

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Alfred Kobsa

University of California, Irvine, CA, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

TU Dortmund University, Germany

Madhu Sudan

Microsoft Research, Cambridge, MA, USA

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

Joseph A. Konstan Ricardo Conejo
José L. Marzo Nuria Oliver (Eds.)

User Modeling, Adaption, and Personalization

19th International Conference, UMAP 2011
Girona, Spain, July 11-15, 2011
Proceedings

Volume Editors

Joseph A. Konstan
University of Minnesota
Department of Computer Science and Engineering
4-192 Keller Hall Minneapolis, MN 55455, USA
E-mail: konstan@cs.umn.edu

Ricardo Conejo
Universidad de Málaga, E.T.S. Ing. Informatica
Boulevard Lois Pasteur, 35, 29071 Malaga, Spain
E-mail: conejo@lcc.uma.es

José L. Marzo
University of Girona, EPS Edifici P-IV (D.208)
Campus de Montilivi, 17071 Girona, Spain
E-mail: joselius.marzo@udg.es

Nuria Oliver
Telefonica Research R& D, Via Augusta, 177
Barcelona, Catalonia 08021, Spain
E-mail: nuriao@tid.es

ISSN 0302-9743 e-ISSN 1611-3349
ISBN 978-3-642-22361-7 e-ISBN 978-3-642-22362-4
DOI 10.1007/978-3-642-22362-4
Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011930852

CR Subject Classification (1998): H.3, I.2, H.4, H.5, C.2, I.4

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

© Springer-Verlag Berlin Heidelberg 2011

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

The use of general descriptive names, registered names, trademarks, 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.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

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

Preface

The 19th International Conference on User Modeling, Adaptation and Personalization (UMAP 2011) took place in Girona, Spain, during July 11–15, 2011. It was the third annual conference under the UMAP title, which resulted from the merger in 2009 of the successful biannual User Modeling (UM) and Adaptive Hypermedia (AH) conference series. Over 700 researchers from 45 countries were involved in creating the technical program, either as authors or as reviewers.

The Research Paper Track of the conference was chaired by Joseph A. Konstan from the University of Minnesota, USA, and Ricardo Conejo from the Universidad de Málaga, Spain. They were assisted by an international Program Committee of 80 leading figures in the AH and UM communities as well as highly promising younger researchers. Papers in the Research Paper Track were reviewed by three or more reviewers, with disagreements resolved through discussion among the reviewers, and the summary opinion reported in a meta review. The conference solicited Long Research Papers of up to 12 pages in length, which represent original reports of substantive new research. In addition, the conference solicited Short Research Papers of up to 6 pages in length, whose merit was assessed more in terms of originality and importance than maturity and technical validation. The Research Paper Track received 164 submissions, with 122 in the long and 42 in the short paper category. Of these, 27 long and 6 short papers were accepted, resulting in an acceptance rate of 22.13% for long papers, 14.29% for short papers, and 20.12% overall. Many authors of rejected papers were encouraged to revise their work and to resubmit it to conference workshops or to the Poster and Demo Tracks of the conference.

The Industry Paper Track was chaired by Enrique Frias-Martinez, from Telefonica Research in Spain, and Marc Torrens, from Strands Labs in Spain. This track covered innovative commercial implementations or applications of UMAP technologies, and experience in applying recent research advances in practice. Submissions to this track were reviewed by a separate Industry Paper Committee with 14 leading industry researchers and practitioners. Of 8 submissions that were received, 3 were accepted.

The conference also included a Doctoral Consortium, a forum for PhD students to get feedback and advice from a Doctoral Consortium Committee of 17 leading UMAP researchers. The Doctoral Consortium was chaired by Julita Vassileva from the University of Saskatchewan, Canada, and Liliana Ardissono, Università degli Studi di Torino, Italy. This track received 27 submissions of which 15 were accepted.

The traditional Poster and Demo Session of the conference was chaired by Slivia Baldiris, Universitat de Girona, Spain, and Nicola Henze, University of Hannover, Germany, and Fabian Abel, Delft University of Technology, The Netherlands. As of the time of writing, the late submission deadline is still 2

months away, and hence the number of acceptances is still unknown. We expect that this session will again have featured dozens of lively posters and system demonstrations. Summaries of these presentations will be published in online adjunct proceedings.

