

LNAI 4140

Jaime Simão Sichman
Helder Coelho
Solange Oliveira Rezende (Eds.)

Advances in Artificial Intelligence – IBERAMIA-SBIA 2006

2nd International Joint Conference:
10th Ibero-American Conference on AI
18th Brazilian AI Symposium
Ribeirão Preto, Brazil, October 2006, Proceedings

TP 18-53
A 791.36
2006

Jaime Simão Sichman Helder Coelho
Solange Oliveira Rezende (Eds.)

Advances in Artificial Intelligence – IBERAMIA-SBIA 2006

2nd International Joint Conference:
10th Ibero-American Conference on AI
18th Brazilian AI Symposium
Ribeirão Preto, Brazil, October 23-27, 2006
Proceedings



Springer



E200604232

Series Editors

Jaime G. Carbonell, Carnegie Mellon University, Pittsburgh, PA, USA
Jörg Siekmann, University of Saarland, Saarbrücken, Germany

Volume Editors

Jaime Simão Sichman
University of São Paulo, Computer Engineering Department
Av. Prof. Luciano Gualberto, tv. 3, 158, 05508-970 São Paulo, SP, Brazil
E-mail: jaime.sichman@poli.usp.br

Helder Coelho
University of Lisbon, Department of Informatics
Edifício C6, Campo Grande, 1749-016 Lisboa, Portugal
E-mail: hcoelho@di.fc.ul.pt

Solange Oliveira Rezende
University of São Paulo, Department of Computer Science
Av. Trabalhador São-Carlense, 400, 13560-970 São Carlos, SP, Brazil
E-mail: solange@icmc.usp.br

Library of Congress Control Number: 2006933826

CR Subject Classification (1998): I.2.6-7, I.2, F.1.1, F.4.2-3, F.2

LNCS Sublibrary: SL 7 – Artificial Intelligence

ISSN	0302-9743
ISBN-10	3-540-45462-4 Springer Berlin Heidelberg New York
ISBN-13	978-3-540-45462-5 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media
springer.com

© Springer-Verlag Berlin Heidelberg 2006
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 11874850 06/3142 5 4 3 2 1 0

Lecture Notes in Artificial Intelligence 4140

Edited by J. G. Carbonell and J. Siekmann

Subseries of Lecture Notes in Computer Science

Preface

The Brazilian Artificial Intelligence (AI) community decided in 2004 to organize an International Joint Conference, joining IBERAMIA 2006 (the 10th Ibero-American Artificial Intelligence Conference), SBIA 2006 (the 18th Brazilian Artificial Intelligence Symposium), and SBRN 2006 (the 9th Brazilian Neural Networks Symposium). This decision was a consequence of the successful event organized in 2000, when the First International Joint Conference IBERAMIA/ SBIA 2000 (7th Ibero-American Artificial Intelligence Conference and 15th Brazilian Artificial Intelligence Symposium) occurred in Brazil. Moreover, in 2006 the artificial intelligence community celebrated the golden anniversary of the 1956 Dartmouth Conference that marked the beginning of artificial intelligence as a research field.

SBIA 2006 was the 18th conference of the SBIA conference series, which is the leading Brazilian conference for the presentation of AI research and applications. Since 1995, SBIA has become an international conference, with papers written in English, an international Program Committee, and proceedings published in Springer's *Lecture Notes in Artificial Intelligence* (LNAI) series.

IBERAMIA 2006 was the 10th conference of the IBERAMIA conference series, which has been one of the most suitable forums for Ibero-American AI researchers (from South and Central American countries, Mexico, Spain and Portugal) to present their results. Following the SBIA and EPIA (Portuguese Conference on AI) experiences, from IBERAMIA 1998 on, it has also become an international conference with proceedings published in Springer's LNAI series.

The International Joint Conference was held in Ribeirão Preto, Brazil, during October 23-27, 2006. The call for papers was very successful. In the registration phase, when the authors were asked to submit just the title and abstract of their papers, 281 submissions were received. In the second phase, 246 authors uploaded their full paper to be reviewed. These submissions came from 23 different countries¹, as shown in Table 1. After the revision process, 62 papers were accepted to be published in these proceedings.

In order to improve the overall quality of this joint conference, a double-blind reviewing procedure was adopted, and the acceptance rate was fixed around 25% of the submitted papers. A large group of reviewers from all content areas was set up to carry out the difficult and challenging work of selecting the papers. Every paper was evaluated by at least three reviewers, and ranked by the JEMS system. Whenever conflicts were found, open discussions among the reviewers were triggered and analyzed later to support our final decision.

The conference included keynote speeches, introductory and advanced tutorials by world-leading researchers, several workshops covering specific topics and a thesis and dissertation contest.

¹ In the case of several authors from different countries, we have considered the first author affiliation.

