Vienna Center for Logic and Algorithms

Annual Report 2011/2012

www.vcla.at

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About VCLA

The Vienna Center for Logic and Algorithms (VCLA) is a globally unique competence center in the field of logic and algorithm research. It was founded in September 2011 and officially opened in January 2012 in the presence of the rector of the Vienna University of Technology Sabine Seidler and Turing Award laureate Edmund M. Clarke.

From left to right:
Gerald Steinhardt
Stefan Szeider
Armin Biere
Edmund M. Clarke
Helmut Veith
Rector Sabine Seidler
Vice Rector of Research
Johannes Fröhlich

The VCLA aims to promote international scientific collaboration in logic and algorithms and communicate Austria's excellence in these two areas of computer science research. These objectives are realized through various activities, such as

- the VCLA Workshop Series
- the VCLA Schools, a series of winter and summer schools
- the VCLA Visitor Program
- the hosting of talks by renowned international speakers, and
- the co-organisation of events, such as the Austrian Computer Science Day 2012 and the Vienna Logic Weeks 2012.

The scientific program 2011-2014 is focusing on

- Constraint Satisfaction
- Verification of Hardware and Software, and
- Knowledge Representation

Organization

The VCLA is managed by a local board in collaboration with an international advisory board. The local board is responsible for day-to-day management and consults with the advisory board about strategic decisions.

Board	Advisory Board
Thomas Eiter	Matthias Baaz (TU Vienna)
Georg Gottlob	Roderick Bloem (TU Graz)
Alexander Leitsch	Agata Ciabattoni (TU Vienna)
Reinhard Pichler	Nadia Creignou (Université d'Aix-Marseille)
Stefan Szeider (co-chair)	Anuj Dawar (Univ. of Cambridge)
Helmut Veith (co-chair)	Fedor Fomin (Univ. of Bergen)
	Laura Kovács (TU Vienna)
	Miroslaw Truszczyński (Univ. of Kentucky)
	Moshe Y. Vardi (Rice Univ.)

Public Relations and Project Management
Katarina Jurik

Collaborations

The VCLA frequently collaborates with the following institutions, all of which also provide co-financing for various events and activities:

- Institute of Discrete Mathematics and Geometry at TU Vienna
- Kurt Gödel Society (KGS)
- Austrian Society for Rigorous Systems Engineering (ARiSE)
- Wolfgang Pauli Institute (WPI)
- Institute of Science and Technology Austria (IST Austria)

Activities

This section will present all past events and activities of the VCLA with short information on the content and the co-financing institutions. All events and activities have been co-financed by other grants and institutions. A more detailed report on each is available in the appendix.

WorKer 2011 – The Third Workshop on Kernelization, September 2-4, 2011
After the successful workshops in Bergen 2009 and Leiden 2010, the Third Workshop on Kernelization was hosted in Vienna by the VCLA with the support of the Wolfgang Pauli Institute and the European Research Council. Eight leading researchers in the fields of Practical Preprocessing, Property Testing and Knowledge compilation came from all corners of the world, including USA, Australia and India, to hold their keynote talks.
Weblink: http://www.vcla.at/events/worker2011/

START Grant Kick-Off Workshop, November 25-26, 2011
This workshop on non-classical logics was organized by the VCLA in co-operation with the Kurt Gödel Society and provided a platform for communication, joint research opportunities and discussions on the areas such as syntactic and algorithmic aspects of non-classical logics and their semantic structures.
Weblink: http://www.vcla.at/events/workshop-ncl/

Festive Opening of the VCLA, January 25–26, 2012
The VCLA celebrated its official opening at the Vienna University of Technology in January 2012. Before the opening, the symposium "Logic and Algorithms: A Scientific Perspective" took place, where five invited speakers – including Turing Award winner Edmund M. Clarke – shared their views on the current state of research in logic and algorithms. On the following day, Edmund M. Clarke was awarded an honorary doctorate by the Vienna University of Technology in a festive ceremony.
Weblinks: http://www.vcla.at/events/official-opening/
                     http://www.vcla.at/events/symposium-logic-and-algorithms/

Activities (cont'd)

Winter School on Verification, February 6-10, 2012
This week-long winter school was organized by the VCLA together with the Austrian Society for Rigorous Systems Engineering. The invited speakers were Patrice Godefroid (Microsoft Research) and Radu Grosu (TU Vienna). Apart from these two institutions, the IST Austria, TU Graz and JKU Linz were represented through the other nine speakers. The Winter School was attended by fifty people from universities across the world, ranging from Macedonia to Canada.
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Concepts and Meaning – Workshop in Honour of Alexander Leitsch's 60th birthday, May 4-5, 2012
In honour of Alexander Leitsch's many manor contributions to logic, mathematics and computer science and their interactions, this workshop was held in May 2012 with support of the Kurt Gödel Society. The program consisted of invited and contributed talks as well as of a birthday banquet to celebrate Leitsch's 60th birthday.
Weblink: http://www.vcla.at/2012/04/upcoming-workshop-concepts-and-meaning/