The UMAP 2011 program also included Workshops and Tutorials that were selected by Chairs Tsvi Kuflik, University of Haifa, Israel, and Liliana Ardissono, Università degli Studi di Torino, Italy. The following tutorials were offered:

- Personalization, Persuasion, and Everything In-between, taught by Shlomo Berkovsky and Jill Freyne
- Designing Adaptive Social Applications, taught by Julita Vassileva and Jie Zhang
- Designing and Evaluating New-Generation User Modeling, taught by Frederica Cena and Cristina Gena

And the following workshops were organized:

- SASWeb: Semantic Adaptive Social Web, chaired by Frederica Cena, Antonina Dattolo, Ernesto William De Luca, Pasquale Lops, Till Plumbaum and Julita Vassileva
- PALE: Personalization Approaches in Learning Environments, chaired by Alexander Nussbaumer, Diana Pérez-Marin, Effie Law, Jesus G. Boticario, Milos Kravcik, Noboru Matsuda, Olga C. Santos and Susan Bull
- DEMRA: Decision Making and Recommendation Acceptance Issues in Recommender Systems, chaired by Francesco Ricci, Giovanni Semeraro, Marco de Gemmis and Pasquale Lops
- AUM: Augmenting User Models with Real-World Experiences to Enhance Personalization and Adaptation, chaired by Fabian Abel, Vania Dimitrova, Eelco Herder and Geert-Jan Houbert
- UMMS: User Models for Motivational Systems: The Affective and the Rational Routes to Persuasion, chaired by Floriana Grasso, Jaap Ham and Judith Masthoff
- TRUM: Trust, Reputation and User Modeling, chaired by Julita Vassileva and Jie Zhang
- ASTC: Adaptive Support for Team Collaboration, chaired by Alexandros Paramythis, Lydia Lau, Stavros Demetriadis, Manolis Tzagarakis and Styliani Kleanthouse
- UMADR: User Modeling and Adaptation for Daily Routines: Providing Assistance to People with Special and Specific Needs, chaired by Estefania Martin, Pablo A. Haya and Rosa M. Carro

Finally, the conference also featured two invited talks. The invited speakers were:

- Ricardo Baeza-Yates, Yahoo! Research, on the topic: “User Engagement: A Scientific Challenge”
- Paul Resnick, University of Michigan, on the topic: “Does Personalization Lead to Echo Chambers?”

In addition to all the contributors mentioned, we would also like to thank the Local Arrangements Chair Ramon Fabregat from the University of Girona, Spain, and the Publicity Chair Eelco Herder from L3S Research Center in Germany. We deeply acknowledge the conscientious work of the Program Committee members and the additional reviewers, who are listed on the next pages. The conference would not have been possible without the work of many “invisible” helpers. We also gratefully acknowledge our sponsors who helped us with funding and organizational expertise: User Modeling Inc., ACM SIGART, SIGCHI and SIGIR, the Chen Family Foundation, Microsoft Research, the U.S. National Science Foundation, Springer, Telefonica de España, and the University of Girona. Finally, we want to acknowledge the use of EasyChair for the management of the review process and the preparation of the proceedings, and the help of its administrator Andrei Voronkov in implementing system enhancements that this conference had commissioned.

April 2011

Joseph A. Konstan
Ricardo Conejo
Jose L. Marzo
Nuria Oliver

Organization

UMAP 2011 was organized by the Institute of Informatics and Applications, Universitat de Girona, Spain, in cooperation in cooperation with User Modeling Inc., ACM/SIGIR, ACM/SIGCHI and ACM/SIGART. The conference took place during July 11–15, 2011 at Centre Cultural la Mercè, City Hall of Girona, Spain.

Organizing Committee

General Co-chairs

Jose L. Marzo	University of Girona, Spain
Nuria Oliver	Telefonica Research, Spain

Program Co-chairs

Joseph A. Konstan	University of Minnesota, USA
Ricardo Conejo	Universidad de Málaga, Spain

Industry Track Co-chairs

Enrique Frias-Martinez	Telefonica Research, Spain
Marc Torrens	Strands Labs, Spain

Workshop and Tutorial Co-chairs

Tsvi Kuflik	University of Haifa, Israel
Liliana Ardissono	Università degli Studi di Torino, Italy

Doctoral Consortium Co-chairs

Julita Vassileva	University of Saskatchewan, Canada
Peter Brusilovsky	University of Pittsburgh, USA