Table 1. IBERAMIA/SBIA 2006 Paper Submission Summary

Country	Registered	Submitted	Accepted
Argentina	15	14	3
Australia	1	1	1
Brazil	149	128	33
Chile	8	8	2
China	3	3	–
Colombia	1	–	–
Cuba	3	3	3
Ecuador	2	2	–
France	9	9	2
Germany	2	2	–
Italy	1	1	1
Korea	5	5	–
Malaysia	1	1	–
Mexico	44	37	8
Poland	2	2	–
Portugal	8	5	1
Spain	18	17	6
Taiwan	1	1	–
Turkey	2	2	–
UK	1	1	–
Uruguay	1	1	1
USA	1	–	–
Venezuela	3	3	1
Total	281	246	62

We would like to thank all the authors for submitting their papers, as well as all members of the Program Committee and the additional referees for their hard work. The high quality of the papers included in this volume would not be possible without their participation and diligence. We also gratefully acknowledge the help of our colleagues whose support in the organization of this conference was invaluable. Finally, we would like to express our gratitude to Alfred Hofmann and his staff at Springer for giving us again the opportunity to publish the proceedings in the LNAI series.

October 2006

Jaime Simão Sichman
Helder Coelho
Solange Oliveira Rezende

Organization

The International Joint Conference IBERAMIA/SBIA/SBRN 2006 was organized by several AI research groups that belong to the University of São Paulo (USP), Brazil:

1. Instituto de Ciências Matemáticas e de Computação (ICMC)
Departamento de Ciências de Computação (SCE)
Laboratório de Inteligência Computacional (LABIC)
Campus São Carlos
2. Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto (FFCLRP)
Departamento de Física e Matemática (DFM)
Campus Ribeirão Preto
3. Laboratório de Técnicas Inteligentes (LTI)
Departamento de Engenharia de Computação e Sistemas Digitais (PCS)
Escola Politécnica (EP)
Campus São Paulo
4. Instituto de Matemática e Estatística (IME)
Departamento de Ciência da Computação (MAC)
Laboratório de Lógica, Inteligência Artificial e Métodos Formais (LIAMF)
Campus São Paulo
5. Escola de Artes, Ciências e Humanidades (EACH)
Curso de Sistemas de Informação (SI)
Campus São Paulo

Organizing Committee

General Chair

Solange Oliveira Rezende (LABIC/SCE/ICMC)

General Co-chair

Antonio Carlos Roque da Silva Filho (DFM/FFCLRP)

Program Chairs

Jaime Simão Sichman (LTI/PCS/EP, Brazil)

Helder Coelho (LABMAG/DI/FC/UL, Portugal)

Workshop Chair

Maria das Graças Volpe Nunes (LABIC/SCE/ICMC)

Tutorial Chair

Maria Carolina Monard (LABIC/SCE/ICMC)

Local Organization Committee

Alneu de Andrade Lopes (LABIC/SCE/ICMC)
Flavio Soares Correa da Silva (LIAMF/MAC/IME)
Ivandré Paraboni (SI/EACH)
José de Jesus Perez Alcazar (SI/EACH)
Leliane Nunes de Barros (LIAMF/MAC/IME)
Marcelo Finger (LIAMF/MAC/IME)
Renato Tinos (DFM/FFCLRP)
Roseli Aparecida Francelim Romero (LABIC/SCE/ICMC)
Sandra Maria Aluisio (LABIC/SCE/ICMC)
Thiago Alexandre Salgueiro Pardo (LABIC/SCE/ICMC)
Zhao Linag (LABIC/SCE/ICMC)

IBERAMIA Steering Committee

Alvaro Albornoz (ITESM, Mexico)
Arlindo Oliveira (INESC, Portugal)
Carlos Alberto Reyes (INAOE, Mexico)
Christian Lemaitre (UAM, Mexico)
Federico Barber (UPV, Spain)
Francisco Garijo (TI+D, Spain)
Helder Coelho (UL, Portugal)
Jaime Simão Sichman (USP, Brazil)
Miguel Toro (US, Spain)

SBIA Steering Committee

Ana Bazzan (UFRGS, Brazil)
Geber Ramalho (UFPE, Brazil)
Gerson Zaverucha (UFRJ, Brazil)
Guilherme Bittencourt (UFSC, Brazil)
Maria Carolina Monard (USP, Brazil)

Supporting Scientific Societies

SBC	Sociedade Brasileira de Computação
AEPIA	Asociación Española para Inteligencia Artificial
APPIA	Associação Portuguesa para Inteligência Artificial
SMIA	Sociedad Mexicana de Inteligencia Artificial

Sponsoring Institutions

The International Joint Conference 2006 had the financial support of the following Brazilian institutions:

