

Preface

SBIA, the Brazilian Symposium on Artificial Intelligence, is a biennial event intended to be the main forum of the AI community in Brazil. The SBIA 2004 was the 17th issue of the series initiated in 1984. Since 1995 SBIA has been accepting papers written and presented only in English, attracting researchers from all over the world. At that time it also started to have an international program committee, keynote invited speakers, and proceedings published in the Lecture Notes in Artificial Intelligence (LNAI) series of Springer (SBIA 1995, Vol. 991, SBIA 1996, Vol. 1159, SBIA 1998, Vol. 1515, SBIA 2000, Vol. 1952, SBIA 2002, Vol. 2507).

SBIA 2004 was sponsored by the Brazilian Computer Society (SBC). It was held from September 29 to October 1 in the city of São Luis, in the northeast of Brazil, together with the Brazilian Symposium on Neural Networks (SBRN). This followed a trend of joining the AI and ANN communities to make the joint event a very exciting one. In particular, in 2004 these two events were also held together with the IEEE International Workshop on Machine Learning and Signal Processing (MMLP), formerly NNLP.

The organizational structure of SBIA 2004 was similar to other international scientific conferences. The backbone of the conference was the technical program which was complemented by invited talks, workshops, etc. on the main AI topics.

The call for papers attracted 209 submissions from 21 countries. Each paper submitted to SBIA was reviewed by three referees. From this total, 54 papers from 10 countries were accepted and are included in this volume. This made SBIA a very competitive conference with an acceptance rate of 25.8%. The evaluation of this large number of papers was a challenge in terms of reviewing and maintaining the high quality of the preceding SBIA conferences. All these goals would not have been achieved without the excellent work of the members of the program committee – composed of 80 researchers from 18 countries – and the auxiliary reviewers.

Thus, we would like to express our sincere gratitude to all those who helped make SBIA 2004 happen. First of all we thank all the contributing authors; special thanks go to the members of the program committee and reviewers for their careful work in selecting the best papers. Thanks go also to the steering committee for its guidance and support, to the local organization people, and to the students who helped with the website design and maintenance, the papers submission site, and with the preparation of this volume. Finally, we would like to thank the Brazilian funding agencies and Springer for supporting this book.

Porto Alegre, September 2004

Ana L.C. Bazzan
(Chair of the Program Committee)
Sofiane Labidi
(General Chair)

Organization

SBIA 2004 was held in conjunction with SBRN 2004 and with IEEE MMLP 2004. These events were co-organized by all co-chairs involved in them.

Chair

Sofiane Labidi (UFMA, Brazil)

Steering Committee

Ariadne Carvalho (UNICAMP, Brazil)
Geber Ramalho (UFPE, Brazil)
Guilherme Bitencourt (UFSC, Brazil)
Jaime Sichman (USP, Brazil)

Organizing Committee

Allan Kardec Barros (UFMA)
Aluizio Araújo (UFPE)
Ana L.C. Bazzan (UFRGS)
Geber Ramalho (UFPE)
Osvaldo Ronald Saavedra (UFMA)
Sofiane Labidi (UFMA)