Mini-Workshop on Logic, Proofs and Algorithms, June 6, 2012
The VCLA, the Wolfgang-Pauli-Institute and the Austrian Agency for International Cooperation in Education and Research hosted a mini-workshop on logic, proofs and algorithms which consisted of five different talks.
Weblink: http://www.vcla.at/2012/05/upcoming-mini-workshop/

Activities (cont'd)

Austrian Computer Science Day 2012, June 28, 2012
The first Austrian Computer Science Day was organized by the VCLA in co-operation with the University of Vienna, the Graz University of Technology, the Austrian Computer Society and the Austrian Federal Ministry of Transport, Innovation and Technology. It was a very successful and well-attended event, counting more than 100 participants. The aim of the Austrian Computer Science Day was to provide a platform for networking among computer scientists in Austria and for presenting the current topics of Austrian computer science research.

In order to increase the nation-wide significance of the Austrian Computer Science Day, speakers from all computer science faculties and research centers in Austria were invited. Eight different fields of computer science were represented during the event: Computer Vision, Business Processes, Parallel Computing, Web Technologies, Embedded Systems, Computer Security, Computer Graphics and Machine Learning.

The participants' feedback was unanimously positive. Many of the attendees emphasized the need for such a national networking event for computer scientists because of its function as an important platform for communication and information exchange. The first Austrian Computer Science Day thus fully met all expectations and can be regarded as a successful beginning of a series of annual Computer Science Days. Weblink: http://www.informatiktag.at

Workshop on Logic and Algebra, August 28, 2012
This workshop was funded by the VCLA, the Kurt Gödel Society and the FWF (START-prize) and consisted of six talks on logic and algebra topics.
Weblink: http://www.vcla.at/2012/08/workshop-on-logic-and-algebra/

Activities (cont'd)

Vienna Logic Weeks, September 3-13, 2012
The Vienna Logic Weeks 2012 presented a unique opportunity to experience several academic events from logic-related areas in the course of two weeks during September 2012. The co-located academic events included the Reasoning Web Summer School, the 6th International Conference on Web Reasoning and Rule Systems (RR2012), the 4th International Conference on Computational Models of Argument (COMMA 2012) and the Datalog 2.0 Workshop. With topics ranging from Computational Logic and Artificial Intelligence to Database and Web Technologies, the Vienna Logic Weeks 2012 strengthened Vienna's significance as a center for logic and algorithms in computer science.

The plenary speaker of the Vienna Logic Weeks was the eminent logician and computer scientist Robert Kowalski from the Imperial College (London). A winner of numerous awards, Kowalski is renowned as the founding father of logic-based programming, including Prolog. His talk was titled "Towards a Logic-based, Unifying Framework for Computing" and attracted a completely full lecture room of listeners at the Vienna University of Technology.
Weblink: http://www.vcla.at/events/vienna-logic-weeks_2012/

8th Reasoning Web 2012 Summer School & 6th International Conference on Web Reasoning and Rule Systems
The main topics of the 8th Reasoning Web 2012 Summer School and the 6th International Conference on Web Reasoning (RW 2012) and Rule Systems (RR 2012) were the foundations and current research in the area of the Sematic Web. The Semantic Web provides the means to combine pieces of information according to their meaning. This kind of information processing was limited to humans thus far – now, however, computers are meant to learn how to process information in this manner as well.

In this context, logical reasoning is indispensable. In contrast to older software, it permits quicker retrieval of results for complex search queries in large amounts of data. Reasoning is already an essential part of software used in workflow systems or web services and represents an important tool for queries in the Semantic Web.
Weblinks: http://reasoningweb.org/2012/
                    http://www.rr-conference.org/RR2012/

Activities (cont'd)

2nd International Workshop on the Resurgence of Datalog in Academia and Industry

The 2nd International Workshop on the Resurgence of Datalog in Academia and Industry (Datalog 2.0, 2012) concerned itself with the database programming language Datalog, which is used for databases in the Sematic Web, among others. Datalog is declarative, i.e. one describes what needs to be done instead of detailing the manner in which it should be done. Owing to this particularity, Datalog increased its significance as a well-suited programming language for numerous industry applications ranging from the field of logistics to business data.

