Lecture Notes in Computer Science **8382**

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

Editorial Board

David Hutchison
Lancaster University, Lancaster, UK
Takeo Kanade
Carnegie Mellon University, Pittsburgh, PA, USA
Josef Kittler
University of Surrey, Guildford, UK
Jon M. Kleinberg
Cornell University, Ithaca, NY, USA
Friedemann Mattern
ETH Zurich, Zürich, Switzerland
John C. Mitchell
Stanford University, Stanford, CA, USA
Moni Naor
Weizmann Institute of Science, Rehovot, Israel
C. Pandu Rangan
Indian Institute of Technology, Madras, India
Bernhard Steffen
TU Dortmund University, Dortmund, Germany
Demetri Terzopoulos
University of California, Los Angeles, CA, USA
Doug Tygar
University of California, Berkeley, CA, USA
Gerhard Weikum
Max Planck Institute for Informatics, Saarbruecken, Germany

More information about this series at http://www.springer.com/series/7409

Andreas Nürnberger · Sebastian Stober
Birger Larsen · Marcin Detyniecki (Eds.)

Adaptive Multimedia Retrieval

Semantics, Context, and Adaptation

10th International Workshop, AMR 2012
Copenhagen, Denmark, October 24–25, 2012
Revised Selected Papers

Springer

Editors
Andreas Nürnberger
Sebastian Stober
Otto-von-Guericke-Universität Magdeburg
Magdeburg
Germany

Marcin Detyniecki
Université Pierre et Marie Curie
Paris
France

Birger Larsen
Royal School of Library and Information Science
Copenhagen
Denmark

ISSN 0302-9743
ISBN 978-3-319-12092-8
DOI 10.1007/978-3-319-12093-5

ISSN 1611-3349 (electronic)
ISBN 978-3-319-12093-5 (eBook)

Library of Congress Control Number: 2014953271

LNCS Sublibrary: SL3 – Information Systems and Applications, incl. Internet/Web, and HCI

Springer Cham Heidelberg New York Dordrecht London

© Springer International Publishing Switzerland 2014
This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.
The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.
While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

This book comprises invited surveys and a selection of revised contributions that were initially submitted to the 10th International Workshop on Adaptive Multimedia Retrieval (AMR 2012). This time, the workshop was organized at the Royal School of Library and Information Science in Copenhagen, Denmark, during October 24–25, 2012.

Systems for searching and organizing multimedia information have matured during the last few years. However, retrieving specific media objects is still a challenging task, especially if the query can only be vaguely defined or refers to different types of media. The main difficulties in multimedia search are still, on the one hand, the users' incapacity in specifying their interests in the form of a well-defined query due to insufficient support from the interface, and on the other hand, the problem of extracting relevant (semantic) features from the multimedia objects itself. Ideally, user-specific interests should also be considered when ranking or automatically organizing result sets. To improve today's retrieval tools and thus the overall satisfaction of a user, it is necessary to develop advanced techniques able to support the user in the interactive retrieval process. The general goal of the AMR workshops is to promote the exchange of ideas between the different research communities involved in this topic.

This book includes contributions ranging from theoretical work to practical implementations and its evaluation. Moreover, it is a combination of state-of-the-art surveys and focused contributions. The first part of the book includes overview chapters covering three important aspects of adaptive multimedia retrieval challenges: The first chapter focuses on discovery based on language, the second on evaluation in the particular case of music retrieval, and the third on concepts of recommender systems. All chapters provide a fundamental introduction to the general concepts and the state of the art in these fields.

In the submitted contributions to the workshop three main topics emerged. The first topic is the recurring issue of semantics when dealing with multimedia data. Several papers address the problem of how to annotate images or audio. Furthermore, a lot of work is still tackling issues of feature extraction, data and source identification, and classification, which are important tasks to iteratively close the gap between low-level features and high-level semantics.

The second important topic that emerged is the exploitation of the context for improved retrieval. A good example of this are approaches exploiting location information. Other important aspects explored in these works are the type of media (music, image, natural language text) and the source of data (e.g., the crowd). The context also plays an important role in the contributions presenting recent work on facets of human computer interfaces.

Finally, the crucial problem of (dynamic) adaptation is addressed by the majority of papers. The quantity and diversity of these papers reflect the importance of the topic and its transversality. Adaptation can be understood based on two aspects: What is

being modified and what it is based on? The multiplicity of crossing of these two objects of interest, treated in this book, make us believe that it is still a great ground for ongoing cross-fertilization of the research fields involved.

We would like to thank all members of the Program Committee for supporting us in the reviewing process, the workshop participants for their willingness to revise and extend their papers for this book, the sponsors for their financial help, and Alfred Hofmann from Springer Verlag for his support in the publishing process.