Supporting Scientific Society

SBC

Sociedade Brasileira de Computação

Program Committee

Luis Otavio Alvares	Univ. Federal do Rio Grande do Sul (Brazil)
Analia Amandi	Universidad Nacional del Centro de la Provincia de Buenos Aires (Argentina)
John Atkinson	Universidad de Concepcin (Chile)
Bráulio Coelho Avila	Pontifícia Universidade Católica, PR (Brazil)
Flávia Barros	Universidade Federal de Pernambuco (Brazil)
Guilherme Bittencourt	Universidade Federal de Santa Catarina (Brazil)
Olivier Boissier	École Nationale Supérieure des Mines de Saint-Etienne (France)
Rafael H. Bordini	University of Liverpool (UK)
Dibio Leandro Borges	Pontifícia Universidade Católica, PR (Brazil)
Bert Bredeweg	University of Amsterdam (The Netherlands)
Jacques Calmet	Universität Karlsruhe (Germany)
Mario F. Montenegro Campos	Universidade Federal de Minas Gerais (Brazil)
Fernando Carvalho	Universidade Federal do Ceará (Brazil)
Francisco Carvalho	Universidade Federal de Pernambuco (Brazil)
Cristiano Castelfranchi	Institute of Psychology, CNR (Italy)
Carlos Castro	Univ. Técnica Federico Santa María (Chile)
Stefano Cerri	Université Montpellier II (France)
Ibrahim Chaib-draa	Université Laval (Canada)
Helder Coelho	Universidade de Lisboa (Portugal)
Vincent Corruble	Université Pierre et Marie Curie (France)
Ernesto Costa	Universidade de Coimbra (Portugal)
Anna Helena Reali Costa	Universidade de São Paulo (Brazil)
Antônio C. da Rocha Costa	Universidade Católica de Pelotas (Brazil)
Augusto C.P.L. da Costa	Universidade Federal da Bahia (Brazil)
Evandro de Barros Costa	Universidade Federal de Alagoas (Brazil)
Kerstin Dautenhahn	University of Hertfordshire (UK)
Keith Decker	University of Delaware (USA)
Marco Dorigo	Université Libre de Bruxelles (Belgium)
Michael Fisher	University of Liverpool (UK)
Peter Flach	University of Bristol (UK)
Ana Cristina Bicharra Garcia	Universidade Federal Fluminense (Brazil)
Uma Garimella	AP State Council for Higher Education (India)
Lúcia Giraffa	Pontifícia Universidade Católica, RS (Brazil)
Claudia Goldman	University of Massachusetts, Amherst (USA)
Fernando Gomide	Universidade Estadual de Campinas (Brazil)
Gabriela Henning	Universidad Nacional del Litoral (Argentina)
Michael Huhns	University of South Carolina (USA)
Nitin Indurkha	University of New South Wales (Australia)
Alípio Jorge	University of Porto (Portugal)
Celso Antônio Alves Kaestner	Pontifícia Universidade Católica, PR (Brazil)

VIII Organization

Franziska Klügl	Universität Würzburg (Germany)
Sofiane Labidi	Universidade Federal do Maranhão (Brazil)
Lluís Godó Lacasa	Artificial Intelligence Research Institute (Spain)
Marcelo Ladeira	Universidade de Brasília (Brazil)
Nada Lavrac	Josef Stefan Institute (Slovenia)
Christian Lemaitre	Lab. Nacional de Informatica Avanzada (Mexico)
Victor Lesser	University of Massachusetts, Amherst (USA)
Vera Lúcia Strube de Lima	Pontifícia Universidade Católica, RS (Brazil)
Jose Gabriel Pereira Lopes	Universidade Nova de Lisboa (Portugal)
Michael Luck	University of Southampton (UK)
Ana Teresa Martins	Universidade Federal do Ceará (Brazil)
Stan Matwin	University of Ottawa (Canada)
Eduardo Miranda	University of Plymouth (UK)
Maria Carolina Monard	Universidade de São Paulo at São Carlos (Brazil)
Valérie Monfort	MDT Vision (France)
Eugenio Costa Oliveira	Universidade do Porto (Portugal)
Tarcisio Pequeno	Universidade Federal do Ceará (Brazil)
Paolo Petta	Austrian Research Institut for Artificial Intelligence (Austria)
Geber Ramalho	Universidade Federal de Pernambuco (Brazil)
Solange Rezende	Universidade de São Paulo at São Carlos (Brazil)
Carlos Ribeiro	Instituto Tecnológico de Aeronáutica (Brazil)
Francesco Ricci	Istituto Trentino di Cultura (Italy)
Sandra Sandri	Artificial Intelligence Research Institute (Spain)
Sandip Sen	University of Tulsa (USA)
Jaime Simão Sichman	Universidade de São Paulo (Brazil)
Carles Sierra	Institut d'Investigació en Intel. Artificial (Spain)
Milind Tambe	University of Southern California (USA)
Patricia Tedesco	Universidade Federal de Pernambuco (Brazil)
Sergio Tessaris	Free University of Bozen-Bolzano (Italy)
Luis Torgo	University of Porto (Portugal)
Andre Valente	Knowledge Systems Ventures (USA)
Wamberto Vasconcelos	University of Aberdeen (UK)
Rosa Maria Vicari	Univ. Federal do Rio Grande do Sul (Brazil)
Renata Vieira	UNISINOS (Brazil)
Jacques Wainer	Universidade Estadual de Campinas (Brazil)
Renata Wasserman	Universidade de São Paulo (Brazil)
Michael Wooldridge	University of Liverpool (UK)
Franco Zambonelli	Università di Modena Reggio Emilia (Italy)
Gerson Zaverucha	Universidade Federal do Rio de Janeiro (Brazil)