Weblink: http://www.dbai.tuwien.ac.at/event/datalog-2.0/

4th International Conference on Computational Models of Argument

The fourth part of the Vienna Logic Weeks was formed by the 4th International Conference on Computational Models of Argument (COMMA 2012), which focused on argumentation. In computer science, software creates arguments and evaluates them in order to determine the course of action in high-risk situations, such as they occur in medical diagnostics or in crime detection.

For instance, Cancer Research UK employs software which issues recommendations for the treatment of breast cancer and ovarian cancer in the form of a pro and contra comparison. These recommendations are supported by references to clinical studies and listings of potential medical contra-indications. The system offers a risk level visualization of a treatment with the selected combinations of specific methods while taking patient data into account.

Weblink: http://www.kr.tuwien.ac.at/events/comma2012/

Invited speakers and visitors

More than sixty talks by speakers from countries across the world have been hosted by the VCLA during the past year. An online listing with abstracts is available at http://www.vcla.at/category/talks/.

Matthias Baaz (Vienna): Satisfiability in Goedel logics
Trevor Bench-Capon (Liverpool, UK): The Long and Winding Road: Forty Years of Argumentation
Meghyn Bienvenu (Paris, France): On the complexity of querying data through ontologies
Armin Biere (Linz, Austria): Preprocessing and Inprocessing Techniques in SAT
Nikolaj Bjorner (Microsoft Research): Taking Satisfiability to the Next Level with Z3
Simone Bova (Vanderbilt, US): Expression Complexity of Conjunctive Queries
Gerhard Brewka (Leipzig, Germany): Multi-Context Systems: Specifying the Interaction of Knowledge Bases Declaratively
Sourav Chakraborty (Chennai, India): Property Testing: Sublinear Algorithms for Promise Problems
Hubie Chen (Barcelona, Spain): Decomposing First-Order Logic
Petr Cintula (Prague, Czech Republic): MP-based substructural logics
Edmund M. Clarke (Carnegie Mellon, US): 30 Years of Model Checking
Byron Cook (Microsoft Research): A new approach to temporal property verification
Oege de Moor (Oxford, UK): Engineering Datalog
Hans De Nivelle (Wroclaw, Poland): Geometric Resolution with Equality, Function Symbols and Lemmas
Werner Dietl (Washington, US): Verification Games: Making Verification Fun
Tommaso Di Noia (Bari, Italy): Semantic Matchmaking and Ranking: Beyond Deduction in Retrieval Scenarios
D. Eckert, C. Klamler (Graz, Austria): TUTORIAL: Social Choice - problems, results, tools and recent extensions
Thomas Eiter (Vienna): Paraconsistent Modular Answer Set Programming
Michael R. Fellows (Darwin, Australia): Kernelization and the Larger Picture of Practical Algorithmics, in Contemporary Context
Jasmin Fisher (Microsoft Research): From Coding the Genome to Algorithms Decoding Life
Fedor V. Fomin (Bergen, Norway): Kernelization Algorithms
Fedor V. Fomin (Bergen, Norway): Protrusions in graphs and their applications
Madelaine Florent (LIMOS, France): On the complexity of the model checking problem for syntactic fragments of first-order logic
Johannes Fürnkranz (Darmstadt, Germany): Course on Inductive Rule Learning
Dov Gabbay (London, UK): The Equational Approach to CF2 Semantics
Robert Ganian (Brno, Czech Republic): Generalizing vertex cover as a graph parameter
Nikolaos Galatos (Denver, US): The variety of l-groups is generated by Aut(R): a proof-theoretic argument
Patrice Godefroid (Microsoft Research): Software Model Checking for Security
Georg Gottlob (Oxford, UK): From Subsumption to Hypertree Decompositions
Andreas Griesmayer (Imperial, UK): Model checking Business Processes with Multi-Agent Systems