FAPESP	Fundação de Amparo à Pesquisa do Estado de São Paulo
CNPq	Conselho Nacional de Pesquisa
CAPES	Coordenação de Aperfeiçoamento do Pessoal de Nível Superior
FINEP	Financiadora de Estudos e Projetos

Program Committee

Adolfo Guzmán-Arenas	Instituto Politécnico Nacional (Mexico)
Adina Florea	University Politehnica of Bucharest (Romania)
Alberto Oliart	Instituto Tecnológico y de Estudios Superiores de Monterrey (Mexico)
Aldo Dragoni	Università Politecnica delle Marche (Italy)
Alejandro Zunino	Universidad Nac. del Centro de la Pcia. de Buenos Aires (Argentina)
Alexander Gelbukh	Instituto Politécnico Nacional (Mexico)
Alexis Drogoul	Institut de Recherche pour le Développement (France)
Alipio Jorge	Universidade do Porto (Portugal)
Alvaro Albornoz	Instituto Tecnológico y de Estudios Superiores de Monterrey (Mexico)
Amal El Fallah Seghrouchni	Université Paris VI (France)
Ana Bazzan	Universidade Federal do Rio Grande do Sul (Brazil)
Ana Paiva	Universidade Técnica de Lisboa (Portugal)
Ana Serrano	Universidad Nacional EAD (Spain)
Ana Cristina Garcia	Universidade Federal Fluminense (Brazil)
Ana Teresa Martins	Universidade Federal do Ceará (Brazil)
Analia Amandi	Universidad Nac. del Centro de la Pcia. de Buenos Aires (Argentina)

André Carvalho	Universidade de São Paulo (Brazil)
Andre Valente	Knowledge Systems Ventures LLC (USA)
Andrea Omicini	Università di Bologna (Italy)
Angel Kuri	Instituto Tecnológico Autónomo de México (Mexico)
Anna Helena Reali Costa	Universidade de São Paulo (Brazil)
Antônio Rocha Costa	Universidade Católica de Pelotas (Brazil)
Ariadne Carvalho	Universidade de Campinas (Brazil)
Arlindo Oliveira	Instituto de Engenharia de Sistemas e Computadores (Portugal)
Arturo Hernandez Aguirre	Centro de Investigación en Matemáticas (Mexico)
Augustin Lux	Institut National de Recherche en Inform- atique et en Automatique (France)
Augusto Loureiro da Costa	Universidade Federal da Bahia (Brazil)
Brian Mayoh	Aarhus University (Denmark)
Carles Sierra	Institut d'Investigación en Intelligència Artificial (Spain)
Carlos Alberto Reyes	Instituto Nacional de Astrofísica Óptica y Electrónica (Mexico)
Carlos Brizuela	Centro de Investigación Científica y de Ed- ucación Superior de Enseada (Mexico)
Carlos Castro	Universidad Técnica Federico Santa María (Chile)
Carlos Coello	Instituto Politécnico Nacional (Mexico)
Carlos Ribeiro	Instituto Tecnológico da Aeronáutica (Brazil)
Catherine Tessier	Office National d'Etudes et de Recherches Aérospatiales (France)
Catholijn Jonker	Nijmegen Institute for Cognition and Information (The Netherlands)
Celso Kaestner	Pontifícia Universidade Católica-PR (Brazil)
Christian Lemaitre	Universidad Autónoma Metropolitana (Mexico)
Cora Toledo	Laboratorio Nacional de Informática Avanzada (Mexico)
Cristiano Castelfranchi	Istituto di Scienze e Tecnologie della Cognizione (Italy)
David Hales	Università di Bologna (Italy)

Eduardo Fermé	Universidade da Madeira (Portugal)
Eduardo Gomez-Ramirez	Universidad La Salle (Mexico)
Eduardo Morales	Instituto Nacional de Astrofísica Óptica y Electrónica (Mexico)
Elizabeth Sklar	City University of New York (USA)
Emilio Hernandez	Universidade de São Paulo (Brazil)
Emma Norling	Centre for Policy Modelling (UK)
Eric Matson	Wright State University (USA)
Ernesto Costa	Universidade de Coimbra (Portugal)
Estela Bicho	Universidade do Minho (Portugal)
Eugenio Oliveira	Universidade do Porto (Portugal)
Evandro Costa	Universidade Federal de Alagoas (Brazil)
Fábio Cozman	Universidade de São Paulo (Brazil)
Federico Barber	Universidad Politécnica de Valencia (Spain)
Fernando Carvalho	Universidade Federal do Ceará (Brazil)
Fernando Osório	Universidade do Vale do Rio dos Sinos (Brazil)
Flavia Barros	Universidade Federal de Pernambuco (Brazil)
Flávio Soares Corrêa da Silva	Universidade de São Paulo (Brazil)
Flávio Varejão	Universidade Federal do Espírito Santo (Brazil)
François Jacquenet	Université Jean Monnet (France)
Francisco Garijo	Telefonica I+D (Spain)
Frédéric Amblard	Université Toulouse I (France)
Fred Freitas	Universidade Federal de Pernambuco (Brazil)
Gabriel Pereira Lopes	Universidade Nova de Lisboa (Portugal)
Gabriela Henning	Universidad Nacional del Litoral (Argentina)
Gabriela Lindemann	Humboldt University (Germany)
Geber Ramalho	Universidade Federal de Pernambuco (Brazil)
Gerson Zaverucha	Universidade Federal do Rio de Janeiro (Brazil)
Gina Oliveira	Universidade Federal de Uberlândia (Brazil)
Graça Gaspar	Universidade de Lisboa (Portugal)
Graça Marietto	Universidade do Estado de Santa Catarina (Brazil)
Guido Boella	Università di Torino (Italy)
Guilherme Bittencourt	Universidade Federal de Santa Catarina (Brazil)
Guillermo Simari	Universidad Nacional del Sur (Argentina)
Gustavo Giménez-Lugo	Centro Universitário Positivo (Brazil)