May 2014

Andreas Nürnberger
Sebastian Stober
Birger Larsen
Marcin Detyniecki

Organization

Program Chairs

Andreas Nürnberger	Otto-von-Guericke-University Magdeburg, Germany
Sebastian Stober	Otto-von-Guericke-University Magdeburg, Germany
Birger Larsen	Aalborg University Copenhagen, Denmark
Marcin Detyniecki	CNRS, Laboratoire d'Informatique de Paris 6, France

Program Committee

Jakob Abeßer	Fraunhofer IDMT, Germany
Jenny Benois-Pineau	University of Bordeaux, LaBRI, France
Stefano Berretti	Università degli Studi di Firenze, Italy
Susanne Boll	University of Oldenburg, Germany
Jesús Chamorro	Universidad de Granada, Spain
Juan Cigarrán	Universidad Nacional de Educación a Distancia, Spain
Ana M. García Serrano	Universidad Nacional de Educación a Distancia, Spain
Bogdan Gabrys	Bournemouth University, UK
Daniel Gärtner	Fraunhofer IDMT, Germany
Fabien Gouyon	INESC Porto, Portugal
Christian Hentschel	Hasso Plattner Institute, Germany
Xian-Sheng Hua	Microsoft Research, China
Alejandro Jaimes	Telefónica R&D, Spain
Philippe Joly	Université Paul Sabatier, France
Gareth Jones	Dublin City University, Ireland
Joemon Jose	University of Glasgow, UK
Peter Knees	Johannes Kepler University Linz, Austria
Stefanos Kollias	National Technical University of Athens, Greece
Anna Kruspe	Fraunhofer IDMT, Germany
Stéphane Marchand-Maillet	University of Geneva, Switzerland
Trevor Martin	University of Bristol, UK
José María Martínez Sánchez	Universidad Autónoma de Madrid, Spain
Bernard Merialdo	Institut Eurécom, France
Gabriella Pasi	Università degli Studi di Milano-Bicocca, Italy
Valery Petrushin	Accenture Technology Labs, USA

Daniel Racoceanu	IPAL, UMI CNRS 2955, Singapore
Stefan Rüger	The Open University, UK
Simone Santini	Universidad Autonoma de Madrid, Spain
Raimondo Schettini	Università degli Studi di Milano-Bicocca, Italy
Ingo Schmitt	University of Cottbus, Germany
Nicu Sebe	University of Amsterdam, Netherlands
Alan F. Smeaton	Dublin City University, Ireland
Arjen De Vries	CWI, Netherlands

Supporting Institutions

Royal School of Library and Information Science, Copenhagen, Denmark
Otto-von-Guericke-University Magdeburg, Germany
Laboratoire d'Informatique de Paris 6 (LIP6), France
University Pierre and Marie Curie (UPMC), France
Centre national de la recherche scientifique (CNRS), France

Contents

State-of-the-Art Contributions

Defining and Applying a Language for Discovery 3
Tony Russell-Rose, Joe Lamantia, and Stephann Makri

A Survey of Evaluation in Music Genre Recognition 29
Bob L. Sturm

The Reason Why: A Survey of Explanations for Recommender Systems 67
Christian Scheel, Angel Castellanos, Thebin Lee, and Ernesto William De Luca

Features and Classification

Cross-Dataset Learning of Visual Concepts 87
Christian Hentschel, Harald Sack, and Nadine Steinmetz

Optimized SIFT Feature Matching for Image Retrieval 102
Christian Schulze and Marcus Liwicki

Representativeness and Diversity in Photos via Crowd-Sourced Media Analysis 116
Anca-Livia Radu, Julian Stöttinger, Bogdan Ionescu, María Menéndez, and Fausto Giunchiglia

Location Context

Exploring Geospatial Music Listening Patterns in Microblog Data 133
David Hauger and Markus Schedl

A Study into Annotation Ranking Metrics in Community Contributed Image Corpora 147
Mark Hughes, Gareth J.F. Jones, and Noel E. O'Connor

Language and Semantics

Semantic Indexing for Efficient Retrieval of Multimedia Data 165
Xiaoqi Cao and Matthias Klusch

A Proof-of-Concept for Orthographic Named Entity Correction in Spanish Voice Queries 181
Julián Moreno Schneider, José Luis Martínez Fernández, and Paloma Martínez

Music Retrieval

From Improved Auto-Taggers to Improved Music Similarity Measures 193
Klaus Seyerlehner, Markus Schedl, Reinhard Sonnleitner, David Hauger, and Bogdan Ionescu

Ambiguity in Automatic Chord Transcription: Recognizing Major and Minor Chords 203
Antti Laaksonen

Capturing the Temporal Domain in Echonest Features for Improved Classification Effectiveness 214
Alexander Schindler and Andreas Rauber

Adaptation and HCI

SKETCHify – An Adaptive Prominent Edge Detection Algorithm for Optimized Query-by-Sketch Image Retrieval 231
Ihab Al Kabary and Heiko Schuldt

Adaptive Temporal Modeling of Audio Features in the Context of Music Structure Segmentation 248
Florian Kaiser and Geoffroy Peeters

Detector Performance Prediction Using Set Annotations 262
Robin Aly and Martha Larson

Personas – The Missing Link Between User Simulations and User-Centered Design? Linking the Persona-Based Design of Adaptive Multimedia Retrieval Systems with User Simulations 276
David Zellhöfer

Author Index 291