Invited speakers and visitors

Radu Grosu (Vienna): Hybrid Systems Crash Course
Yuri Gurevich (Microsoft Research): Datalog: A Perspective and the Potential
Thomas A. Henzinger (IST Austria): Formal Specification and Verification of Markovian Population Models
Rostislav Horcik (Prague, Czech Republic): The algebraic proof of FEP for residuated groupoids
Bart Jansen (Utrecht, The Netherlands): Kernelization for a Hierarchy of Structural Parameters
Iyad Kanj (DePaul, US): What makes normalized weighted satisfiability tractable
Phokion Kolaitis (IBM Research): A Retrospective on Datalog 1.0
Laura Kovacs (Vienna): Playing in the Grey Area of Proofs
Robert Kowalski (Imperial, UK): Towards a Logic-based, Unifying Framework for Computing
Erik Krabbe (Groningen, The Netherlands): Formal Dialectic:
Christoph Lenzen (ETH Zürich, CH): Improved Bounds for Byzantine Self-stabilizing Clock Synchronization
Giorgio Levi (Pisa, Italy): Abstract interpretation: from theory to applications
Leonid Libkin (Edinburgh, UK): Graph Logics and Relations on Words
Daniel Lokshtanov (San Diego, US): Generalization and Specialization of Kernelization
Joao Marques-Silva (Dublin, Ireland): Practical Algorithms for Minimal Unsatisfiable Core Extraction
Pierre Marquis (Artois, France): A Few Words about Knowledge Compilation
Neeldhara Misra (Chennai, India): From FVS to F-deletion: the Story of a Simple Algorithm
Marie-Laure Mugnier (Montpellier, France): Existential Rules: A Graph-based View
Moritz Müller (Vienna): On lower bounds for Res(k)
Daniele Mundici (Florence, italy): Consequence and Bouligand-Severi tangents in Lukasiewicz logic
Daniel Paulusma (Durham, UK): Lift Contractions
Justyna Petke (Oxford, UK): On the bridge between Constraint Satisfaction and Boolean Satisfiability
Xavier Rival (ENS, France): MemCAD, a Modular Abstract Domain for Reasoning on Memory States
Ruslan L. Smeliansky (Moscow, Russia): Computer Systems Laboratory – Skills, Experience, Main Research Directions
Ana Sokolova (Salzburg, Austria): Course on Coalgebra in Computer Science
Ana Sokolova (Salzburg, Austria): Quantitative Relaxation of Concurrent Data Structure
Keith Stenning (Edinburgh, UK): Multiple logics within argument
Tanel Tammet (Tallinn, Estland): Logic and probabilities for recommender systems
Kazushige Terui (Kyoto, Japan): Herbrand's theorem via nonregular completions
Olga Tveretina (Karlsruhe, Germany): Relative Efficiency of Propositional Proof Systems Based on Resolution and OBDDs
Andrei Voronkov (Manchester, UK)
Georg Weissenbacher (Vienna): Battling Bugs with Interpolants
Anders Yeo (Johannesburg, South Africa): Simultaneously Satisfying Linear Equations Over F_2
Vladimir Zakharov (Arizona, US): Automata-theoretic approach to the equivalence checking problem for sequential programs
Vladimir Zakharov (Arizona, US): Equivalence Checking Problem: 1953 - 2011 (survey)
Anna Zamansky (Vienna): Applications of non-determinism in proof-theory

Media Coverage

August 6, 2012
Newspaper article in *Der Standard* (German)
Computer Scientists at TU Vienna Announce Turing Machine Award
http://derstandard.at/1343744021734/Computerwissenschafter-der-TU-Wien-schreiben-Turing-Machine-Award-aus

February 6, 2012
Magazine interview on *Futurezone.at* (German)
Algorithms Define our Life
http://futurezone.at/future/7189-algorithmen-bestimmen-unser-leben.php

January 31, 2012
Newspaper interview in *Der Standard* (German)
Intelligence without Morality Is Illogical
http://derstandard.at/1326504249107/Intelligenz-ohne-Moral-ist-unlogisch

January 31, 2012
Newspaper article in *Der Standard* (German)
Center for Foundations of Computer Science
http://derstandard.at/1326504261313/Zentrum-fuer-Grundlagen-der-Informatik

January 25, 2012
Magazine article on *Futurezone.at* (German)
TU Vienna: VCLA Will Become an International Brand
http://futurezone.at/future/7061-tu-wien-vcla-soll-internationale-marke-werden.php

January 25, 2012
Newspaper article in *Die Presse* (German)
Computer Scientists from TU Vienna Emphasize International Orientation
http://diepresse.com/home/techscience/hightech/726721/TUWienInformatiker-sollen-international-durchstarten

January 25, 2012
Newspaper article in *Der Standard* (German)
TU Vienna: VCLA Will Become an International Brand
http://derstandard.at/1326503675233/Computerwissenschafter-der-TU-Wien-wollen-internationale-Marke-werden

Appendix

WorKer 2011 – The Third Workshop on Kernelization, September 2-4, 2011

After the successful workshops in Bergen 2009 and Leiden 2010, the Third Workshop on Kernelization was hosted in Vienna by the VCLA with the support of the Wolfgang Pauli Institute and the European Research Council. Eight leading researchers in the fields of Practical Preprocessing, Property Testing and Knowledge compilation came from all corners of the world, including USA, Australia and India, to hold their keynote talks.