Harko Verhagen	Stockholm University (Sweden)
Hector Geffner	Universitat Pompeu Fabra (Spain)
Helder Coelho	Universidade de Lisboa (Portugal) (Chair)
Heloisa Camargo	Universidade Federal de São Carlos (Brazil)
Hugo Terashima-Marín	Instituto Tecnológico y de Estudios Superiores de Monterrey (Mexico)
Ioan Letia	Tech. University of Cluj-Napoca (Romania)
Jacinto Davila	Universidad de los Andes (Colombia)
Jacques Wainer	Universidade de Campinas (Brazil)
Jaime Simão Sichman	Universidade de São Paulo (Brazil) (Chair)
Jeffrey Rosenchein	Hebrew University of Jerusalem (Israel)
João Gama	Universidade do Porto (Portugal)
John Atkinson	Universidad de Concepcion (Chile)
Jomi Fred Hubner	Universidade Regional de Blumenau (Brazil)
Jordi Sabater	Institut d'Investigación en Intelligència Artificial (Spain)
José Reinaldo Silva	Universidade de São Paulo (Brazil)
Juan Pavón	Universidad Complutense Madrid (Spain)
Juan Sossa Azuela	Instituto Politécnico Nacional (Mexico)
Juan M. Corchado	Universidad de Salamanca (Spain)
Keiki Takadama	Tokyo Institute of Technology (Japan)
Krzysztof Cetnarowicz	University of Krakow (Poland)
Lúcia Giraffa	Pontifícia Universidade Católica-RS (Brazil)
Leliane Nunes de Barros	Universidade de São Paulo (Brazil)
Leonardo Garrido	Instituto Tecnológico y de Estudios Superiores de Monterrey (Mexico)
Liz Sonenberg	University of Melbourne (Australia)
Luís Correia	Universidade de Lisboa (Portugal)
Luís Paulo Reis	Universidade do Porto (Portugal)
Luciano Garrido	Universidad de Havana (Cuba)
Luis Morgado	Instituto Politécnico de Lisboa (Portugal)
Luis Pineda	Universidad Nacional Autónoma de México (Mexico)
Luis Sucar	Instituto Nacional de Astrofísica Óptica y Electrónica (Mexico)
Luis Otávio Alvares	Universidade Federal do Rio Grande do Sul (Brazil)
Marcelo Finger	Universidade de São Paulo (Brazil)
Marcelo Ladeira	Universidade de Brasília (Brazil)

Marcio Netto	Universidade de São Paulo (Brazil)
Marco Dorigo	Université Libre de Bruxelles (Belgium)
Maria Cravo	Universidade Técnica de Lisboa (Portugal)
Maria Carolina Monard	Universidade de São Paulo (Brazil)
Maria das Graças Volpe Nunes	Universidade de São Paulo (Brazil)
Maria do Carmo Nicoletti	Universidade Federal de São Carlos (Brazil)
Maria-Cristina Riff	Universidad Técnica Federico Santa María (Chile)
Marie-Pierre Gleizes	Institut de Recherche en Informatique de Toulouse (France)
Mario Campos	Universidade Federal de Minas Gerais (Brazil)
Matthew Turk	University of California at Santa Barbara (USA)
Mauricio Galindo	Fundacion Universidad de las Americas (Mexico)
Mehdi Dastani	University of Utrecht (The Netherlands)
Michail Kalogiannakis	Technological Educational Institute of Crete (Greece)
Miguel Salido	Universidad Politécnica de Valencia (Spain)
Miguel Toro	Universidad de Sevilla (Spain)
Nuno David	Instituto Superior de Ciências do Trabalho e da Empresa (Portugal)
Olac Fuentes	Instituto Nacional de Astrofísica Óptica y Electrónica (Mexico)
Olivier Boissier	Ecole Nationale Supérieure des Mines de Saint-Etienne (France)
Onn Shehory	IBM - Haifa Research Labs (Israel)
Osvaldo Cairo	Instituto Tecnológico Autónomo de México (Mexico)
Oswaldo Teran	Universidad Los Andes (Venezuela)
Pablo Noriega	Institut d'Investigación en Intelligència Artificial (Spain)
Paul Davidsson	Blekinge Institute of Technology (Sweden)
Paulo Quaresma	Universidade de Évora (Portugal)
Pavel Brazdil	Universidade do Porto (Portugal)
Pedro Barahona	Universidade de Nova Lisboa (Portugal)
Pedro de Oliveira	Universidade Presbiteriana Mackenzie (Brazil)
Rafael Bordini	University of Durham (UK)
Ramiro Neves	Universidade Técnica de Lisboa (Portugal)

