

# **23rd Italian Symposium on Advanced Database Systems (SEBD 2015)**

Gaeta, Italy  
14 – 17 June 2015

## **Editors:**

**Domenico Lembo  
Riccardo Torlone**

**Andrea Marrella**

**ISBN: 978-1-5108-1087-7**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© for individual papers are retained by the authors.  
All rights reserved.

Printed by Curran Associates, Inc. (2015)

Edited by:  
Domenico Lembo  
Riccardo Torlone  
Andrea Marrella

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## Table of Contents

### Tutorials

Updating Data and Knowledge Bases . . . . .	1
<i>Antonella Poggi</i>	
Beyond Declarative Data Cleaning . . . . .	2
<i>Paolo Papotti</i>	

### Industrial Talk

The Startup Ecosystem: a Quick Tour . . . . .	3
<i>Paolo Merialdo</i>	

### Keynote Talks

Database Optimization Techniques for Semantic Queries . . . . .	4
<i>Ioana Manolescu</i>	
SQL's Handling of Nulls: Can It Be Fixed? . . . . .	7
<i>Leonid Libkin</i>	
Big Data: Hype and Reality . . . . .	11
<i>C. Mohan</i>	

### Research Papers

Putting Open Data to the Test of Life: Conceptual Schemas as a Means to Compare and Measure Social Value . . . . .	12
<i>Carlo Batini and Angela Locoro</i>	
Managing Energy Efficiency and Quality of Service in Cloud Applications Using a Distributed Monitoring System . . . . .	24
<i>Monica Vitali</i>	
Knowledge-Driven Digital Forensics . . . . .	36
<i>Alfredo Cuzzocrea and Giuseppe Pirrò</i>	
Automating Conceptual Schema Reconciliation through a DL-based Schema Matcher . . . . .	48
<i>Loredana Caruccio, Vincenzo Deufemia and Giuseppe Polese</i>	
Leveraging Relational Technology for Data-Centric Dynamic Systems . . . .	60
<i>Diego Calvanese, Marco Montali, Fabio Patrizi and Andrey Riukin</i>	

## Discussion Papers

Handling high-dimensional data in statistical compilation: a relational approach . . . . .	72
<i>Luigi Bellomarini, Paolo Atzeni, Marco De Leonardis and Fabio Sorà</i>	
Analyzing Genomic Mappings with the GOLAM Framework . . . . .	80
<i>Lorenzo Baldacci, Matteo Golfarelli, Simone Graziani and Stefano Rizzi</i>	
Solving conflicts in data integration with Bayesian networks . . . . .	88
<i>Eleonora Laurenza</i>	
A Temporal Logic-based approach to query Open Street Map . . . . .	96
<i>Marina Mongiello, Tommaso Di Noia and Eugenio Di Sciascio</i>	
Schema-Agnostic Ranking of RDF Properties . . . . .	104
<i>Andrea Dessi and Maurizio Atzori</i>	
Introducing the Web of Functions: Interoperable Higher-Order Functions in Pure SPARQL . . . . .	112
<i>Maurizio Atzori</i>	
Beyond Text-based Web Search: Question Answering and By-Example Structured Queries compared on Wikipedia . . . . .	120
<i>Maurizio Atzori and Carlo Zaniolo</i>	
Exploratory Computing: What is there for the Database Researcher? . . . .	128
<i>Marcello Buoncrisiano, Giansalvatore Mecca, Elisa Quintarelli, Manuel Roveri, Donatello Santoro and Letizia Tanca</i>	
A reputation based approach to enhance web 2.0 application composition	136
<i>Devis Bianchini, Valeria De Antonellis and Michele Melchiori</i>	
Classification of Web Job Advertisements: A Case Study . . . . .	144
<i>Flora Amato, Roberto Boselli, Mirko Cesarini, Fabio Mercorio, Mario Mezzanatica, Vincenzo Moscato, Fabio Persia and Antonio Picariello</i>	
Queries and Updates on Big XML Documents (Extended Abstract) . . . .	152
<i>Nicole Bidoit, Dario Colazzo, Carlo Sartiani, Alessandro Solimando and Federico Ulliana</i>	
A lightweight electronic signature scheme using Twitter . . . . .	160
<i>Francesco Buccafurri, Lidia Fotia, Gianluca Lax, Serena Nicolazzo and Antonino Nocera</i>	
A Perspective Look at Keyword-based Search Over Relation Data and its Evaluation (extended abstract) . . . . .	168
<i>Sonia Bergamaschi, Nicola Ferro, Francesco Guerra and Gianmaria Silvello</i>	

