

Lecture Notes in Artificial Intelligence

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Conceptual Structures for Discovering Knowledge

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on Conceptual Structures, ICCS 2011
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Proceedings

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Preface

This volume contains the proceedings of the 19th International Conference on Conceptual Structures (ICCS 2011), the latest in a series of annual conferences that have been held in Europe, Asia, Australia, and North America since 1993. Details of these events are available at www.conceptualstructures.org, and www.iccs.info points to the latest conference in this prestigious series. ICCS focuses on the useful representation and analysis of conceptual knowledge with research and business applications. It brings together some of the world's best minds in information technology, arts, humanities, and social science to explore novel ways that information and communication technologies can leverage tangible business or social benefits. This is because conceptual structures (CS) harmonize the creativity of humans with the productivity of computers. CS recognizes that organizations work with concepts; machines like structures.

ICCS advances the theory and practice in connecting the user's conceptual approach to problem solving with the formal structures that computer applications need to bring their productivity to bear. Arising originally out of the work of IBM in conceptual graphs, over the years ICCS has broadened its scope to include a wider range of theories and practices, among them formal concept analysis, description logics, the Semantic Web, the Pragmatic Web, ontologies, multi-agent systems, concept mapping, and more. Accordingly CS represent a family of approaches that builds on the successes of artificial intelligence, business intelligence, computational linguistics, conceptual modelling, information and Web technologies, user modelling, and knowledge management.

The theme for this year's conference was "Conceptual Structures for Discovering Knowledge." More and more data is being captured in electronic format (particularly through the Web and social media) and it is emerging that this data is reaching such a critical mass that it is becoming the most recorded form of the world around us. It now represents our business, economic, artistic, social, and scientific endeavors to such an extent that we require smart applications that can discover the hitherto hidden knowledge that this mass of data is busily capturing. By bringing together the way computers work with the way humans think, CS align the productivity of computer processing with the ingenuity of individuals and organizations in a meaningful digital future.

The ICCS papers that appear in this volume represent the rich variety of CS. Submitted papers were rigorously reviewed anonymously by members of the Program Committee and the Editorial Board who oversaw the process together with the organizers. About 60% of submitted papers deemed relevant to the conference were accepted, plus a few as short papers. There were also three invited papers. As this volume will evidence, it is pleasing that the number of accepted full papers reflects the high quality of submissions that ICCS continues to attract as the conference approaches its 20th anniversary.

In addition to ICCS, there were four workshops at the conference. Three of these workshops' papers appear under their own sections in this volume. Two of these workshops cover CS and knowledge discovery in under-traversed domains and in task-specific information retrieval. The third addresses "CS in Learning, Teaching and Assessment;" a workshop that had its inauguration at last year's ICCS (2010) in Kuching, Malaysia. The papers of the fourth workshop, "The First CUBIST Workshop", appear in their own proceedings. ICCS 2011 represented a key dissemination event for the CUBIST project (www.cubist-project.eu), which is funded by the European Commission under the 7th Framework Programme of ICT, topic 4.3: Intelligent Information Management.

We wish to express our thanks to all the authors of the submitted papers, the speakers, workshop organizers, and the members of the ICCS Editorial Board and Program Committee. We would like to thank Uta Priss, who organized the anonymous reviewers of papers submitted by the ICCS Chairs. We also extend our thanks to the Local Organizing Chair Ashiq Anjum, and to our Sheffield Hallam and CUBIST colleague Constantinos Orphanides for managing the production of the proceedings, ready for the helpful people at Springer to whom we also owe our gratitude.

July 2011

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Table of Contents

Invited Papers

Semantic Technologies for Enterprises	1
<i>Frithjof Dau</i>	
Utility and Feasibility of Reasoning beyond Decidability in Semantic Technologies	19
<i>Sebastian Rudolph and Michael Schneider</i>	
Cognitive Architectures for Conceptual Structures.....	35
<i>John F. Sowa</i>	

Accepted Papers

In-Close2, a High Performance Formal Concept Miner	50
<i>Simon Andrews</i>	
A Mapping from Conceptual Graphs to Formal Concept Analysis	63
<i>Simon Andrews and Simon Polovina</i>	
Partial Orders and Logical Concept Analysis to Explore Patterns Extracted by Data Mining	77
<i>Peggy Cellier, Sébastien Ferré, Mireille Ducassé, and Thierry Charnois</i>	
A Buzz and E-Reputation Monitoring Tool for Twitter Based on Galois Lattices.....	91
<i>Etienne Cuvelier and Marie-Aude Aufaure</i>	
Using Generalization of Syntactic Parse Trees for Taxonomy Capture on the Web	104
<i>Boris A. Galitsky, Gábor Dobrocsi, Josep Lluís de la Rosa, and Sergei O. Kuznetsov</i>	
A.N. Prior's Ideas on Tensed Ontology.....	118
<i>David Jakobsen, Peter Øhrstrøm, and Henrik Schärfe</i>	
Crowdsourced Knowledge: Peril and Promise for Conceptual Structures Research	131
<i>Mary Keeler</i>	