Weblink: http://www.vcla.at/events/worker2011/

Keynote Speakers

Armin Biere, Johannes Kepler University, Linz, Austria
Sourav Chakraborty, Chennai Mathematical Institute, India
Michael R. Fellows, Charles Darwin University, Australia
Fedor V. Fomin, University of Bergen, Norway
Bart Jansen, Utrecht University, the Netherlands
Daniel Lokshtanov, University of California, San Diego, USA
Pierre Marquis, Université d'Artois & CRIL-CNRS, France
Anders Yeo, Royal Holloway, University of London, UK

Organizers

The workshop was organized by Serge Gaspers, Sebastian Ordyniak, and Stefan Szeider (chair).

Appendix

START Grant Kick-Off Workshop, November 25-26, 2011
This workshop on non-classical logics was organized by the VCLA in co-operation with the Kurt Gödel Society.
Non-classical logics are logics different from classical, boolean logic. They provide languages for reasoning e.g., about knowledge, time, data structures, vague information, resources, and as such they are increasingly applied in various disciplines. This workshop will bring together distinguished experts from syntactic and algorithmic aspects of these logics and of their semantic structures, with the purpose of promoting a greater degree of communication between the fields of Proof Theory and Algebra. A special emphasis will be given to the family of many-valued logics.

The workshop featured several invited and contributed talks with surveys and new technical results. The workshop also provide dopportunities for all participants to engage in joint research and discussions on open problems and future directions.
Weblink: http://www.vcla.at/events/workshop-ncl/

Organizers

Matthias Baaz (co-Chair)   Christian Fermüller
Paolo Baldi   Lara Katharina Spendier
Agata Ciabattoni (Chair)   Anna Zamansky
Petr Cintula

Participants (not in Vienna group)
Marta Bilkova (Prague)
Felix Bou (Barcelona)   Paolo Maffezioli (Florenz)
Leonardo Cabrer (Bern)   Enrico Marchioni (Bellaterra)
Karel Chvalovsky (Prague)   George Metcalfe (Bern)
Petr Cintula (Vienna-Prague)   Richard McKinley (Bern)
Jose Gil Ferez (Prague)   Nicola Olivetti (Marseille)
Tommaso Flaminio (Bellaterra)   Christoph Roethlisberger (Bern)
Lluis Godo (Bellaterra)   Jiri Velebil (Prague)
Zuzana Hanikova (Prague)   Thomas Vetterlein (Linz)
Rotislav Horcik (Prague)   Martin Vita (Prague)
Tomas Kroupa (Prague)   Anna Zamansky (Vienna-Tel Aviv)
Roman Kuznets (Bern)

Appendix

Festive Opening of the VCLA, January 25–26, 2012
The VCLA celebrated its official opening at the Vienna University of Technology in January 2012. Before the opening, the symposium "Logic and Algorithms: A Scientific Perspective" took place, where five invited speakers – including Turing Award winner Edmund M. Clarke – shared their views on the current state of research in logic and algorithms. On the following day, Edmund M. Clarke was awarded an honorary doctorate by the Vienna University of Technology in a festive ceremony.
Weblinks: http://www.vcla.at/events/official-opening/
http://www.vcla.at/events/symposium-logic-and-algorithms/

Speakers
Edmund M. Clarke, Carnegie Mellon University
Fedor V. Fomin, University of Bergen
Thomas A. Henzinger, IST Austria
Joao Marques-Silva, UCL Dublin
Georg Weissenbacher, Princeton University

Turing Award winner Edmund M. Clarke at the Symposium on Logic and Algorithms

Appendix

Winter School on Verification, February 6-10, 2012
This week-long winter school was organized by the VCLA together with the Austrian Society for Rigorous Systems Engineering. The invited speakers were Patrice Godefroid (Microsoft Research) and Radu Grosu (TU Vienna). Apart from these two institutions, the IST Austria, TU Graz and JKU Linz were represented through the other nine speakers. The Winter School was attended by fifty people from universities across the world, ranging from Macedonia to Canada.
Weblink: http://www.vcla.at/events/winter-school-on-verification/

Speakers
Patrice Godefroid, Microsoft Research (invited speaker)
Radu Grosu, TU Vienna (invited speaker)
Armin Biere, JKU Linz
Roderick Bloem, TU Graz
Krishnendu Chatterjee, IST Austria
Uwe Egly, TU Vienna
Thomas A. Henzinger, IST Austria
Laura Kovacs, TU Vienna
Ulrich Schmid, TU Vienna
Helmut Veith, TU Vienna
Florian Zuleger, TU Vienna

Appendix

Concepts and Meaning – Workshop in Honour of Alexander Leitsch's 60th birthday, May 4-5, 2012
In honour of Alexander Leitsch's many manor contributions to logic, mathematics and computer science and their interactions, this workshop was held in May 2012 with support of the Kurt Gödel Society. The program consisted of invited and contributed talks as well as of a birthday banquet to celebrate Leitsch's 60th birthday.
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Speakers

