

Lukasz Kaiser
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CURRICULUM VITÆ

Personal details

Date of Birth 24 December 1981 (Wrocław, Poland)
Nationality Polish

Research interests My research interests include logic, especially algorithmic model theory, automata and combinatorial games, both as tools for verification and analysis of computer systems and as models of interaction.

Employment

since 10/2009 CNRS (French Research Foundation) chargé de recherche position at LIAFA laboratory, Université Paris 7
01/2009-09/2010 Position in DFG (German Research Foundation) research project *Algorithmic Strategies in Multi-Player Games* at RWTH Aachen
10/2008-12/2008 Post-doctoral scholarship in the DFG Research Training Group *Algorithmic synthesis of reactive and discrete-continuous systems* (ALGO SYN)
08/2006-09/2008 Ph.D. Scholarship in the DFG Research Training Group ALGO SYN
07/2004-07/2006 Research Grant in the Research Training Network *Games and Automata for Synthesis and Validation* (GAMES)
10/2003-06/2004 Wissenschaftlicher Mitarbeiter (Assistant) at RWTH Aachen

Education

10/2003-06/2008 Ph.D. studies at RWTH Aachen; Advisor: Erich Grädel
Thesis: *Logic and Games on Automatic Structures*
06/2003 Master of Science in Mathematics; Advisor: Grzegorz Plebanek
Thesis: *On the extensions of approximative density* (in polish)
06/2003 Master of Science in Computer Science; Advisor: Leszek Pacholski
Thesis: *Confluence of Right Ground Term Rewriting Systems is Decidable*
1998-06/2003 Master's studies in Computer Science and Mathematics at the University of Wrocław, Poland

Research Visits

05/2009 Short visit at LSV Cachan (ESF project GAMES), Cachan, France

05-06/2007 Short visit at Tel Aviv University (ESF project AutomathA), Tel Aviv, Israel

04/2007 Short visit at EPFL Lausanne, Switzerland

08-10/2001 Visiting Scholar at Advanced Telecommunications Research Institute International, ATR, Kansai, Japan

06-09/2000 Research Science Institute at MIT; Advisor: Stephen Garland; Report: *Further Automating and Facilitating the Process of Automated Deduction*

Research Activities

Research Seminars Dagstuhl Seminar on Algorithmic-Logical Theory of Infinite Structures, GI-Dagstuhl Seminar on Game-theoretic Analyses of the Internet

Schools European Summer School in Logic, Language and Information (ESLLI '09), Games Spring School in Bertinoro, Spring School on Games in Semantics and Verification (EPIT '06), Spring School on Infinite Games and Their Applications, ACM Summer School on Internet Security (2002)

Invited Talks Fundamenta Informaticæ100th Volume Session (Warsaw '10), STAR Workshop (FSTTCS '09), LSV Seminar (Cachan '09), Automat Seminar (Warsaw '09), EPFL Computer Science Seminar (Lausanne '07)

Refereed Journals Logical Methods in Computer Science, Theoretical Computer Science, Journal of Symbolic Logic, Information Processing Letters

Refereed Conferences LICS, CSL, STACS, ICALP, STOC, MFCS, LFCS, SOFSEM, QAPL, WRS

Teaching Lecturing (Logic and Games), 6+ years of tutoring (mathematical logic, complexity theory, finite model theory), two co-supervised masters theses

Awards E.W. Beth Prize for outstanding dissertation in the field of Logic, Language and Information

Programming

Languages used Object-oriented (C++, C#), Functional (Ocaml, SML), Logic (Prolog), Scripting (Python, PHP), \LaTeX

Languages developed Speagram, Nemerle

Languages English (fluent), German (fluent), Russian (basic), Polish

Łukasz Kaiser, 27 October 2010

Publications

Theses

- [1] Łukasz Kaiser. *Logic and Games on Automatic Structures*. Ph.D. thesis, RWTH Aachen, 2008.
- [2] Łukasz Kaiser. *On Certain Extensions of Approximative Density*. Masters thesis, University of Wrocław, 2003. In polish.
- [3] Łukasz Kaiser. *Confluence of Right Ground Term Rewriting Systems is Decidable*. Masters thesis, University of Wrocław, 2003.

Journal Articles

- [4] Vince Bárány, Łukasz Kaiser, and Alexander Rabinovich. Expressing cardinality quantifiers in monadic second-order logic over chains. *J. Symb. Logic*. To appear.
- [5] Vince Bárány, Łukasz Kaiser, and Alexander Rabinovich. Expressing cardinality quantifiers in monadic second-order logic over trees. *Fundamenta Informaticæ*, 100:1–18, 2010.
- [6] Dietmar Berwanger and Łukasz Kaiser. Information tracking in games on graphs. *Journal of Logic, Language and Information*, 2010.
- [7] Diana Fischer, Erich Grädel, and Łukasz Kaiser. Model checking games for the quantitative μ -calculus. *Theory of Computing Systems*, 47(3):696–719, 2010.