Demo and Poster Co-chairs

Silvia Baldiris	Universitat de Girona, Spain
Nicole Henze	University of Hannover, Germany
Fabian Abel	Delft University of Technology, The Netherlands

Local Arrangements Chair

Ramon Fabregat	University of Girona, Spain
----------------	-----------------------------

Publicity Chair

Eelco Herder	L3S Research Center, Germany
--------------	------------------------------

Research Track Program Committee

Kenro Aihara	National Institute of Informatics, Japan
Sarabjot Anand	University of Warwick, UK
Liliana Ardissono	Università di Torino, Italy
Lora Aroyo	University of Amsterdam, The Netherlands
Helen Ashman	University of South Australia
Ryan Baker	Carnegie Mellon University, USA
Mathias Bauer	Mineway GmbH, Germany
Joseph Beck	Worcester Polytechnic Institute, USA
Shlomo Berkovsky	CSIRO, Australia
Maria Bieliková	Slovak University of Technology, Slovakia
Peter Brusilovsky	University of Pittsburgh, USA
Robin Burke	DePaul University, USA
Sandra Carberry	University of Delaware, USA
Rosa Carro	Universidad Autonoma de Madrid, Spain
David Chin	University of Hawaii, USA
Cristina Conati	University of British Columbia, Canada
Owen Conlan	University of Dublin, Ireland
Albert Corbett	Carnegie Mellon University, USA
Dan Cosley	Cornell University, USA
Alexandra Cristea	University of Warwick, UK
Hugh Davis	University of Southampton, UK
Paul De Bra	Eindhoven University of Technology, The Netherlands
Vania Dimitrova	University of Leeds, UK
Peter Dolog	Aalborg University, Denmark
Ben Du Boulay	University of Sussex, UK
Enrique Frias-Martinez	Telefonica Research, Spain
Eduardo Guzman	Universidad de Málaga, Spain
Neil Heffernan	Worcester Polytechnic Institute
Nicola Henze	University of Hannover, Germany
Eelco Herder	L3S Research Center, Hannover, Germany
Haym Hirsh	National Science Foundation
Ulrich Hoppe	University Duisburg-Essen, Germany
Geert-Jan Houben	Delft University of Technology, The Netherlands
Dietmar Jannach	Dortmund University of Technology, Germany
Lewis Johnson	Alelo, Inc., USA
Judy Kay	University of Sydney, Australia
Alfred Kobsa	University of California, Irvine, USA
Birgitta Konig-Ries	University of Karlsruhe, Germany
Tsvi Kuflik	University of Haifa, Israel
Paul Lamere	Sun Laboratories, UK
James Lester	North Carolina State University, USA
Henry Lieberman	MIT, USA
Frank Linton	The MITRE Corporation, USA

Paul Maglio	IBM Research Center, USA
Brent Martin	University of Canterbury, New Zealand
Judith Masthoff	University of Aberdeen, UK
Mark Maybury	MITRE, USA
Gordon McCalla	University of Saskatchewan, Canada
Lorraine McGinty	UCD Dublin, Ireland
Alessandro Micarelli	Roma Tre University, Italy
Eva Millan	Universidad de Málaga, Spain
Bamshad Mobasher	DePaul University, USA
Yoichi Motomura	National Institute of Advanced Industrial Science and Technology, Japan
Michael O'Mahony	UCD Dublin, Ireland
Jose Luis Perez de la Cruz	Málaga University, Spain
Francesco Ricci	Free University of Bolzan-Bolzano, Italy
John Riedl	University of Minnesota, USA
Jesús González Boticario	UNED, Spain
Cristobal Romero	University of Cordoba, Spain
Lloyd Rutledge	Open Universiteit Nederland, The Netherlands
Melike Sah	Trinity College, Dublin, Ireland
Olga Santos	UNED, Spain
Daniel Schwabe	Pontificia Universidade Católica do Rio de Janeiro, Brazil
Frank Shipman	Texas A&M University, USA
Carlo Tasso	University of Udine, Italy
Loren Terveen	University of Minnesota, USA
Julita Vassileva	University of Saskatchewan, Canada
Vincent Wade	Trinity College Dublin, Ireland
Gerhard Weber	HCI Research Group, Germany
Massimo Zancanaro	Bruno Kessler Foundation, Italy
Diego Zapata-Rivera	ETS, USA