XIV Organization

Ramon Brena	Instituto Tecnológico y de Estudios Superiores de Monterrey (Mexico)
Ramon Mantaras	Institut d'Investigación en Intelligència Artificial (Spain)
Ramon Otero	Universidad da Coruña (Spain)
Reinaldo Bianchi	Centro Universitario da FEI (Brazil)
Renata Vieira	Universidade do Vale do Rio dos Sinos (Brazil)
Renata Wassermann	Universidade de São Paulo (Brazil)
Ricardo Contreras A.	Universidad de Concepción (Chile)
Rino Falcone	Istituto di Scienze e Tecnologie della Cognizione (Italy)
Roque Morales	Universidad de Murcia (Spain)
Rosa Viccari	Universidade Federal do Rio Grande do Sul (Brazil)
Roseli Francelin Romero	Universidade de São Paulo (Brazil)
Salvador Abreu	Universidade de Evora (Portugal)
Sandra Sandri	Institut d'Investigación en Intelligència Artificial (Spain)
Sascha Ossowski	Universidad Rey Juan Carlos (Spain)
Sefer Kurnaz	Turkish Air Force Academy (Turkey)
Sheila Veloso	Universidade Federal do Rio de Janeiro (Brazil)
Syeda Fatima	Osmania University (India)
Teresa Ludermir	Universidade Federal de Pernambuco (Brazil)
Uma Garimella	AP State Council for Higher Education (India)
Vera Strube de Lima	Pontifícia Universidade Católica-RS (Brazil)
Veronica Dahl	Simon Fraser University (Canada)
Vicente Botti	Universidad Politécnica de Valencia (Spain)
Virginia Dignum	University of Utrecht (The Netherlands)
Wamberto Vasconcelos	University of Aberdeen (UK)

Additional Reviewers

Adrian Perreau de Pinninck	Alvaro Moreira
Adriana Giret	Ana Lorena
Alberto Fernández	Ana Luisa Respicio
Alessandro Safiotti	Andreia Machion
Alexandre Cavalcante	António Abreu
Alexandre Simões	Armando Sousa

Arnaldo Albuquerque
Bengt Carlsson
Birna van Riemsdijk
Broderick Crawford
Bruno de Souza
Carlos Chesevar
Carlos Grilo
Carlos Lourenço
Carlos Augusto Prolo
Cristian Mateos Diaz
Daniela Godoy
Dibio Leandro Borges
Didac Busquets
Dietmar Wolz
Eduardo Spinosa
Eric Monfroy
Estevam Rafael Hruschka Jr.
Esther Colombini
Fabio Okuyama
Francisco Reinaldo
Francisco Silva
George Cavalcanti
Gustavo Batista
Hae Yong Kim
Helio Barbosa
Hugo Marques
Jan Broersen
Jeronimo Pellegrini
João Alcântara
João Balsa
Jorge Jambeiro
Jorge J. Gómez-Sanz
José Cruz
José Carlos Mombach
José Luiz Pio
Jose Torres
Ligia Ferreira
Luís Moniz
Luciano Pimenta
Luis Rueda
Luiz Lorena
Marcelo Armentano
Marcelo Blois

Marcia Aparecida
Marco Schorlemmer
Matteo Baldoni
Mêuser Valença
Miguel Vázquez
Norton Trevisan Roman
Olivier Perrin
Orides Morandin Junior
Oscar Sapena
Paolo Remagnino
Patrícia Tedesco
Patricia Shaw
Paula Brito
Paulo Urbano
Paulo Roberto Ferreira Jr.
Pedro Faria
Pedro Mariano
Pedro Santana
Phil Husbands
Rafael Parpinelli
Ricardo Rodriguez
Ricardo Tanscheit
Ricardo Zebulum
Robinson Noronha
Ronaldo Prati
Ronaldo Teixeira Martins
Rubén Fuentes
Sergio Gomez
Shervin Nouyan
Silvia Moraes
Silvia Schiaffino
Silvio Pereira
Siome Goldenstein
Stefan Johansson
Teresa Gonçalves
Thiago Pardo
Tsang Ing Ren
Valdinei Silva
Valguima Odakura
Vera Lúcia da Silva
Vitor Nogueira