AIDA: Automatic Indexing based on DAta mining . . . . .	176
<i>Mirjana Mazuran, Matteo Simoni and Letizia Tanca</i>	
A structure-based approach for ontology partitioning . . . . .	184
<i>Flora Amato, Aniello De Santo, Vincenzo Moscato, Fabio Persia, Antonio Picariello, Silvestro Roberto Poccia and Giancarlo Sperli</i>	
Checking Termination of Datalog with Function Symbols Through Linear Constraints . . . . .	192
<i>Marco Calautti, Sergio Greco, Cristian Molinaro and Irina Trubitsyna</i>	
MOMIS Goes Multimedia: WINDSURF and the Case of Top-K Queries .	200
<i>Ilaria Bartolini, Domenico Beneventano, Sonia Bergamaschi, Paolo Ciaccia, Alberto Corni, Mirko Orsini, Marco Patella and Marco Maria Santese</i>	
VIPOC Project Research Summary (Discussion Paper) . . . . .	208
<i>Michelangelo Ceci, Roberto Corizzo, Fabio Fumarola, Michele Ianni, Donato Malerba, Gaspare Maria, Elio Masciari, Marco Oliverio and Aleksandra Rashkovska</i>	
How I Learned to Stop Worrying and Love NoSQL Databases . . . . .	216
<i>Francesca Bugiotti, Luca Cabibbo, Paolo Atzeni and Riccardo Torlone</i>	
Hierarchical Big Data Clustering (Discussion Paper) . . . . .	224
<i>Michele Ianni, Elio Masciari, Giuseppe Massimiliano Mazzeo, Marco Oliverio and Carlo Zaniolo</i>	
A wait-free output data structure for GPU-based streaming query processing . . . . .	232
<i>Claudio Silvestri, Francesco Lettich, Salvatore Orlando and Christian S. Jensen</i>	
Semi-supervised learning for multi-target regression (Discussion paper) ..	240
<i>Jurica Levatić, Michelangelo Ceci, Dragi Kocev and Sašo Džeroski</i>	
Exploratory Analysis of Web Information Resources . . . . .	248
<i>Silvana Castano, Alfio Ferrara and Stefano Montanelli</i>	
Towards Process Instances Building for Spaghetti Processes . . . . .	256
<i>Claudia Diamantini, Laura Genga, Domenico Potena and Wil M.P. Van der Aalst</i>	
Effective Big Data Warehouses Surfing (Discussion Paper) . . . . .	264
<i>Nunziato Cassavia, Pietro Dicosta, Elio Masciari and Domenico Saccà</i>	
Multilingual Word Sense Induction to Improve Web Search Result Clustering . . . . .	272
<i>Lorenzo Albano, Domenico Beneventano and Sonia Bergamaschi</i>	

Crossing the boundary of “meta” in Conceptual Modeling (Discussion paper) .....	280
<i>Maurizio Lenzerini, Lorenzo Lepore and Antonella Poggi</i>	
Using Binary Tables to Evaluate Incompleteness in Multidimensional Analysis .....	288
<i>Mario Bochicchio and Lucia Vaira</i>	
OBDA with the Ontop Framework .....	296
<i>Diego Calvanese, Benjamin Cogrel, Elem Guzel Kalayci, Sarah Komla Ebri, Roman Kontchakov, Davide Lanti, Martin Rezk, Mariano Rodríguez Muro and Guohui Xiao</i>	
A Survey on Handling Data in Business Process Models (Discussion Paper) 304	
<i>Andrea Marrella, Massimo Mecella, Alessandro Russo, Sebastian Steinau, Kevin Andrews and Manfred Reichert</i>	
Toward Scalable Hybrid Stores .....	312
<i>Francesca Bugiotti, Damian Bursztyn, Alin Deutsch, Ioana Ileana and Ioana Manolescu</i>	
GIS for the analysis and monitoring of environmental issues related to life quality. ....	320
<i>Giuseppe Tradigo, Carmine Pagliaro, Giovanni Canino, Pietro Hiram Guzzi and Pierangelo Veltri</i>	
Modeling Service Dynamics: a Case Study .....	327
<i>Mario Bochicchio, Giancarlo Guizzardi, Barbara Livieri, Lucia Vaira, Nicola Guarino, Antonella Longo and Marco Zappatore</i>	
Mapping Analysis in Ontology-based Data Access: Algorithms and Complexity (Discussion paper) .....	335
<i>Domenico Lembo, Jose Mora, Riccardo Rosati, Domenico Fabio Savo and Evgenij Thorstensen</i>	
Complementing MongoDB with Advanced Access Control Features: Concepts and Research Challenges .....	343
<i>Pietro Colombo and Elena Ferrari</i>	
Exploiting the HEF property to check model minimality .....	351
<i>Fabrizio Angiulli, Rachel Ben-Ellyahu-Zohary, Fabio Fassetti and Luigi Palopoli</i>	
A Framework for Conjunctive Query Answering over Distributed Deep Web Information Resources .....	358
<i>Andrea Cali and Umberto Straccia</i>	