Publications in Conference Proceedings

- [8] Tobias Ganzow and Łukasz Kaiser. New algorithm for weak monadic second-order logic on inductive structures. In *Proceedings of the 19th Annual Conference on Computer Science Logic, CSL '10*, LNCS. Springer, 2010. To appear.
- [9] Michael Holtmann, Łukasz Kaiser, and Wolfgang Thomas. Degrees of lookahead in regular infinite games. In *Proceedings of the 13th International Conference on Foundations of Software Science and Computation Structures, FOSSACS '10*, volume 6014 of LNCS, pages 252–266. Springer, 2010.
- [10] Łukasz Kaiser and Łukasz Stafiniak. Playing structure rewriting games. In *Proceedings of AGI '10*. Atlantis Press, 2010.
- [11] Vince Bárány, Łukasz Kaiser, and Alexander Rabinovich. Cardinality quantifiers in MLO over trees. In *Proceedings of the 18th Annual Conference on Computer Science Logic, CSL '09*, volume 5771 of LNCS, pages 117–132. Springer, 2009.
- [12] Erich Grädel, Łukasz Kaiser, and Roman Rabinovich. Directed graphs of entanglement two. In *Proceedings of the 17th International Symposium on Fundamentals of Computation Theory, FCT '09*, volume 5699 of LNCS, pages 169–181. Springer, 2009.

- [13] Łukasz Kaiser. Synthesis for structure rewriting systems. In *Proceedings of the 34th International Symposium on Mathematical Foundations of Computer Science, MFCS '09*, volume 5734 of *LNCS*, pages 415–427. Springer, 2009.
- [14] Diana Fischer, Erich Grädel, and Łukasz Kaiser. Model checking games for the quantitative μ -calculus. In Susanne Albers and Pascal Weil, editors, *Proceedings of the 25th International Symposium on Theoretical Aspects of Computer Science, STACS '08*, pages 301–312, 2008.
- [15] Łukasz Kaiser, Sasha Rubin, and Vince Bárány. Cardinality and counting quantifiers on omega-automatic structures. In Susanne Albers and Pascal Weil, editors, *Proceedings of the 25th International Symposium on Theoretical Aspects of Computer Science, STACS '08*, pages 385–396, 2008.
- [16] Erich Grädel and Łukasz Kaiser. What kind of memory is needed to win infinitary muller games? In Johan van Benthem, Benedikt Löwe, and Dov Gabbay, editors, *Interactive Logic*, volume 1 of *Texts in Logic and Games*, pages 89–116. Amsterdam University Press, 2007.
- [17] Łukasz Kaiser. Game quantification on automatic structures and hierarchical model checking games. In Zoltan Esik, editor, *Proceedings of the 15th Annual Conference on Computer Science Logic, CSL '06*, volume 4207 of *LNCS*, pages 411–425. Springer, 2006.
- [18] Łukasz Kaiser. Confluence of right ground term rewriting systems is decidable. In Vladimiro Sassone, editor, *Proceedings of the 8th International Conference on Foundations of Software Science and Computation Structures, FOSSACS '05*, volume 3441 of *LNCS*, pages 470–489. Springer, 2005.
- [19] Łukasz Kaiser. Program search as a path to artificial general intelligence. In B. Goertzel and C. Pennachin, editors, *Artificial General Intelligence*, pages 291–327. Springer, 2004.
- [20] Andrzej Buller, Łukasz Kaiser, and Katsunori Shimohara. Memestorms: A cellular automaton for pattern recognition and dynamic fuzzy calculus. In *AROB '02, Proceedings of the 7th International Symposium on Artificial Life and Robotics*, pages 528–531, 2002.
- [21] Andrzej Buller, Łukasz Kaiser, and Katsunori Shimohara. Para-evolutionary paradigm of reasoning. In N. Baba, LC. Jain, and RJ. Howlett, editors, *KES '01, Proceedings of the 5th International Conference on Knowledge-Based Intelligent Information Engineering Systems & Allied Technologies*, pages 127–131. IOS Press, 2001.
- [22] Andrzej Buller, Tomasz Chodakowski, Łukasz Kaiser, Andrzej Nowak, and Katsunori Shimohara. Memestorms: Cellular working memory and dynamics of judgments. In *AROB '01, Proceedings of the 6th International Symposium on Artificial Life and Robotics*, pages 146–149, 2001.