Sponsoring Organizations

By the publication of this volume, the SBIA 2004 conference received financial support from the following institutions:

CNPq	Conselho Nacional de Desenvolvimento Científico e Tecnológico
CAPES	Fundação Coordenação de Aperfeiçoamento de Pessoal de Nível Superior
FAPEMA	Fundação de Amparo à Pesquisa do Estado do Maranhão
FINEP	Financiadora de Estudos e Projetos

Additional Reviewers

Mara Abel	Juan Heguiabehere
Nik Nailah Bint Abdullah	Emilio Hernandez
Diana Adamatti	Benjamin Hirsch
Stephane Airiau	Jomi Hübner
João Fernando Alcântara	Ullrich Hustadt
Teddy Alfaro	Alceu de Souza Britto Junior
Luis Almeida	Branko Kavsek
Marcelo Armentano	Alessandro Lameiras Koerich
Dipyaman Banerjee	Boris Konev
Dante Augusto Couto Barone	Fred Koriche
Gustavo Batista	Luís Lamb
Amit Bhaya	Michel Liquière
Reinaldo Bianchi	Peter Ljubic
Francine Bica	Andrei Lopatenko
Waldemar Bonventi	Gabriel Lopes
Flávio Bortolozzi	Emiliano Lorini
Mohamed Bouklit	Teresa Ludermir
Paolo Bouquet	Alexei Manso Correa Machado
Carlos Fisch de Brito	Charles Madeira
Tiberio Caetano	Pierre Maret
Eduardo Camponogara	Graça Marietto
Teddy Candale	Lilia Martins
Henrique Cardoso	Claudio Meneses
Ariadne Carvalho	Claudia Milaré
André Ponce de Leon F. de Carvalho	Márcia Cristina Moraes
Ana Casali	Álvaro Moreira
Adelmo Cechin	Ranjit Nair
Luciano Coutinho	Marcio Netto
Damjan Demsar	André Neves
Clare Dixon	Julio Cesar Nievola
Fabício Enembreck	Luis Nunes
Paulo Engel	Maria das Graças Volpe Nunes
Alexandre Evsukoff	Valguima Odakura
Anderson Priebe Ferrugem	Carlos Oliveira
Marcelo Finger	Flávio Oliveira
Ricardo Freitas	Fernando Osório
Leticia Friske	Flávio Pádua
Arjita Ghosh	Elias Pampalk
Daniela Godoy	Marcelino Pequeno
Alex Sandro Gomes	Luciano Pimenta
Silvio Gonnet	Aloisio Carlos de Pina
Marco Antonio Insaurriaga Gonzalez	Joel Plisson
Roderich Gross	Ronaldo Prati
Michel Habib	Carlos Augusto Prolo

Ricardo Prudêncio
 Josep Puyol-Gruart
 Sergio Queiroz
 Violeta Quental
 Leila Ribeiro
 María Cristina Riff
 Maria Rifqi
 Ana Rocha
 Linnyer Ruiz
 Sabyasachi Saha
 Luis Sarmiento
 Silvia Schiaffino
 Hernan Schmidt
 Antônio Selvatici
 David Sheeren
 Alexandre P. Alves da Silva
 Flávio Soares Corrêa da Silva
 Francisco Silva

Klebson dos Santos Silva
 Ricardo de Abreu Silva
 Roberto da Silva
 Valdinei Silva
 Wagner da Silva
 Alexandre Simões
 Eduardo do Valle Simoes
 Marcelo Borghetti Soares
 Marcilio Carlos P. de Souto
 Renata Souza
 Andréa Tavares
 Marcelo Andrade Teixeira
 Clésio Luis Tozzi
 Karl Tuyls
 Adriano Veloso
 Felipe Vieira Fernando Von Zuben
 Alejandro Zunino

Advances in Artificial Intelligence - SBIA 2004

17th Brazilian Symposium on Artificial Intelligence, Sao
Luis, Maranhao, Brazil, September 29-October 1, 2004,
Proceedings

Bazzan, A.L.C.; Labidi, S. (Eds.)

2004, XVIII, 554 p., Softcover

ISBN: 978-3-540-23237-7