Lecture Notes in Computer Science 3933

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

Francesco Bonchi Jean-François Boulicaut (Eds.)

Knowledge Discovery in Inductive Databases

4th International Workshop, KDID 2005
Porto, Portugal, October 3, 2005
Revised Selected and Invited Papers

Springer

Volume Editors

Francesco Bonchi
Pisa KDD Laboratory, ISTI - C.N.R.
Area della Ricerca di Pisa
Via Giuseppe Moruzzi, 1 - 56124 Pisa, Italy
E-mail: francesco.bonchi@isti.cnr.it

Jean-François Boulicaut
INSA Lyon, LIRIS CNRS UMR 5205
Bâtiment Blaise Pascal, 69621 Villeurbanne Cedex, France
E-mail: jean-francois.boulicaut@insa-lyon.fr

Library of Congress Control Number: 2006922625

CR Subject Classification (1998): H.2, I.2

LNCS Sublibrary: SL 3 – Information Systems and Application, incl. Internet/Web and HCI

ISSN 0302-9743
ISBN-10 3-540-33292-8 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-33292-3 Springer Berlin Heidelberg New York

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 11733492 06/3142 5 4 3 2 1 0

Preface

The 4th International Workshop on Knowledge Discovery in Inductive Databases (KDID 2005) was held in Porto, Portugal, on October 3, 2005 in conjunction with the 16th European Conference on Machine Learning and the 9th European Conference on Principles and Practice of Knowledge Discovery in Databases.

Ever since the start of the field of data mining, it has been realized that the integration of the database technology into knowledge discovery processes was a crucial issue. This vision has been formalized into the inductive database perspective introduced by T. Imielinski and H. Mannila (CACM 1996, 39(11)). The main idea is to consider knowledge discovery as an extended querying process for which relevant query languages are to be specified. Therefore, inductive databases might contain not only the usual data but also inductive generalizations (e.g., patterns, models) holding within the data. Despite many recent developments, there is still a pressing need to understand the central issues in inductive databases. Constraint-based mining has been identified as a core technology for inductive querying, and promising results have been obtained for rather simple types of patterns (e.g., itemsets, sequential patterns). However, constraint-based mining of models remains a quite open issue. Also, coupling schemes between the available database technology and inductive querying proposals are not yet well understood. Finally, the definition of a general purpose inductive query language is still an on-going quest.

This workshop aimed to bring together database, machine learning and data mining researchers/practitioners who were interested in the numerous scientific and technological challenges that inductive databases offers. The workshop followed the previous three successful workshops organized in conjunction with ECML/PKDD: KDID 2002 held in Helsinki, Finland, KDID 2003 held in Cavtat-Dubrovnik, Croatia, and KDID 2004 held in Pisa, Italy. Its scientific program included seven regular presentations and four short communications, an invited talk by Carlo Zaniolo, and an invited "workshop-closing talk" by Arno Siebes. During the workshop, only informal proceedings were distributed. Most of the papers within this volume have been revised by the authors based on the comments from the initial referring stage and the discussion during the workshop. A few are invited chapters.

We wish to thank the invited speakers, all the authors of submitted papers, the Program Committee members and the ECML/PKDD 2005 Organization Committee. KDID 2005 was supported by the European project IQ "Inductive Queries for Mining Patterns and Models" (IST FET FP6-516169, 2005-2008).

December 2005

Francesco Bonchi
Jean-François Boulicaut

Organization

Program Chairs

Francesco Bonchi
Pisa KDD Laboratory
ISTI - C.N.R.
Italy
http://www-kdd.isti.cnr.it/∼bonchi/

Jean-François Boulicaut
INSA Lyon
France
http://liris.cnrs.fr/∼jboulica/

Program Committee

Hendrik Blockeel, *K.U. Leuven, Belgium*
Toon Calders, *University of Antwerp, Belgium*
Sašo Džeroski, *Jozef Stefan Institute, Slovenia*
Minos N. Garofalakis, *Bell Labs, USA*
Fosca Giannotti, *ISTI-C.N.R., Italy*
Bart Goethals, *University of Antwerp, Belgium*
Dominique Laurent, *LICP, Université de Cergy-Pontoise, France*
Giuseppe Manco, *ICAR-C.N.R., Italy*
Heikki Mannila, *University of Helsinki, Finland*
Rosa Meo, *University of Turin, Italy*
Taneli Mielikäinen, *University of Helsinki, Finland*
Katharina Morik, *University of Dortmund, Germany*
Céline Robardet, *INSA de Lyon, France*
Sunita Sarawagi, *KR School of Information Technology, IIT Bombay, India*
Arno Siebes, *University of Utrecht, The Netherlands*
Mohammed Zaki, *Rensselaer Polytechnic Institute, USA*
Carlo Zaniolo, *UCLA, USA*

Table of Contents

Invited Papers

Contributed Papers