Peter Auer

Matthias Baaz,

Hans de Nivelle

Georg Gottlob

Uwe Egly

Dov Gabbay

Stefan Hetzl

Georg Moser

Daniele Mundici

Giselle Reis

Tanel Tammet

Andrei Voronkov

Daniel Welller

Mini-Workshop on Logic, Proofs and Algorithms, June 6, 2012
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Speakers

Barnaby Martin

Neeldhara Misra

Moritz Müller

Venkatesh Raman

Appendix

Austrian Computer Science Day 2012, June 28, 2012
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The participants' feedback was unanimously positive. Many of the attendees emphasized the need for such a national networking event for computer scientists because of its function as an important platform for communication and information exchange. The first Austrian Computer Science Day thus fully met all expectations and can be regarded as a successful beginning of a series of annual Computer Science Days. Weblink: www.informatiktag.at

Speakers
Horst Bischof, TU Graz
Johann Eder, U. Klagenfurt
Thomas Fahringer, U. Innsbruck
Monika Henzinger, U. Wien
Christoph Kirsch, PLU Salzburg
Krzysztof Pietrzak, IST Austria
Werner Purgathofer, TU Wien
Gerhard Widmer, JKU Linz

Appendix

Workshop on Logic and Algebra, August 28, 2012
This workshop was funded by the VCLA, the Kurt Gödel Society and the FWF
(START-prize) and consisted of six talks on logic and algebra topics.
Weblink: http://www.vcla.at/2012/08/workshop-on-logic-and-algebra/

Speakers:
Matthias Baaz (Vienna)
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Nikolaos Galatos (Denver, US)
Rostislav Horcik (Prague, Czech Republic)
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Anna Zamansky (Vienna)

Vienna Logic Weeks, September 3-13, 2012
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academic events from logic-related areas in the course of two weeks during September 2012. The co-located academic events included the Reasoning Web Summer School, the 6th International Conference on Web Reasoning and Rule Systems
(RR2012), the 4th International Conference on Computational Models of Argument
(COMMA 2012) and the Datalog 2.0 Workshop. With topics ranging from Computational Logic and Artificial Intelligence to Database and Web Technologies, the Vienna
Logic Weeks 2012 strengthened Vienna's significance as a center for logic and algorithms in computer science.

The plenary speaker of the Vienna Logic Weeks was the eminent logician and
computer scientist Robert Kowalski from the Imperial College (London). A winner
of numerous awards, Kowalski is renowned as the founding father of logic-based
programming, including Prolog. His talk was titled "Towards a Logic-based, Unifying
Framework for Computing" and attracted a completely full lecture room of listeners at
the Vienna University of Technology.
Weblink: http://www.vcla.at/events/vienna-logic-weeks_2012/

Appendix

8th Reasoning Web 2012 Summer School & 6th International Conference on Web Reasoning and Rule Systems

The main topics of the 8th Reasoning Web 2012 Summer School and the 6th International Conference on Web Reasoning (RW 2012) and Rule Systems (RR 2012) were the foundations and current research in the area of the Sematic Web. The Semantic Web provides the means to combine pieces of information according to their meaning. This kind of information processing was limited to humans thus far – now, however, computers are meant to learn how to process information in this manner as well.

In this context, logical reasoning is indispensable. In contrast to older software, it permits quicker retrieval of results for complex search queries in large amounts of data. Reasoning is already an essential part of software used in workflow systems or web services and represents an important tool for queries in the Semantic Web.

Weblinks: http://reasoningweb.org/2012/
              http://www.rr-conference.org/RR2012/

Lecturers and Contributors
RW 2012
Marcelo Arenas
François Bry
Jianfeng Du
Sergio Flesca
Tim Furche
Georg Gottlob
Manfred Hauswirth
Manolis Koubarakis
Markus Krötzsch
Danh Le Phuoc
Ermelinda Oro
Giorgio Orsi
Magdalena Ortiz
Josiane Xavier Parreira
Jorge Pérez
Andreas Pieris
Guilin Qi
Sebastian Schaffert
Mantas Šimkus
Michael Sioutis
Francesca Toni
Denny Vrandecic
Klara Weiand

Invited Talks RR 2012
Gerhard Brewka
Yuri Gurevich
Tommaso Di Noia
Phokion Kolaitis
Robert Kowalski

Appendix

2nd International Workshop on the Resurgence of Datalog in Academia and Industry

The 2nd International Workshop on the Resurgence of Datalog in Academia and Industry (Datalog 2.0, 2012) concerned itself with the database programming language Datalog, which is used for databases in the Sematic Web, among others. Datalog is declarative, i.e. one describes what needs to be done instead of detailing the manner in which it should be done. Owing to this particularity, Datalog increased its significance as a well-suited programming language for numerous industry applications ranging from the field of logistics to business data.

