

# Preface

This year, Brazil celebrates its 500 years of discovery. To mark this great event, the Brazilian Artificial Intelligence (AI) community organized a special international joint conference putting together SBIA 2000 (the Brazilian AI Symposium) and IBERAMIA 2000 (the Ibero-American AI Conference).

SBIA 2000 is the 15th conference of the SBIA conference series, which is the leading conference in Brazil for presentation of research and applications in Artificial Intelligence. Since 1995, SBIA has become an international conference, with papers written in English, an international program committee, and proceedings published in Springer-Verlag's *Lecture Notes in Artificial Intelligence* (LNAI) series.

IBERAMIA 2000 is the 7th conference of the IBERAMIA conference series, which has been one of the most suitable forums for ibero-american AI researchers (from South and Central America, Mexico, Spain, and Portugal) to present their results. Following the SBIA and EPIA (Portuguese conference on AI) experiences, from IBERAMIA'98 on, it has also become an international conference, with proceedings published in Springer-Verlag's LNAI series.

The IBERAMIA–SBIA 2000 was held in Atibaia, São Paulo, Brazil, 19–22 November 2000. The call for papers was very successful resulting in 156 submissions for the paper track and 69 for the open discussion track, from 18 different countries. In order to maintain the good standard of the conference, each submission was sent to at least three members of the program committee. A total of 48 papers were accepted for paper track presentation and are included in this volume. In addition, 36 papers were accepted for the open discussion track and were published in a local proceedings.

The IBERAMIA–SBIA 2000 program was completed with the presentation of invited talks, some introductory and advanced tutorials, several workshops covering specific topics, and the 2nd Ibero-American Thesis and Dissertation Contest.

We would like to thank all researchers for submitting their papers, and the PC members and additional referees for the work they have done. We are also very grateful to our colleagues who provided invaluable organizational support.

November 2000

Maria Carolina Monard  
Jaime Simão Sichman

# Organization

IBERAMIA–SBIA 2000 was organized by several AI research groups that belong to the University of São Paulo (USP):

Laboratório de Técnicas Inteligentes (LTI)  
Departamento de Engenharia de Computação e Sistemas Digitais (PCS)  
Escola Politécnica (EP)

Laboratório de Inteligência Computacional (LABIC)  
Departamento de Ciências de Computação e Estatística (SCE)  
Instituto de Ciências Matemáticas e de Computação (ICMC)

Laboratório de Lógica, Inteligência Artificial e Métodos Formais (LIAMF)  
Departamento de Ciência da Computação (MAC)  
Instituto de Matemática e Estatística (IME)

## Organizing Committee

General Chair:	Jaime Simão Sichman (LTI/PCS/EP)
Scientific Chair:	Maria Carolina Monard (LABIC/SCE/ICMC)
Publicity Chair:	Fabio Nauras Akhras (LTI/PCS/EP)
Publication Chair:	Maria Carolina Monard (LABIC/SCE/ICMC)
Workshop Chair:	Leliane Nunes de Barros (LIAMF/MAC/IME)
Tutorial Chair:	Anna Helena Reali Costa (LTI/PCS/EP)
Finance Chair:	Edson Satoshi Gomi (LTI/PCS/EP)
Local Arrangements Chair:	Marco Túlio C. de Andrade (LTI/PCS/EP)

## Supporting Scientific Societies

SBC	Sociedade Brasileira de Computação
AAIA	Asociación Argentina de Inteligencia Artificial
AEPIA	Asociación Española para Inteligencia Artificial
APPIA	Associação Portuguesa para Inteligência Artificial
AVINTA	Asociación Venezolana de Inteligencia Artificial
SCCC	Sociedad Chilena de Ciencia de la Computación
SMCC	Sociedad de Matemática y Computación de Cuba
SMIA	Sociedad Mexicana de Inteligencia Artificial

## Program Committee

Adolfo Guzmán-Arenas	Instituto Politécnico Nacional (Mexico)
Agnar Aamodt	Norwegian University of Science and Technology (Norway)
Alex Alves de Freitas	Pontifícia Universidade Católica do Paraná (Brazil)
Alexis Drogoul	Université de Paris 6 (France)
Alvaro del Val	Universidad Autonoma de Madrid (Spain)
Ana Paiva	Universidade Técnica de Lisboa (Portugal)
Analía Amandi	Universidad Nacional del Centro (Argentina)
Andre Valente	FasTV Corporation (USA)
Antonio Sanchez	Universidad de las Americas (Mexico)
Bert Bredeweg	University of Amsterdam (The Netherlands)
Christian Lemaitre	Laboratorio Nacional de Informatica Avanzada (Mexico)
Cristiano Castelfranchi	Università di Siena (Italy)
Díbio Leandro Borges	Universidade Federal de Goiás (Brazil)
Donia Scott	University of Brighton (United Kingdom)
Eduardo Morales	ITESM (Mexico)
Ernesto Costa	Universidade de Coimbra (Portugal)
Eugênio Costa Oliveira	Universidade do Porto (Portugal)
Evandro de Barros Costa	Universidade Federal de Alagoas (Brazil)
Francisco J. Garijo	Telefónica (Spain)
Gabriel Pereira Lopes	Universidade Nova de Lisboa (Portugal)
Gabriela Henning	Universidad Nacional del Litoral (Argentina)
Geber Ramalho	Universidade Federal de Pernambuco (Brazil)
Hector Geffner	Universidad Simón Bolívar (Venezuela)
Helder Coelho	Universidade de Lisboa (Portugal)
Isabelle Bloch	Ecole Nationale Sup. des Telecommunications (France)
Jacques Wainer	Universidade de Campinas (Brazil)
Javier Pinto	Pontifícia Universidad Católica de Chile (Chile)
John Self	University of Leeds (United Kingdom)
Jose Ramirez	Universidad Simón Bolívar (Venezuela)
Leopoldo Bertossi	Catholic University of Chile (Chile)
Liz Sonenberg	University of Melbourne (Australia)
Lluis Godo Lacasa	Instituto de Investigación en Inteligencia Artificial (Spain)
Luciano Garcia	Universidad de La Habana (Cuba)
Luis Enrique Sucar	ITESM (Mexico)