Lecture Notes in Artificial Intelligence (LNAI)

- Vol. 4264: J.L. Balcázar, P.M. Long, F. Stephan (Eds.), *Algorithmic Learning Theory*. XIII, 393 pages. 2006.
- Vol. 4248: S. Staab, V. Svátek (Eds.), *Engineering Knowledge in the Age of the Semantic Web*. XIV, 400 pages. 2006.
- Vol. 4223: L. Wang, L. Jiao, G. Shi, X. Li, J. Liu (Eds.), *Fuzzy Systems and Knowledge Discovery*. XXVIII, 1335 pages. 2006.
- Vol. 4213: J. Fürnkranz, T. Scheffer, M. Spiliopoulou (Eds.), *Knowledge Discovery in Databases: PKDD 2006*. XXII, 660 pages. 2006.
- Vol. 4212: J. Fürnkranz, T. Scheffer, M. Spiliopoulou (Eds.), *Machine Learning: ECML 2006*. XXIII, 851 pages. 2006.
- Vol. 4211: P. Vogt, Y. Sugita, E. Tuci, C. Nehaniv (Eds.), *Symbol Grounding and Beyond*. VIII, 237 pages. 2006.
- Vol. 4203: F. Esposito, Z.W. Raś, D. Malerba, G. Semeraro (Eds.), *Foundations of Intelligent Systems*. XVIII, 767 pages. 2006.
- Vol. 4201: Y. Sakakibara, S. Kobayashi, K. Sato, T. Nishino, E. Tomita (Eds.), *Grammatical Inference: Algorithms and Applications*. XII, 359 pages. 2006.
- Vol. 4198: O. Nasraoui, O. Zaiane, M. Spiliopoulou, B. Mobasher, B. Masand, P. Yu (Eds.), *Web Minding and Web Usage Analysis*. IX, 177 pages. 2006.
- Vol. 4196: K. Fischer, I.J. Timm, E. André, N. Zhong (Eds.), *Multiagent System Technologies*. X, 185 pages. 2006.
- Vol. 4188: P. Sojka, I. Kopeček, K. Pala (Eds.), *Text, Speech and Dialogue*. XIV, 721 pages. 2006.
- Vol. 4183: J. Euzenat, J. Domingue (Eds.), *Artificial Intelligence: Methodology, Systems, and Applications*. XIII, 291 pages. 2006.
- Vol. 4180: M. Kohlhase, *OMDoc – An Open Markup Format for Mathematical Documents [version 1.2]*. XIX, 428 pages. 2006.
- Vol. 4177: R. Marín, E. Onaindia, A. Bugarín, J. Santos (Eds.), *Current Topics in Artificial Intelligence*. XV, 482 pages. 2006.
- Vol. 4160: M. Fisher, W.v.d. Hoek, B. Konev, A. Lisitsa (Eds.), *Logics in Artificial Intelligence*. XII, 516 pages. 2006.
- Vol. 4155: O. Stock, M. Schaerf (Eds.), *Reasoning, Action and Interaction in AI Theories and Systems*. XVIII, 343 pages. 2006.
- Vol. 4149: M. Klusch, M. Rovatsos, T.R. Payne (Eds.), *Cooperative Information Agents*. X. XII, 477 pages. 2006.
- Vol. 4140: J.S. Sichman, H. Coelho, S.O. Rezende (Eds.), *Advances in Artificial Intelligence - IBERAMIA-SBIA 2006*. XXIII, 635 pages. 2006.
- Vol. 4139: T. Salakoski, F. Ginter, S. Pyysalo, T. Pahikkala, *Advances in Natural Language Processing*. XVI, 771 pages. 2006.
- Vol. 4133: J. Gratch, M. Young, R. Aylett, D. Ballin, P. Olivier (Eds.), *Intelligent Virtual Agents*. XIV, 472 pages. 2006.
- Vol. 4130: U. Furbach, N. Shankar (Eds.), *Automated Reasoning*. XV, 680 pages. 2006.
- Vol. 4120: J. Calmet, T. Ida, D. Wang (Eds.), *Artificial Intelligence and Symbolic Computation*. XIII, 269 pages. 2006.
- Vol. 4114: D.-S. Huang, K. Li, G.W. Irwin (Eds.), *Computational Intelligence, Part II*. XXVII, 1337 pages. 2006.
- Vol. 4108: J.M. Borwein, W.M. Farmer (Eds.), *Mathematical Knowledge Management*. VIII, 295 pages. 2006.
- Vol. 4106: T.R. Roth-Berghofer, M.H. Göker, H. A. Güvenir (Eds.), *Advances in Case-Based Reasoning*. XIV, 566 pages. 2006.
- Vol. 4099: Q. Yang, G. Webb (Eds.), *PRICAI 2006: Trends in Artificial Intelligence*. XXVIII, 1263 pages. 2006.
- Vol. 4095: S. Nolfi, G. Baldassarre, R. Calabretta, J.C. T. Hallam, D. Marocco, J.-A. Meyer, O. Miglino, D. Parisi (Eds.), *From Animals to Animats 9*. XV, 869 pages. 2006.
- Vol. 4093: X. Li, O.R. Zaïane, Z. Li (Eds.), *Advanced Data Mining and Applications*. XXI, 1110 pages. 2006.
- Vol. 4092: J. Lang, F. Lin, J. Wang (Eds.), *Knowledge Science, Engineering and Management*. XV, 664 pages. 2006.
- Vol. 4088: Z.-Z. Shi, R. Sadananda (Eds.), *Agent Computing and Multi-Agent Systems*. XVII, 827 pages. 2006.
- Vol. 4087: F. Schwenker, S. Marinai (Eds.), *Artificial Neural Networks in Pattern Recognition*. IX, 299 pages. 2006.
- Vol. 4068: H. Schärfe, P. Hitzler, P. Øhrstrøm (Eds.), *Conceptual Structures: Inspiration and Application*. XI, 455 pages. 2006.
- Vol. 4065: P. Perner (Ed.), *Advances in Data Mining*. XI, 592 pages. 2006.
- Vol. 4062: G. Wang, J.F. Peters, A. Skowron, Y. Yao (Eds.), *Rough Sets and Knowledge Technology*. XX, 810 pages. 2006.