Weblink: http://www.dbai.tuwien.ac.at/event/datalog-2.0/

Invited Talks

Thomas Eiter (TU Wien)

Yuri Gurevich (Microsoft Research)

Phokion Kolaitis (UC Santa Cruz and IBM Research - Almaden)

Robert Kowalski (Imperial College)

Oege de Moor (Oxford U.)

Marie-Laure Mugnier (U. of Montpellier)

Invited Tutorials

Todd J. Green (UC Davis and LogicBlox)

Axel Polleres (Siemens AG Austria)

Appendix

4th International Conference on Computational Models of Argument
The fourth part of the Vienna Logic Weeks was formed by the 4th International Conference on Computational Models of Argument (COMMA 2012), which focused on argumentation. In computer science, software creates arguments and evaluates them in order to determine the course of action in high-risk situations, such as they occur in medical diagnostics or in crime detection.
For instance, Cancer Research UK employs software which issues recommendations for the treatment of breast cancer and ovarian cancer in the form of a pro and contra comparison. These recommendations are supported by references to clinical studies and listings of potential medical contra-indications. The system offers a risk level visualization of a treatment with the selected combinations of specific methods while taking patient data into account.
Weblink: http://www.kr.tuwien.ac.at/events/comma2012/

Invited Speakers
Trevor Bench-Capon (University of Liverpool, United Kingdom)
Erik Krabbe (University of Groningen, The Netherlands)
Keith Stenning (University of Edinburgh, United Kingdom)

Appendix

Participants of VCLA events

Winter School on Verification, 6-10 February 2012

Gábor Alagi, ELTE Budapest
Simon Außerlechner, TU Graz
Armin Biere, JKU Linz
Frantisek Blahoudek, Masaryk University Brno
Roderick Bloem, TU Graz
Bart Bogaerts, KU Leuven
Brankica Bratic, University of Novi Sad
Petra Brosch, TU Vienna
Christian Cerncic, Austrian Institute of Technology
Krishnendu Chatterjee, IST Austria
Jelena Colic, University of Novi Sad
Yulia Demyanova, TU Vienna
Ioan Dragan, TU Vienna
Uwe Egly, TU Vienna
Andreas Fröhlich, JKU Linz
Sebastian Gabmeyer, TU Vienna
Karl Gmeiner, TU Vienna
Patrice Godefroid, Microsoft Research
Aleksandr Golovnev, St. Petersburg University
Alexandra Goultiaeva, University of Toronto
Radu Grosu, TU Vienna Emre Gul, Koc University
Alexandru Gyori, Politehnica University of Timisoara
Thomas A. Henzinger, IST Austria
Georg Hofferek, TU Graz
Milena Vujosevic Janicic, Belgrade University
Annu John, TU Vienna
Ioana Jucu, TU Vienna
Ayrat Khalimov, TU Graz
David Klaška, Masaryk University Brno
Miroslav Klimoš, Masaryk University Brno
Robert Koenighofer, TU Graz
Lubos Korenciak, Masaryk University Brno
Laura Kovacs, TU Vienna
Gergely Kovasznai, JKU Linz
Bernhard Kragl, TU Vienna
Jan Krcal, Masaryk University Brno
Kujtim Rahmani, SS Cyril and Methodius University of Macedonia
Ismail Kuru, KOC University
Jean-Marie Lagniez, JKU Linz
Sabine Laszakovits, TU Vienna
Michael Lippautz, University of Salzburg
Bojan Marinkovic, Serbian Academy of Sciences and Arts

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Winter School on Verification, 6-10 February 2012

Darko Martinovikj, SS Cyril and Methodius University of Macedonia
Martin Milata, Masaryk University Brno
Ada Neagu, TU Vienna
Aina Niemetz, JKU Linz
Petr Novotny, Masaryk University Brno
Thomas Pani, TU Vienna
Ivan Petrushenko, University of Kiev
Mathias Preiner, JKU Linz
Thomas Reinbacher, TU Vienna
Vikram Saralaya, TU Eindhoven
Ulrich Schmid, TU Vienna
Martina Seidl, JKU Linz
Kristina Spirovska, SS Cyril and Methodius University of Macedonia
Robert Stoegbuchner, TU Graz
Zlatka Trajcheska, SS Cyril and Methodius University of Macedonia
Helmut Veith, TU Vienna
Magdalena Widl, TU Vienna
Jakob Zwirchmayr, TU Vienna

VCLA Opening, January 2012

Roderick Bloem, Graz University of Technology, Austria
Edmund M. Clarke, Carnegie Mellon University, US
Thomas A. Henzinger, Institute of Science and Technology Austria
Fedor V. Fomin, University of Bergen, Norway
Georg Weissenbacher, Princeton University, US
Joao Marques-Silva, University College Dublin / IST/INESC-ID

