Lecture Notes in Artificial Intelligence 4509

Edited by J. G. Carbonell and J. Siekmann

Subseries of Lecture Notes in Computer Science

Ziad Kobti Dan Wu (Eds.)

Advances in Artificial Intelligence

20th Conference of the Canadian Society
for Computational Studies of Intelligence, Canadian AI 2007
Montreal, Canada, May 28-30, 2007
Proceedings

Springer

Series Editors

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

Volume Editors

Ziad Kobti
Dan Wu
University of Windsor
School of Computer Science
401 Sunset Avenue, Windsor, Ontario, N9B 3P4, Canada
E-mail: {kobti,danwu}@uwindsor.ca

Library of Congress Control Number: 2007926815

CR Subject Classification (1998): I.2

LNCS Sublibrary: SL 7 – Artificial Intelligence

ISSN 0302-9743
ISBN-10 3-540-72664-0 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-72664-7 Springer Berlin Heidelberg New York

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12066940 06/3180 5 4 3 2 1 0

Preface

This volume contains the papers presented at AI 2007, the 20th conference of the Canadian Society for the Computational Study of Intelligence (CSCSI). AI 2007 attracted a new record of 260 paper submissions. Each paper was assigned to three reviewers who tirelessly worked to provide high-quality reviews. Out of these, 46 high-quality papers were accepted for publication by the Program Committee. The organization of AI 2007 has benefited from the collaboration of many individuals. Foremost, we express our appreciation to the Program Committee members and the additional reviewers who provided thorough and timely reviews. We are grateful to Andrei Voronkov and the support team assisting with the EasyChair Conference System that hosted the AI 2007 paper submission and review process. We also extend our thanks to the School of Computer Science at the University of Windsor for hosting the conference Web site. Finally, we thank the Organizing Committee and the members of the CSCSI Executive Committee for all their efforts in making AI 2007 a successful conference.

May 2007

Ziad Kobti
Dan Wu

Organization

AI 2007 was organized by the Canadian Society for the Computational Study of Intelligence (CSCSI).

Executive Committee

General Chair	Tal Arbel (McGill University)
Program Co-chairs	Ziad Kobti and Dan Wu (University of Windsor)

Program Committee

Referees

Raza Abidi (Dalhousie University)
Imran Ahmad (University of Windsor)
Esma Aïmeur (University of Montreal)
Caroline Barrière (NRC)
Shai Ben-David (University of Waterloo)
Sabine Bergler (Concordia University)
Cory Butz (University of Regina)
Giuseppe Carenini (UBC)
Yllias Chali (University of Lethbridge)
David Chiu (University of Guelph)
Douglas Dankel (University of Florida)
Atilla Elçi (E. Mediterranean University)
Michael Fleming (University of New Brunswick)
Richard Frost (University of Windsor)
Scott Goodwin (University of Windsor)
Robin Gras (University of Windsor)
Jim Greer (University of Saskatchewan)
Adlane Habed (University of Windsor)
Malcolm Heywood (Dalhousie University)
Robert Hilderman (University of Regina)
Graeme Hirst (University of Toronto)
Diana Inkpen (University of Ottawa)
Nafaa Jabeur (University of Windsor)
Nathalie Japkowicz (Monash University)
Grigoris Karakoulas (University of Toronto)
Kamran Karimi (University of Lakehead)
Vlado Keselj (Dalhousie University)
Iluju Kiringa (University of Ottawa)
Ziad Kobti (University of Windsor)
Greg Kondrak (University of Alberta)
Leila Kosseim (Concordia University)
Luc Lamontagne (Laval University)
Philippe Langlais (University of Montreal)
Guy Lapalme (University of Montreal)
Kate Larson (University of Waterloo)
François Laviolette (Laval University)
Pawan Lingras (Saint Mary's University)
Alejandro Lopez-Ortiz (University of Waterloo)
Choh Man Teng (IHMC)
Jean-Marc Mercantini (LSIS)
Joel Martin (NRC)
Bob Mercer (University of Western Ontario)

David Nadeau (NRC)
Eric Neufeld (University of Saskatchewan)
Roger Nkambou (University of Montreal)
David Poole (UBC)
Jian-Yun Nie (University of Montreal)
Gerald Penn (University of Toronto)
Fred Popowich (Simon Fraser University)
Robert Reynolds (Wayne State University)
Massih Reza Amini (Pierre and Marie Curie University)
Luis Rueda (University of Concepcion)
Anoop Sarkar (Simon Fraser University)
Weiming Shen (NRC)
Michel Simard (NRC)
Stan Szpakowicz (University of Ottawa)
Ahmed Tawfik (University of Windsor)
Nicole Tourigny (Laval University)
Thomas Tran (University of Ottawa)
Andre Trudel (Acadia University)
Marcel Turcotte (University of Ottawa)
Peter van Beek (University of Waterloo)
Herna Viktor (University of Ottawa)
Shaojun Wang (Wright State University)
Dan Wu (University of Windsor)
Yang Xiang (University of Guelph)
Yiyu Yao (University of Regina)
Jia You (University of Alberta)
Li-Yan Yuan (University of Alberta)
Harry Zhang (University of New Brunswick)
Nur Zincir-Heywood (Dalhousie University)

Additional Reviewers

Referees

Tony Abou-Assaleh
Dulce Aguilar-Solis
Muath Alzghool
Xiangdong An
Alina Andreevskaia
Jing Bai
Susan Bartlett
Yaohua Chen
William Elazmeh
Mark Eramian
Oana Frunza
Sébastien Gambs
Liqiang Geng
Kevin Grant
Baohua Gu
Franklin Hanshar
Michael Horsch
Zina Ibrahim
Michael Janzen
Sittichai Jiampojamarn
Mehdi M. Kashani
Abolfazl Keighobadi Lamjiri
Alistair Kennedy
Guohua Liu
Haibin Liu
Mehrdad Oveisi-Fordoei
Robert Price
Behnam Rahnama
Maxim Roy
Elhadi Shakshuki
Danny Silver
Zhongmin Shi
Jiang Su
Hathai Tanta-ngai
Jeff Taylor
Javier Thaine
Davide Turcato
Bin Wang
Hong Yao
Haiyi Zhang

Sponsoring Institutions

The Canadian Society for the Computational Study of Intelligence (CSCSI)
Société Canadienne pour L'Étude de l'Intelligence par Ordinateur
Ontario Centres of Excellence (OCE)

Table of Contents

Session 1. Agents

Session 2. Bioinformatics

Session 3. Classification

Session 4. Constraint Satisfaction

Session 5. Data Mining

Session 6. Knowledge Representation and Reasoning

Session 7. Learning

Session 8. Natural Language

Session 9. Planning