Lecture Notes in Artificial Intelligence 7969

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Case-Based Reasoning Research and Development

21st International Conference, ICCBR 2013
Saratoga Springs, NY, USA, July 8-11, 2013
Proceedings
Preface

This volume contains the papers presented at ICCBR 2013: the 21st International Conference on Case-Based Reasoning (http://www.iccbr.org/iccbr13/) held during July 8–11, 2013, in Saratoga Springs, USA. There were 39 submissions and each one was reviewed by at least three Program Committee members using the criteria of relevance, significance, originality, technical quality, and presentation. The committee accepted 17 papers for oral presentation and nine papers for poster presentation at the conference.

The International Conference on Case-Based Reasoning (ICCBR) is the pre-eminent international meeting on case-based reasoning (CBR). Previous ICCBR conferences have been held in Sesimbra, Portugal (1995), Providence, USA (1997), Seeon Monastery, Germany (1999), Vancouver, Canada (2001), Trondheim, Norway (2003), Chicago, USA (2005), Belfast, UK (2007), Seattle, USA (2009), Alessandria, Italy (2010), London, UK (2011), and most recently in Lyon, France (2012).

Day 1 of ICCBR 2013 included the Industry Day and the Doctoral Consortium, which were very kindly hosted by General Electric on their premises at GE Global Research in Niskayuna, New York. The industry day consisted of eight presentations on applications of CBR. Concurrently with the industry presentations was the annual Doctoral Consortium that involved presentations by seven research students in collaboration with their respective senior CBR research mentors.

Day 2 was dedicated to workshops on current and interesting aspects of CBR including CBR in Social Web Applications, CBR in Health Sciences and Experience Reuse: Provenance, Process Orientation and Traces.

Days 3 and 4 consisted of scientific paper presentations on theoretical and applied CBR research as well as invited talks from two distinguished scholars: Ashok K. Goel, Professor of Computer and Cognitive Science in the School of Interactive Computing at Georgia Institute of Technology in Atlanta, USA, and Igor Jurisica, Senior Scientist at the Ontario Cancer Institute and Professor in the Departments of Computer Science and Medical Biophysics at the University of Toronto, Canada. Ashok Goel gave a keynote address on exploring and exploiting case-based reasoning in biologically inspired design – the invention of new sustainable technologies by analogy to biological systems. He described how we can view nature as a large library of sustainable designs and use human case-based reasoning for designing novel technological products, processes, and systems. Igor Jurisica discussed scaling up case-based reasoning for “big data” applications, describing two main systems. The first involved estimating a job at runtime during scheduling functional regression tests for the IBM DB2 Universal Database on an internal, heterogeneous computer grid, and the second
was a computational biology application for managing protein crystallization experiments.

The presentations and posters covered a wide range of CBR topics of interest both to researchers and practitioners including case retrieval and adaptation, similarity assessment, case base maintenance, knowledge management, recommender systems, multiagent systems, textual CBR, and applications to healthcare and computer games. Day 3 also hosted the Computer Cooking Contest, the aim of which is to encourage the use of AI technologies such as case-based reasoning, semantic technologies, search, and information extraction.

As part of the main conference, David Aha and Odd Erik Gundersen conducted and presented a Reproducibility Process for Case-Based Reasoning that involved confirming the results for voluntarily provided empirical studies reported at ICCBR 2013. It is hoped that this will become a fixture of the ICCBR conferences of the future.

Many people participated in making ICCBR 2013 a success. William Cheetham, GE Research, USA, served as the Conference Chair with Sarah Jane Delany, Dublin Institute of Technology, Ireland, and Santiago Ontañón, Drexel University, USA, as Program Co-chairs. We would like to thank Michael Floyd, Carleton University, Canada, and Jonathan Rubin, PARC, USA, who acted as Workshop Chairs as well as William Cheetham, GE Research, USA, and Frode Sørmo, Verdande Technology, Norway, who coordinated the Industry Day. Our thanks also go to Thomas Roth-Berghofer, University of West London, UK, and Rosina Weber, Drexel University, USA, for organizing the Doctoral Consortium. We thank Michel Manago, Kiolis, France, who was responsible for the Computer Cooking Competition and to David Aha, who acted as Sponsorship Chair. We are very grateful also to all our sponsors, which at the time of printing included General Electric, AAAI, Knexus Research Corporation, Empolis, Artificial Intelligence Journal and Drexel University.

We thank the Program Committee and the additional reviewers for their timely and thorough participation in the reviewing process. We appreciate the time and effort put in by the local organizers at GE Global Research, particularly Aisha Yousuf. Finally, we acknowledge the support of EasyChair in the submission, review, and proceedings creation processes and thank Springer for its continued support in publishing the proceedings of ICCBR.

May 2013

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