Industry Track Program Committee

Mauro Barbieri	Philips Research, The Netherlands
Mathias Bauer	Mineway, Germany
Vanessa Frias-Martinez	Telefonica Research, Madrid, Spain
Werner Geyer	IBM Research, Cambridge, MA, USA
Gustavo Gonzalez-Sanchez	Mediapro R&D, Spain
Maxim Gurevich	Yahoo Research, USA
Ido Guy	IBM Research, Haifa, Israel
Heath Hohwald	Telefonica Research, Madrid, Spain
Jose Iria	IBM Research, Zurich, Switzerland
Ashish Kapoor	Microsoft Research, Redmond, USA

George Magoulas	Birkbeck College, London, UK
Bhaskar Mehta	Google, Zurich, Switzerland
David R. Millen	IBM Research, Cambridge, USA
Qiankun Zhao	Audience Touch, Beijing, China

Doctoral Consortium Committee

Sarabjot Anand	University of Warwick, UK
Shlomo Berkovsky	CSIRO, Australia
Mária Bieliková	Slovak University of Technology, Slovakia
Peter Brusilovsky	University of Pittsburgh, USA
Susan Bull	University of Birmingham, UK
Robin Burke	DePaul University, USA
Federica Cena	Università degli Studi di Torino, Italy
David Chin	University of Hawaii, USA
Alexandra Cristea	University of Warwick, UK
Antonina Dattolo	Università di Udine, Italy
Vania Dimitrova	University of Leeds, UK
Peter Dolog	Aalborg University, Denmark
Benedict Du Boulay	University of Sussex, UK
Cristina Gena	Università di Torino, Italy
Floriana Grasso	University of Liverpool, UK
Jim Greer	University of Saskatchewan, Canada
Eelco Herder	L3S Research Center, Hannover, Germany
Indratmo Indratmo	Grant MacEwan University, Canada
Dietmar Jannach	Dortmund University of Technology, Germany
Judith Masthoff	University of Aberdeen, UK
Cecile Paris	CSIRO, Australia
Liana Razmerita	Copenhagen Business School, Denmark
Katharina Reinecke	University of Zurich, Switzerland
Marcus Specht	University of The Netherlands
Julita Vassileva	University of Saskatchewan, Canada
Stephan Weibelzahl	National College of Ireland

Additional Reviewers

Fabian Abel	Delft University of Technology, The Netherlands
Mohd Anwar	University of Saskatchewan, Canada
Michal Barla	Slovak University of Technology, Slovakia
Claudio Biancalana	University of Rome III, Italy
Kristy Elizabeth Boyer	North Carolina State University, USA
Janez Brank	J. Stefan Institute, Slovenia
Christopher Brooks	University of Saskatchewan, Canada
Stefano Burigat	University of Udine, Italy
Fabio Buttussi	University of Udine, Italy
Alberto Cabas Vidani	University of Udine, Italy

Annalina Caputo	University of Bari, Italy
Giuseppe Carenini	University of British Columbia, Canada
Francesca Carmagnola	University of Leeds, UK
Carlos Castro-Herrera	DePaul University, USA
Fei Chen	Avaya Labs, USA
Karen Church	University College Dublin, Ireland
Ilaria Corda	University of Leeds, UK
Theodore Dalamagas	Ionian University, Greece
Lorand Dali	J. Stefan Institute, Slovenia
Carla Delgado-Battenfeld	TU Dortmund, Germany
Eyal Dim	University of Haifa, Israel
Frederico Durao	Aalborg University, Denmark
Jill Freyne	University College Dublin, Ireland
Fabio Gasparetti	University of Rome III, Italy
Mouzhi Ge	TU Dortmund, Germany
Fatih Gedikli	TU Dortmund, Germany
Jonathan Gemmell	DePaul University, USA
Yaohua Ho	NTU, Taiwan
Daniel Krause	L3S Research Center Hannover, Germany
Joel Lanir	University of Haifa, Israel
Danielle H. Lee	University of Pittsburgh, USA
I-Fan Liu	NTU, Taiwan
Pasquale Lops	University of Bari, Italy
Kevin McCarthy	University College Dublin, Ireland
Cataldo Musto	University of Bari, Italy
Inna Novalija	J. Stefan Institute, Slovenia
Ildiko Pelczar	Ecole Polytechnic de Montreal, Canada
Jonathan Rowe	North Carolina State University, USA
Giuseppe Sansonetti	University of Rome III, Italy
Tom Schimoler	DePaul University, USA
Giovanni Semeraro	University of Bari, Italy
Yanir Seroussi	Monash University, Australia
Marian Simko	Slovak University of Technology, Slovakia
Jan Suchal	Slovak University of Technology, Slovakia
Nenad Tomasev	J. Stefan Institute, Slovenia
Giannis Tsakonas	Ionian University, Greece
Michal Tvarozek	Slovak University of Technology, Slovakia
Dimitrios Vogiatzis	NCSR Demokritos, Greece
Alan Wecker	University of Haifa, Israel
Michael Yudelson	University of Pittsburgh, USA