Evaluating the Transaction Graph through a Financial Trading Case Study	145
<i>Ivan Launders</i>	
Integration of the Controlled Language ACE to the Amine Platform....	159
<i>Mohammed Nasri, Adil Kabbaj, and Karim Bouzoubaa</i>	
Identifying Relations between Medical Concepts by Parsing UMLS® Definitions	173
<i>Ivelina Nikolova and Galia Angelova</i>	
Topicality in Logic-Based Ontologies	187
<i>Chiara Del Vescovo, Bijan Parsia, and Ulrike Sattler</i>	
A Concept Discovery Approach for Fighting Human Trafficking and Forced Prostitution	201
<i>Jonas Poelmans, Paul Elzinga, Guido Dedene, Stijn Viaene, and Sergei O. Kuznetsov</i>	
A Modeling Method and Declarative Language for Temporal Reasoning Based on Fluid Qualities	215
<i>Matei Popovici, Mihnea Muraru, Alexandru Agache, Cristian Giumale, Lorina Negreanu, and Ciprian Dobre</i>	
Expressing Conceptual Graph Queries from Patterns: How to Take into Account the Relations	229
<i>Camille Pradel, Olivier Haemmerlé, and Nathalie Hernandez</i>	
Unix Systems Monitoring with FCA	243
<i>Uta Priss</i>	
Supporting Ontology Design through Large-Scale FCA-Based Ontology Restructuring	257
<i>Mohamed Rouane-Hacene, Petko Valtchev, and Roger Nkambou</i>	
Towards a Formalization of Individual Work Execution at Computer Workplaces.....	270
<i>Benedikt Schmidt, Heiko Paulheim, Todor Stoitsev, and Max Mühlhäuser</i>	
Semi-supervised Learning for Mixed-Type Data via Formal Concept Analysis	284
<i>Mahito Sugiyama and Akihiro Yamamoto</i>	

Short Papers

Towards Structuring Episodes in Patient History	298
<i>Galia Angelova, Svetla Boytcheva, and Dimitar Tcharaktchiev</i>	

Rigorous, and Informal?	304
<i>David Love</i>	

OpenSEA – Using Common Logic to Provide a Semantic Enterprise Architecture Framework	309
<i>Jeffrey A. Schiffel and Shaun Bridges</i>	

International Workshop on the Concept Formation and Extraction in Under-Traversed Domains

An Android Based Medication Reminder System: A Concept Analysis Approach	315
<i>Ray Hashemi, Les Sears, and Azita Bahrami</i>	

System Decomposition for Temporal Concept Analysis	323
<i>David Luper, Caner Kazanci, John Schramski, and Hamid R. Arabnia</i>	

Modeling UAS Swarm System Using Conceptual and Dynamic Architectural Modeling Concepts	331
<i>Hassan Reza and Kirk Ogaard</i>	

Name Extraction and Formal Concept Analysis	339
<i>Kazem Taghva, Russell Beckley, and Jeffrey Coombs</i>	

International Workshop on Task Specific Information Retrieval

Towards the Development of an Integrated Framework for Enhancing Enterprise Search Using Latent Semantic Indexing	346
<i>Obada Alhabashneh, Rahat Iqbal, Nazaraf Shah, Saad Amin, and Anne James</i>	

Trace of Objects to Retrieve Prediction Patterns of Activities in Smart Homes	353
<i>Farzad Amirjavid, Abdenour Bouzouane, and Bruno Bouchard</i>	

Distributed Context Aware Collaborative Filtering Approach for Service Selection in Wireless Mesh Networks	357
<i>Neeraj Kumar and Kashif Iqbal</i>	

A Framework for the Evaluation of Adaptive IR Systems through Implicit Recommendation	366
<i>Catherine Mulwa, Seamus Lawless, M. Rami Ghorab, Eileen O'Donnell, Mary Sharp, and Vincent Wade</i>	

MedMatch – Towards Domain Specific Semantic Matching	375
<i>Jetendr Shamdasani, Peter Bloodsworth, Kamran Munir, Hanene Boussi Rahmouni, and Richard McClatchey</i>	

Application Identification of Semantic Web Techniques in KM Systems	383
<i>Mohammad Reza Shahmoradi and Babak Akhgar</i>	

**Conceptual Structures – Learning, Teaching and
Assessment Workshop**

Aligning the Teaching of FCA with Existing Module Learning Outcomes	394
<i>Simon Andrews</i>	

A Proposal for Developing a Primer for Constructing and Analyzing Conceptual Structures	402
<i>Nagarjuna G. and Meena Kharatmal</i>	

Internationalising the Computing Curricula: A Peircian Approach	406
<i>Richard Hill and Dharmendra Shadija</i>	

Broadening the Ontological Perspectives in Science Learning: Implications for Research and Practice in Science Teaching	414
<i>Nancy R. Romance and Michael R. Vitale</i>	

Author Index	423
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