- Vol. 4049: S. Parsons, N. Maudet, P. Moraitis, I. Rahwan (Eds.), *Argumentation in Multi-Agent Systems*. XIV, 313 pages. 2006.
- Vol. 4048: L. Goble, J.-J.C. Meyer (Eds.), *Deontic Logic and Artificial Normative Systems*. X, 273 pages. 2006.
- Vol. 4045: D. Barker-Plummer, R. Cox, N. Swoboda (Eds.), *Diagrammatic Representation and Inference*. XII, 301 pages. 2006.
- Vol. 4031: M. Ali, R. Dapoigny (Eds.), *Advances in Applied Artificial Intelligence*. XXIII, 1353 pages. 2006.
- Vol. 4029: L. Rutkowski, R. Tadeusiewicz, L.A. Zadeh, J.M. Zurada (Eds.), *Artificial Intelligence and Soft Computing – ICAISC 2006*. XXI, 1235 pages. 2006.
- Vol. 4027: H.L. Larsen, G. Pasi, D. Ortiz-Arroyo, T. Andreassen, H. Christiansen (Eds.), *Flexible Query Answering Systems*. XVIII, 714 pages. 2006.
- Vol. 4021: E. André, L. Dybkjær, W. Minker, H. Neumann, M. Weber (Eds.), *Perception and Interactive Technologies*. XI, 217 pages. 2006.
- Vol. 4020: A. Bredendfeld, A. Jacoff, I. Noda, Y. Takahashi (Eds.), *RoboCup 2005: Robot Soccer World Cup IX*. XVII, 727 pages. 2006.
- Vol. 4013: L. Lamontagne, M. Marchand (Eds.), *Advances in Artificial Intelligence*. XIII, 564 pages. 2006.
- Vol. 4012: T. Washio, A. Sakurai, K. Nakajima, H. Takeda, S. Tojo, M. Yokoo (Eds.), *New Frontiers in Artificial Intelligence*. XIII, 484 pages. 2006.
- Vol. 4008: J.C. Augusto, C.D. Nugent (Eds.), *Designing Smart Homes*. XI, 183 pages. 2006.
- Vol. 4005: G. Lugosi, H.U. Simon (Eds.), *Learning Theory*. XI, 656 pages. 2006.
- Vol. 3978: B. Hnich, M. Carlsson, F. Fages, F. Rossi (Eds.), *Recent Advances in Constraints*. VIII, 179 pages. 2006.
- Vol. 3963: O. Dikenelli, M.-P. Gleizes, A. Ricci (Eds.), *Engineering Societies in the Agents World VI*. XII, 303 pages. 2006.
- Vol. 3960: R. Vieira, P. Quaresma, M.d.G.V. Nunes, N.J. Mamede, C. Oliveira, M.C. Dias (Eds.), *Computational Processing of the Portuguese Language*. XII, 274 pages. 2006.
- Vol. 3955: G. Antoniou, G. Potamias, C. Spyropoulos, D. Plexousakis (Eds.), *Advances in Artificial Intelligence*. XVII, 611 pages. 2006.
- Vol. 3949: F.A. Savacı (Ed.), *Artificial Intelligence and Neural Networks*. IX, 227 pages. 2006.
- Vol. 3946: T.R. Roth-Berghofer, S. Schulz, D.B. Leake (Eds.), *Modeling and Retrieval of Context*. XI, 149 pages. 2006.
- Vol. 3944: J. Quiñónero-Candela, I. Dagan, B. Magnini, F. d'Alché-Buc (Eds.), *Machine Learning Challenges*. XIII, 462 pages. 2006.
- Vol. 3930: D.S. Yeung, Z.-Q. Liu, X.-Z. Wang, H. Yan (Eds.), *Advances in Machine Learning and Cybernetics*. XXI, 1110 pages. 2006.