Table of Contents

Full Research Papers

Analyzing User Modeling on Twitter for Personalized News Recommendations	1
<i>Fabian Abel, Qi Gao, Geert-Jan Houben, and Ke Tao</i>	
Ensembling Predictions of Student Knowledge within Intelligent Tutoring Systems	13
<i>Ryan S.J.D. Baker, Zachary A. Pardos, Sujith M. Gowda, Bahador B. Nooraei, and Neil T. Heffernan</i>	
Creating Personalized Digital Human Models Of Perception For Visual Analytics	25
<i>Mike Bennett and Aaron Quigley</i>	
Coping with Poor Advice from Peers in Peer-Based Intelligent Tutoring: The Case of Avoiding Bad Annotations of Learning Objects	38
<i>John Champaign, Jie Zhang, and Robin Cohen</i>	
Modeling Mental Workload Using EEG Features for Intelligent Systems	50
<i>Maher Chaouachi, Imène Jraïdi, and Claude Frasson</i>	
Context-Dependent Feedback Prioritisation in Exploratory Learning Revisited	62
<i>Mihaela Cocea and George D. Magoulas</i>	
Performance Comparison of Item-to-Item Skills Models with the IRT Single Latent Trait Model	75
<i>Michel C. Desmarais</i>	
Hybrid User Preference Models for Second Life and OpenSimulator Virtual Worlds	87
<i>Joshua Eno, Gregory Stafford, Susan Gauch, and Craig W. Thompson</i>	
Recipe Recommendation: Accuracy and Reasoning	99
<i>Jill Freyne, Shlomo Berkovsky, and Gregory Smith</i>	
Tag-Based Resource Recommendation in Social Annotation Applications	111
<i>Jonathan Gemmell, Thomas Schimoler, Bamshad Mobasher, and Robin Burke</i>	

The Impact of Rating Scales on User’s Rating Behavior	123
<i>Cristina Gena, Roberto Brogi, Federica Cena, and Fabiana Vernero</i>	
Looking Beyond Transfer Models: Finding Other Sources of Power for Student Models	135
<i>Yue Gong and Joseph E. Beck</i>	
Using Browser Interaction Data to Determine Page Reading Behavior	147
<i>David Hauger, Alexandros Paramythis, and Stephan Weibelzahl</i>	
A User Interface for Semantic Competence Profiles	159
<i>Martin Hochmeister and Johannes Daxböck</i>	
Open Social Student Modeling: Visualizing Student Models with Parallel Introspective Views	171
<i>I-Han Hsiao, Fedor Bakalov, Peter Brusilovsky, and Birgitta König-Ries</i>	
Location-Adapted Music Recommendation Using Tags	183
<i>Marius Kaminskas and Francesco Ricci</i>	
Leveraging Collaborative Filtering to Tag-based Personalized Search	195
<i>Heung-Nam Kim, Majdi Rawashdeh, and Abdulmotaleb El Saddik</i>	
Modelling Symmetry of Activity as an Indicator of Collocated Group Collaboration	207
<i>Roberto Martinez, Judy Kay, James R. Wallace, and Kalina Yacef</i>	
A Dynamic Sliding Window Approach for Activity Recognition	219
<i>Javier Ortiz Laguna, Angel García Olaya, and Daniel Borrajo</i>	
Early Detection of Potential Experts in Question Answering Communities	231
<i>Aditya Pal, Rosta Farzan, Joseph A. Konstan, and Robert E. Kraut</i>	
KT-IDEM: Introducing Item Difficulty to the Knowledge Tracing Model	243
<i>Zachary A. Pardos and Neil T. Heffernan</i>	
Walk the Talk	255
<i>Denis Parra and Xavier Amatriain</i>	
Finding Someone you will Like and who Won’t Reject You	269
<i>Luiz Augusto Pizzato, Tomek Rej, Kalina Yacef, Irena Koprinska, and Judy Kay</i>	