Workshop on non-classical Logics

Libor Behounek, Academy of Sciences of the Czech Republic
Marta Bilkova, Charles University, Prague, Czech Republic
Felix Bou, Artificial Intelligence Research Institute (IIIA-CSIC), Bellaterra, Spain
Leonardo Cabrer, University of Bern, Switzerland
Karel Chvalovsky, Academy of Sciences of the Czech Republic
Petr Cintula, Academy of Sciences of the Czech Republic
Jose Gil Ferez, University of Barcelona, Spain
Tommaso Flaminio, Artificial Intelligence Research Institute (IIIA-CSIC), Bellaterra, Spain
Lluis Godo, Artificial Intelligence Research Institute (IIIA-CSIC), Bellaterra, Spain
Zuzana Hanikova, Academy of Sciences of the Czech Republic
Rotislav Horcik, Academy of Sciences of the Czech Republic
Tomas Kroupa, Academy of Sciences of the Czech Republic
Roman Kuznets, University of Bern, Switzerland

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Workshop on non-classical Logics

Paolo Maffezioli, University of Florence, Italy
Enrico Marchioni, Artificial Intelligence Research Institute (IIIA-CSIC), Bellaterra, Spain
George Metcalfe, University of Bern, Switzerland
Richard McKinley, University of Bern, Switzerland
Nicola Olivetti, Paul Cézanne University, Aix-Marseille, France
Christoph Roethlisberger, University of Bern, Switzerland
Jiri Velebil, Czech Technical University, Prague, Czech Republic
Thomas Vetterlein, Johannes Kepler University, Linz, Austria
Martin Vita, Prague, Czech Republic
Anna Zamansky, Vienna University of Technology / Tel Aviv University

WorKer 2011

Faisal Abu-Khzam, Lebanese American University, Lebanon
Rémy Belmonte, University of Bergen, Norway
Armin Biere, Johannes Kepler University, Linz, Austria
Sourav Chakraborty, Chennai Mathematical Institute, India
Robert Crowston, Royal Holloway, University of London, UK
Michael R. Fellows, Charles Darwin University, Australia
Henning Fernau, Universität Trier, Germany
Fedor Fomin, University of Bergen, Norway
Archontia Giannopoulou, National and Kapodistrian University of Athens, Greece
Jiong Guo, University of Saarland, Germany
Gregory Gutin, Royal Holloway, University of London, UK
Sepp Hartung, TU Berlin, Germany
Pinar Heggernes, University of Bergen, Norway
Marijn Heule, Delft University of Technology, The Netherlands
Pim van 't Hof, University of Bergen, Norway
Falk Hüffner, TU Berlin, Germany
Bart Jansen, Utrecht University, the Netherlands
Matti Järvisalo, University of Helsinki, Finland
Mark Jones, Royal Holloway, University of London, United Kingdom
Eunjung Kim, CNRS, France
Stefan Kratsch, Utrecht University, The Netherlands
Daniel Lokshtanov, University of California, San Diego, USA
Dániel Marx, Humboldt-Universität zu Berlin, Germany
Ramanujan Maadapuzhi Sridharan, The Institute of Mathematical Sciences, India
Pierre Marquis, Université d'Artois & CRIL-CNRS, France
Jesper Nederlof, University of Bergen, Norway
Rolf Niedermeier, TU Berlin, Germany
Christophe Paul, CNRS – LIRMM (Montpellier), France
Marcin Pilipczuk, University of Warsaw, Poland

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Michał Pilipczuk, University of Warsaw, Poland
Arash Rafiey, IDSIA, Switzerland
Venkatesh Raman, Institute of Mathematical Sciences, Chennai, India
Frances A. Rosamond, Charles Darwin University, Australia
Saket Saurabh, The Institute of Mathematical Sciences, India
Martina Seidl, Johannes Kepler Universität Linz, Austria
Hadas Shachnai, Technion, Israel
Narges Simjour, University of Waterloo, Canada
Karolina Soltys, Max Planck Institute, Germany
Ondra Suchy, Saarland University, Saarbrucken, Germany
Jan Arne Telle, University of Bergen, Norway
Dimitrios Thilikos, National and Kapodistrian University of Athens, Greece
Erik Jan van Leeuwen, University of Bergen, Norway
Angelina Vidali, University of Vienna, Austria
Yngve Villanger, University of Bergen, Norway
Magnus Wahlström, Max Planck Institute for Informatics, Germany
Mathias Weller, TU Berlin, Germany

Anders Yeo, Royal Holloway, University of London, UK