

CURRICULUM VITAE

MICHAŁ SKRZYPCZAK

PERSONAL DATA

ADDRESS room 4030, Banacha 2, 02–097 Warsaw, Poland
BIRTH DATE 4 October 1986
E-MAIL mkrzypczak@mimuw.edu.pl
WWW <http://www.mimuw.edu.pl/~mkrzypczak/>



RESEARCH INTERESTS

CS Automata Theory, Model Checking
MATH Set-theoretic Topology, Logic, Games

EDUCATION

2020 Habilitation in Computer Science, University of Warsaw
2014 PhD in Computer Science (with honours), University of Warsaw
Supervisors: prof. Mikołaj Bojańczyk and prof. Igor Walukiewicz
2012 MSc in Computer Science (with honours), University of Warsaw
2010 MSc in Mathematics (with honours), University of Warsaw
2010 – 2014 University of Warsaw, Faculty of Mathematics, Informatics and Mechanics,
Third Degree Program in Computer Science
2005 – 2010 University of Warsaw, Faculty of Mathematics, Informatics and Mechanics, Dou-
ble Degree Program in Computer Science and Mathematics
2002 – 2005 XIV Secondary School in Warsaw, Mathematical-Experimental Program

PROFESSIONAL EXPERIENCE

2015 – ... Assistant professor, Institute of Informatics, University of Warsaw
2015 PostDoc, Liafa (IRIF), Université Denis Diderot — Paris 7
2010 – 2014 Scientific assistant, Institute of Informatics, University of Warsaw
2006 – 2010 Design, development, and deployment of a system of storehouse and sales reports
for Travellers Shop
IX – X 2009 Programmers internship in e-point, development and deployment of a prototype
of application supporting Getting Things Done methodology

PARTICIPATION IN RESEARCH PROJECTS

2019 – ...	“Understanding recursion”, grant NCN Sonata 2017/26/D/ST6/00201, executor
2017 – ...	“Quantitative properties for higher-order recursion schemes”, grant NCN Sonata Bis 2016/22/E/ST6/00041, executor
2017 – 2020	“Efficient algorithms for weak forms of non-determinism”, grant NCN Sonata 2016/21/D/ST6/00491, leadership
2015 – 2018	“Decidability issues for automata on infinite structures”, grant NCN Opus 2014-13/B/ST6/03595, executor
2014 – 2016	“Limits of decidability in automata theory”, grant NCN Sonata 2012/07/D/ST6/02443, subcontractor
2015	“Games, Automata and Logic’s Extensions”, ERC Starting Grant GALE nr 259454, executor
2013 – 2015	“Hierarchy-type problems for automata on infinite words and trees”, grant NCN Preludium DEC-2012/05/N/ST6/03254, leadership
2011 – 2014	“New models of automata”, grant NCN N N206 567840, subcontractor
2014	“The Expressiveness of Modal Fixpoint Logics”, FNP grant Homing Plus/2012-5/1, subcontractor
2010 – 2014	“Expressive power of tree logics”, ERC Starting Grant Sosna nr 239850, executor
2010	“Advanced problems of automata theory”, grant MNiSW N206 008 32/0810, subcontractor

HONOURS

2020 – 2023	Polish Ministry of Science and Higher Education Scholarship for Exceptional Young Researchers
2019	“Felt Medal” (Polish “ <i>Medal Filca</i> ”) for the best talk at LX Workshop on Mathematical Perspectives
2017/2018	Scholarship “FNP Start” for excellent young researchers
2017	Prof. Zdzisław Pawlak Prize for Outstanding Monograph in Computer Science for the book “Descriptive set theoretic methods in automata theory” awarded by Committee on Informatics of the Polish Academy of Sciences
2016	Witold Lipski Prize for Young Researchers in Computer Science
2015	Nomination (one of four) to International Stefan Banach Prize for doctoral dissertation “Descriptive set theoretic methods in automata theory”
2015	E. W. Beth Dissertation Prize for PhD thesis “Descriptive set theoretic methods in automata theory”

2015	EATCS Distinguished Dissertation Award for PhD thesis “Descriptive set theoretic methods in automata theory”
2008 – 2011	Polish Ministry of Science and Higher Education Scholarship for Exceptional Academic Achievements

VISITS

X 2020	Laboratoire Bordelais de Recherche en Informatique, France
II 2020	École Normale Supérieure de Lyon, France
XI 2017	Université Denis Diderot — Paris 7, France
III 2017	University of Turin, Italy
I 2017	École Normale Supérieure de Lyon, France
XII 2016	Hebrew University of Jerusalem, Israel
XII 2014	Université Denis Diderot — Paris 7, France
V 2014	Laboratoire Bordelais de Recherche en Informatique, France
III 2013	Laboratoire Bordelais de Recherche en Informatique, France
XII 2012	Tel Aviv University, Israel (COST framework)
II – VI 2012	Laboratoire Bordelais de Recherche en Informatique, France
III 2011	Université de Lausanne, Switzerland (GAMES project)

