRESS

Published by the Press Syndicate of the University of Cambridge
The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, UK
32 Avenue of the Americas, New York, NY 10013-2473, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

Printed in the United Kingdom by Henry Ling Limited, at the Dorset Press, Dorchester, DT1 1HD

Noteworthy Titles in Knowledge Engineering *from* Cambridge!

Bayesian Reasoning and Machine Learning

David Barber
\$85.00; Hb: 978-0-521-51814-7; 650 pp.

Neuromorphic and Brain-Based Robots

Jeffrey Krichmar,
Hiroaki Wagatsuma
\$110.00; Hb: 978-0-521-76878-8; 368 pp.

Security and Game Theory

Algorithms, Deployed Systems,
Lessons Learned
Milind Tambe
\$70.00; Hb: 978-1-107-09642-4; 328 pp.

Logical Dynamics of Information and Interaction

Johan van Benthem
\$95.00; Hb: 978-0-521-76579-4; 384 pp.

Bayesian Time Series Models

Edited by David Barber,
A. Taylan Cemgil,
Silvia Chiappa
\$80.00; Hb: 978-0-521-19676-5; 450 pp.

Understanding Sponsored Search

Core Elements of
Keyword Advertising
Jim Jansen
\$99.00; Hb: 978-1-107-01197-7; 304 pp.
\$37.99; Pb: 978-1-107-62836-6

Computational Logic and Human Thinking

How to be Artificially Intelligent
Robert Kowalski
\$110.00; Hb: 978-0-521-19482-2; 344 pp.
\$46.00; Pb: 978-0-521-12336-5

Phase Transitions in Machine Learning

Lorenza Saitta,
Attilio Giordana,
Antoine Cornuéjols
\$90.00; Hb: 978-0-521-76391-2; 416 pp.

Machine Ethics

Edited by Michael Anderson,
Susan Leigh Anderson
\$99.00; Hb: 978-0-521-11235-2; 546 pp.

Multibiometrics for Human Identification

Edited by Bir Bhanu,
Venu Govindaraju
\$90.00; Hb: 978-0-521-11596-4; 408 pp.

Basic Electronics for Scientists and Engineers

Dennis L. Eggleston
\$120.00; Hb: 978-0-521-76970-9; 266 pp.
\$65.00; Pb: 978-0-521-15430-7

The Design of Approximation Algorithms

David P. Williamson,
David B. Shmoys
\$55.00; Hb: 978-0-521-19527-0; 516 pp.

Evaluating Learning Algorithms

A Classification Perspective
Nathalie Japkowicz,
Mohak Shah
\$90.00; Hb: 978-0-521-19600-0; 422 pp.

Prices subject to change.



CAMBRIDGE

JOURNALS

Combinatorics, Probability and Computing

Editor-in-Chief

Béla Bollobás, *DPMMS, Cambridge, UK; University of Memphis, USA*

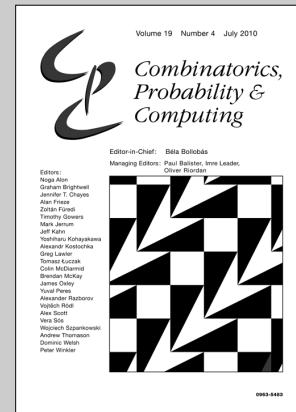
Published bimonthly, *Combinatorics, Probability & Computing* is devoted to the three areas of combinatorics, probability theory and theoretical computer science. Topics covered include classical and algebraic graph theory, extremal set theory, matroid theory, probabilistic methods and random combinatorial structures; combinatorial probability and limit theorems for random combinatorial structures; the theory of algorithms (including complexity theory), randomised algorithms, probabilistic analysis of algorithms, computational learning theory and optimisation.

Price information

is available at: <http://journals.cambridge.org/cpc>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/cpc-alerts>



Combinatorics, Probability and Computing

is available online at:

<http://journals.cambridge.org/cpc>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/cpc>



CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

Robotica

Editor-in-Chief

G. S. Chirikjian, *Johns Hopkins University, USA*

An Official Journal of the
International Federation of Robotics

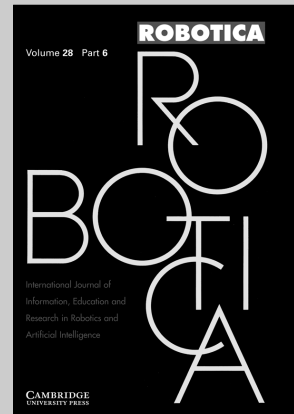
Robotica provides an international forum for the multidisciplinary subject of robotics and encourages developments in this important field of automation with regard to industry, education and research. It covers the many aspects of robotics, including sensory perception, software, kinematics and dynamics involved in robot design, robot task planning and description, intelligibility of skilled motion, applications of robots in the service industries, world model representation, artificial intelligence, development of relevant educational courses, training methods, economic and cost problems and other items of theoretical and practical interest.

Price information

is available at: <http://journals.cambridge.org/rob>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/rob-alerts>



Robotica

is available online at:
<http://journals.cambridge.org/rob>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500
Fax +1 (845) 353 4141
Email
subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/rob>



CAMBRIDGE
UNIVERSITY PRESS