- Vol. 3918: W.K. Ng, M. Kitsuregawa, J. Li, K. Chang (Eds.), *Advances in Knowledge Discovery and Data Mining*. XXIV, 879 pages. 2006.
- Vol. 3913: O. Boissier, J. Padget, V. Dignum, G. Lindemann, E. Matson, S. Ossowski, J.S. Sichman, J. Vázquez-Salceda (Eds.), *Coordination, Organizations, Institutions, and Norms in Multi-Agent Systems*. XII, 259 pages. 2006.
- Vol. 3910: S.A. Brueckner, G.D.M. Serugendo, D. Hales, F. Zambonelli (Eds.), *Engineering Self-Organising Systems*. XII, 245 pages. 2006.
- Vol. 3904: M. Baldoni, U. Endriss, A. Omicini, P. Torroni (Eds.), *Declarative Agent Languages and Technologies III*. XII, 245 pages. 2006.
- Vol. 3900: F. Toni, P. Torroni (Eds.), *Computational Logic in Multi-Agent Systems*. XVII, 427 pages. 2006.
- Vol. 3899: S. Frintrop, VOCUS: A Visual Attention System for Object Detection and Goal-Directed Search. XIV, 216 pages. 2006.
- Vol. 3898: K. Tuyls, P.J. 't Hoen, K. Verbeeck, S. Sen (Eds.), *Learning and Adaption in Multi-Agent Systems*. X, 217 pages. 2006.
- Vol. 3891: J.S. Sichman, L. Antunes (Eds.), *Multi-Agent-Based Simulation VI*. X, 191 pages. 2006.
- Vol. 3890: S.G. Thompson, R. Ghanea-Hercock (Eds.), *Defence Applications of Multi-Agent Systems*. XII, 141 pages. 2006.
- Vol. 3885: V. Torra, Y. Narukawa, A. Valls, J. Domingo-Ferrer (Eds.), *Modeling Decisions for Artificial Intelligence*. XII, 374 pages. 2006.
- Vol. 3881: S. Gibet, N. Courty, J.-F. Kamp (Eds.), *Gesture in Human-Computer Interaction and Simulation*. XIII, 344 pages. 2006.
- Vol. 3874: R. Missaoui, J. Schmidt (Eds.), *Formal Concept Analysis*. X, 309 pages. 2006.
- Vol. 3873: L. Maicher, J. Park (Eds.), *Charting the Topic Maps Research and Applications Landscape*. VIII, 281 pages. 2006.
- Vol. 3864: Y. Cai, J. Abascal (Eds.), *Ambient Intelligence in Everyday Life*. XII, 323 pages. 2006.
- Vol. 3863: M. Kohlhase (Ed.), *Mathematical Knowledge Management*. XI, 405 pages. 2006.
- Vol. 3862: R.H. Bordini, M. Dastani, J. Dix, A.E.F. Seghrouchni (Eds.), *Programming Multi-Agent Systems*. XIV, 267 pages. 2006.
- Vol. 3849: I. Bloch, A. Petrosino, A.G.B. Tettamanzi (Eds.), *Fuzzy Logic and Applications*. XIV, 438 pages. 2006.
- Vol. 3848: J.-F. Boulicaut, L. De Raedt, H. Manilla (Eds.), *Constraint-Based Mining and Inductive Databases*. X, 401 pages. 2006.
- Vol. 3847: K.P. Jantke, A. Lunzer, N. Spyratos, Y. Tanaka (Eds.), *Federation over the Web*. X, 215 pages. 2006.
- Vol. 3835: G. Sutcliffe, A. Voronkov (Eds.), *Logic for Programming, Artificial Intelligence, and Reasoning*. XIV, 744 pages. 2005.
- Vol. 3830: D. Weyns, H. V.D. Parunak, F. Michel (Eds.), *Environments for Multi-Agent Systems II*. VIII, 291 pages. 2006.

¥649.00元