EXPERT SYSTEMS WITH APPLICATIONS
An International Journal

EDITOR-IN-CHIEF
Jay Liebowitz, D.Sc.
Orkand Chair in Management and Technology, University of Maryland University College, Graduate School of Management & Technology

EDITORIAL ADVISORY BOARD

William Agresti
Johns Hopkins University, USA

Roar Fjellheim
Computas A.S., Norway

James L. Rash
NASA Goddard Space Flight Center, USA

E. Balagurusamy
Maharere Academy of Technology and Sciences, India

Kenneth J. Fordyce
IBM, USA

Walter Reitman
Rensselaer Polytechnic Institute, USA

Hans Bergkvist
ATTEXOR S.A., Switzerland

Ernest H. Forman
George Washington University, USA

Daniel Schutzer
Citicorp Investment Bank, USA

Dianne C. Berry
University of Reading, UK

Mark Fox
Toronto, Ontario, Canada

Randall Shumaker
Naval Research Laboratory, USA

Bernt Brendal
GeoKnowledge, Norway

Brian Gaines
University of Calgary, Canada

James R. Slagle
University of Minnesota, USA

Francisco J. Cantu
Instituto Tecnologico y de Estudios Superiores de Monterrey, Mexico

Shri K. Goyal
GTE Laboratories, USA

Dieter Specht
Technische Universitat Cottbus, Germany

John H. Carson
George Washington University, USA

Jae Kyu Lee
Korea Advanced Institute of Science and Technology

Efraim Turban
University of Hawaii at Manoa, USA

John P. Coyne
George Washington University, USA

Dusan Lesjak
International School for Social and Business Studies, Slovenia

I. Burhan Turksen
University of Toronto, Canada

Kimiz Dalkir
McGill University, Canada

Binshan Lin
Louisiana State University in Shreveport, USA

Jan Vanthienen
Catholic University, Leuven, Belgium

Randall Davis
Massachusetts Institute of Technology, USA

Vladimir Milacic
University of Belgrade, Yugoslavia

Richard G. Vedder
University of North Texas, USA

Lance B. Eliot
University of Southern California, USA

A. Desai Narasimhalu
Singapore Management University

Eliot Weinman
Software Productivity, USA

Edward Feigenbaum
Stanford University, USA

Daniel E. O'Leary
University of Southern California, USA

Milton White
Datamatics Inc., USA

Jerald Feinstein
MITRE, USA

Roy Rada
University of Maryland, USA

Jon R. Wright
AT&T Bell Laboratories, USA

James L. Rash
NASA Goddard Space Flight Center, USA

Walter Reitman
Rensselaer Polytechnic Institute, USA

Daniel Schutzer
Citicorp Investment Bank, USA

Randall Shumaker
Naval Research Laboratory, USA

John H. Carson
George Washington University, USA

Dusan Lesjak
International School for Social and Business Studies, Slovenia

I. Burhan Turksen
University of Toronto, Canada

John P. Coyne
George Washington University, USA

Binshan Lin
Louisiana State University in Shreveport, USA

Jan Vanthienen
Catholic University, Leuven, Belgium

Randall Davis
Massachusetts Institute of Technology, USA

Vladimir Milacic
University of Belgrade, Yugoslavia

Richard G. Vedder
University of North Texas, USA

Lance B. Eliot
University of Southern California, USA

A. Desai Narasimhalu
Singapore Management University

Eliot Weinman
Software Productivity, USA

Edward Feigenbaum
Stanford University, USA

Daniel E. O'Leary
University of Southern California, USA

Milton White
Datamatics Inc., USA

Jerald Feinstein
MITRE, USA

Roy Rada
University of Maryland, USA

Jon R. Wright
AT&T Bell Laboratories, USA

Editorial Office: Jay Liebowitz, Orkand Chair in Management and Technology, University of Maryland University College, Graduate School of Management & Technology, 3501 University Boulevard East, Adelphi, Maryland 20783-8038, USA; e-mail: jliebowitz@umuc.edu

Author enquiries: For enquiries relating to the submission of articles (including electronic submission where available) please visit this journal’s homepage at http://www.elsevier.com/locate/eswa. You can track accepted articles at http://www.elsevier.com/tracketarticle and set up e-mail alerts to inform you of when an article’s status has changed. Also accessible from here is information on copyright, frequently asked questions and more.

Contact details for questions arising after acceptance of an article, especially those relating to proofs, are provided after registration of an article for publication.

Publication information: Expert Systems with Applications (ISSN 0957-4174). For 2011, volume 38 (12 issues) is scheduled for publication. Subscription prices are available upon request from the Publisher or from the Elsevier Customer Service Department nearest you or from this journal’s website (http://www.elsevier.com/locate/eswa). Further information is available on this journal and other Elsevier products through Elsevier’s website (http://www.elsevier.com). Subscriptions are accepted on a prepaid basis only and are entered on a calendar year basis. Issues are sent by standard mail (surface within Europe, air delivery outside Europe). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.

Advertising information: If you are interested in advertising or other commercial opportunities please e-mail Commercialsales@elsevier.com and your enquiry will be passed to the correct person who will respond to you within 48 hours.

Orders, claims, and journal enquiries: please contact the Elsevier Customer Service Department nearest you:

St. Louis: Elsevier Customer Service Department, 3251 Riverport Lane, Maryland Heights, MO 63043, USA; phone: (877) 8397126 [toll free within the USA]; (+1) (314) 4478878 [outside the USA]; fax: (+1) (314) 4478077; e-mail: JournalsCustomerServiceUS@elsevier.com

Oxford: Elsevier Customer Service Department, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK; phone: (+44) (1865) 843434; fax: (+44) (1865) 843970; e-mail: JournalsCustomerServiceEMEA@elsevier.com

Tokyo: Elsevier Customer Service Department, 4F Higashi-Azabu, 1-Chome Bldg., 1-9-15 Higashi-Azabu, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5037; fax: (+81) (3) 5561 5047; e-mail: JournalsCustomerServiceJapan@elsevier.com

Singapore: Elsevier Customer Service Department, 3 Killiney Road, #08-01 Winsland House I, Singapore 239519; phone: (+65) 63490222; fax: (+65) 67331510; e-mail: JournalsCustomerServiceAPAC@elsevier.com

USA mailing notice: Expert Systems with Applications (ISSN 0957-4174) is published 10 issues per annum in January, March, April, May, July, August, September, October, November, December by Elsevier Ltd. (The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK). Periodical postage paid at Railway NJ and additional mailing offices.

USA POSTMASTER: Send change of address to Expert Systems with Applications, Elsevier Customer Service Department, 3251 Riverport Lane, Maryland Heights, MO 63043, USA.

AIRFRIGHT AND MAILING in USA by Mercury International Limited, 365 Blair Road, Avenel, NJ 07001.