Maria Carolina Monard	Universidade de São Paulo em São Carlos (Brazil) ( <i>Chair</i> )
Martin Molina Gonzalez	Universidad Politécnica de Madrid (Spain)
Michael Huhns	University of South Carolina (USA)
Miguel Toro	Universidad de Sevilla (Spain)
Nada Lavrac	Jozef Stefan Institute (Slovenia)
Nitin Indurkha	Nanyang Technological University (Singapore)
Olivier Boissier	Ecole Nationale Sup. des Mines de Saint-Etienne (France)
Osvaldo Cairo Battistutti	ITAM (Mexico)
Pavel Brazdil	Universidade do Porto (Portugal)
Peter Flach	University of Bristol (United Kingdom)
Ramon Lopes de Mantaras	Instituto de Investigación en Inteligencia Artificial (Spain)
Robert Fisher	University of Edinburgh (United Kingdom)
Rosaria Conte	National Research Council (Italy)
Sheila Regina Murgel	Universidade Federal do Rio de Janeiro (Brazil)
Stan Matwin	University of Ottawa (Canada)
Uma Garimella	SQL Star International (India)
Vera Lucia Strube de Lima	Pontificia Univ. Católica do Rio Grande do Sul (Brazil)
Vicente Botti	Universidad Politécnica de Valencia (Spain)

## Referees

Adam Kilgarriff	Domingo Gallardo
Agenor Martins	Edson Emílio Scalabrin
Alejandro Clausse	Edward Ross
Aleks Jakulin	Emil Petriu
Aleksander Sadikov	Eugénio Oliveira
Andre Carvalho	Federico Barber
Angelo Susi	Fernando Moura Pires
Anna Helena Reali Costa	Flavio Oliveira
Arturo Hernandez-Aguirre	Flávio Soares Corrêa da Silva
Bogdan Filipic	Francesc Esteva
Bráulio Coelho Ávila	Francico Blanes
Carlos Soares	Francisco B. Pereira
Celina de Figueiredo	Francisco de Assis Tenório de Carvalho
Celso A. A. Kaestner	Frederic Grimaud
Claire Cardie Claire Kennedy	Gerardo Acosta
Cristina Riff	Gonzalo Escalada-Imaz
Daniela Godoy	Graça Gaspar
David Tugwell	Gustavo E. A. P. A. Batista

Heloisa Camargo	Paul Piwek
Hilan Bensusan	Paula Brito
Igor Zelic	Paulo Quaresma
Irene Loiseau	Philippe Beaune
Irene Pimenta Rodrigues	Rafal Bogacz
Jacques Robin	Renata Vieira
Jean-Francois Delannoy	Renata Wassermann
Joao Gama	Renato Ramos
Joaquim Costa	Richard Power
John Gallagher	Robert Engels
José C. Riquelme	Roberto Vivo
José Pacheco de Almeida Prado	Rodger Kibble
Jose Simo	Roger Evans
Julio Cesar Nievola	Roseli Romero
Katya Rodriguez-Vazquez	Rui Camacho
Louis Hugues	Sabine Broda
Luis Antunes	Samuel Landau
Luis Moniz	Sandra Sandri
Luis Torgo	Sébastien Picault
Lynne Cahill	Sheila Veloso
Marcelo Campo	Silvia Schiaffino
Maria das Graças Volpe Nunes	Siva Perraaju Tolety
Maria Inés Castiñeira	Solange Oliveira Rezende
Marko Grobelnik	Stan Szpakowicz
Miguel Toro Bonilla	Talys Hoover Yunes
Ole André Brevik	Torbjorn Dahl
Olga Padron	Viktor Jovanoski
Paola Riccucci	

## Sponsoring Institutions

Until the publication of this volume, IBERAMIA–SBIA 2000 has had the financial support of the following 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
CTEEP	Companhia de Transmissão de Energia Elétrica Paulista

Advances in Artificial Intelligence

International Joint Conference 7th Ibero-American

Conference on AI 15th Brazilian Symposium on AI

IBERAMIA-SBIA 2000 Atibaia, SP, Brazil, November 19-22,

2000 Proceedings

Monard, M.C.; Sichman, J.S. (Eds.)

2000, XIV, 502 p., Softcover

ISBN: 978-3-540-41276-2