Personalizing the Theme Park: Psychometric Profiling and Physiological Monitoring	281
<i>Stefan Rennick-Egglestone, Amanda Whitbrook, Caroline Leygue, Julie Greensmith, Brendan Walker, Steve Benford, Holger Schnädelbach, Stuart Reeves, Joe Marshall, David Kirk, Paul Tennent, Ainoje Iruene, and Duncan Rowland</i>	
Recognising and Recommending Context in Social Web Search	293
<i>Zurina Saaya, Barry Smyth, Maurice Coyle, and Peter Briggs</i>	
Tags as Bridges between Domains: Improving Recommendation with Tag-Induced Cross-Domain Collaborative Filtering	305
<i>Yue Shi, Martha Larson, and Alan Hanjalic</i>	
User Modeling – A Notoriously Black Art	317
<i>Michael Yudelson, Philip I. Pavlik Jr., and Kenneth R. Koedinger</i>	
Short Research Papers	
Selecting Items of Relevance in Social Network Feeds	329
<i>Shlomo Berkovsky, Jill Freyne, Stephen Kimani, and Gregory Smith</i>	
Enhancing Traditional Local Search Recommendations with Context-Awareness	335
<i>Claudio Biancalana, Andrea Flamini, Fabio Gasparetti, Alessandro Micarelli, Samuele Millevolte, and Giuseppe Sansonetti</i>	
Gender Differences and the Value of Choice in Intelligent Tutoring Systems	341
<i>Derek T. Green, Thomas J. Walsh, Paul R. Cohen, Carole R. Beal, and Yu-Han Chang</i>	
Towards Understanding How Humans Teach Robots	347
<i>Tasneem Kaochar, Raquel Torres Peralta, Clayton T. Morrison, Ian R. Fasel, Thomas J. Walsh, and Paul R. Cohen</i>	
Towards Open Corpus Adaptive Hypermedia: A Study of Novelty Detection Approaches	353
<i>Yi-ling Lin and Peter Brusilovsky</i>	
4MALITY: Coaching Students with Different Problem-Solving Strategies Using an Online Tutoring System	359
<i>Leena Razzaq, Robert W. Maloy, Sharon Edwards, David Marshall, Ivon Arroyo, and Beverly P. Woolf</i>	

Long Industry Papers

Capitalizing on Uncertainty, Diversity and Change by Online Individualization of Functionality 365
Reza Razavi

Prediction of Socioeconomic Levels Using Cell Phone Records 377
Victor Soto, Vanessa Frias-Martinez, Jesus Virseda, and Enrique Frias-Martinez

User Perceptions of Adaptivity in an Interactive Narrative 389
Karen Tanenbaum, Marek Hatala, and Joshua Tanenbaum

Doctoral Consortium Papers

Performance Prediction in Recommender Systems 401
Alejandro Bellogín

Multi-perspective Context Modelling to Augment Adaptation in Simulated Learning Environments 405
Dimoklis Despotakis

Situation Awareness in Neurosurgery: A User Modeling Approach 409
Shahram Eivazi

Adaptive Active Learning in Recommender Systems 414
Mehdi Elahi

Extending Sound Sample Descriptions through the Extraction of Community Knowledge 418
Frederic Font and Xavier Serra

Monitoring Contributions Online: A Reputation System to Model Expertise in Online Communities 422
Thieme Hennis

Student Procedural Knowledge Inference through Item Response Theory 426
Manuel Hernando

Differences on How People Organize and Think About Personal Information 430
Matjaž Kljun

Towards Contextual Search: Social Networks, Short Contexts and Multiple Personas 434
Tomáš Kramár

Using Folksonomies for Building User Interest Profile 438
Harshit Kumar and Hong-Gee Kim

Designing Trustworthy Adaptation on Public Displays	442
<i>Ekaterina Kurdyukova</i>	
Using Adaptive Empathic Responses to Improve Long-Term Interaction with Social Robots	446
<i>Iolanda Leite</i>	
A User Modeling Approach to Support Knowledge Work in Socio-computational Systems	450
<i>Karin Schoefegger</i>	
Modeling Individuals with Learning Disabilities to Personalize a Pictogram-Based Instant Messaging Service	454
<i>Pere Tuset-Peiró</i>	
FamCHAI: An Adaptive Calendar Dialogue System	458
<i>Ramin Yaghoubzadeh</i>	
Author Index	463