PHD STUDENTS

2017 – ...	Vincent Michielini, PhD expected in 2021, Primary Supervisor
2017 – 2019	Marcin Przybyłko, PhD defended in April 2019, Auxiliary Supervisor

BOOKS

1. Piotrek Hofman, Michał Skrzypczak, “Proceedings of 23rd International Conference on Developments in Language Theory (DLT)”. Lecture Notes in Computer Science 11647, Springer 2019
2. Michał Skrzypczak, “Descriptive Set Theoretic Methods in Automata Theory — Decidability and Topological Complexity”. Lecture Notes in Computer Science 9802, Springer 2016

JOURNAL PAPERS

1. Mikołaj Bojańczyk, Filippo Cavallari, Thomas Place, Michał Skrzypczak, “Regular tree languages in low levels of the Wadge Hierarchy”. Logical Methods in Computer Science 15(3): 27:1–27:61, 2019

2. Leszek Kołodziejczyk, Henryk Michalewski, Pierre Pradic, Michał Skrzypczak, “The Logical Strength of Büchi’s Decidability Theorem”. *Logical Methods in Computer Science* 15(2): 16:1-16:31, 2019
3. Henryk Michalewski, Michał Skrzypczak, “On the Strength of Unambiguous Tree Automata”. *International Journal of Foundations of Computer Science* 29(5): 911–933, 2018
4. Matteo Mio, Michał Skrzypczak, Henryk Michalewski, “Monadic Second Order Logic with Measure and Category Quantifiers”. *Logical Methods in Computer Science* 14(2): 1–29, 2018
5. Tomasz Gogacz, Henryk Michalewski, Matteo Mio, Michał Skrzypczak, “Measure properties of regular sets of trees”. *Information and Computation* 256: 108–130, 2017
6. Alessandro Facchini, Filip Murlak, Michał Skrzypczak, “Index problems for game automata”. *ACM Transactions of Computational Logic* 17(4): 24:1–24:38, 2016
7. Tomasz Idziaszek, Michał Skrzypczak, Mikołaj Bojańczyk, “Regular languages of thin trees”. *Theory of Computing Systems* 58(4): 614–663, 2016
8. Olivier Finkel, Michał Skrzypczak, “On the Topological Complexity of omega-Languages of Non-Deterministic Petri Nets”. *Information Processing Letters* 114(5): 229–233, 2014
9. Michał Skrzypczak, “Separation property for ω B and ω S-regular languages”. *Logical Methods in Computer Science* 10(1): 1–20, 2014
10. Michał Skrzypczak, “Topological extension of parity automata”. *Information & Computation* 228: 16–27, 2013
11. Szczepan Hummel, Michał Skrzypczak, “The topological complexity of MSO+U and related automata models”. *Fundamenta Informaticae*, 119(1): 87–111, 2012
12. Mikołaj Bojańczyk, Damian Niwiński, Alexander Rabinovich, Adam Radziwończyk-Syta, Michał Skrzypczak, “On the borel complexity of MSO definable sets of branches”. *Fundamenta Informaticae*, 98(4): 337–349, 2010

CONFERENCE PAPERS

1. Udi Boker, Denis Kuperberg, Karoliina Lehtinen, Michał Skrzypczak, “On the Succinctness of Alternating Parity Good-For-Games Automata”. In *LIPICs, Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*: 41:1–41:13, 2020
2. Vincent Michielini, Michał Skrzypczak, “Regular Choice Functions and Uniformisations For Countable Domains”. In *LIPICs, Mathematical Foundations of Computer Science (MFCS)*: 69:1–69:13, 2020

3. Damian Niwiński, Marcin Przybyłko, Michał Skrzypczak, “Computing Measures of Weak-MSO Definable Sets of Trees”. In *LIPIcs, International Colloquium on Automata, Languages, and Programming (ICALP) (2)*: 136:1–136:18, 2020
4. Grzegorz Fabiański, Michał Skrzypczak, Szymon Toruńczyk, “Uniformisations of Regular Relations Over Bi-Infinite Words”. In *IEEE Computer Society, Logic in Computer Science (LICS)*: 384–396, 2020
5. Nathan Lhote, Vincent Michielini, Michał Skrzypczak, “Uniformisation Gives the Full Strength of Regular Languages”. In *LIPIcs, Mathematical Foundations of Computer Science (MFCS)*: 61:1–61:13, 2019
6. Mikołaj Bojańczyk, Edon Kelmendi, Michał Skrzypczak, “MSO+Nabla is undecidable”. In *IEEE Computer Society, Logic in Computer Science (LICS)*: 1–13, 2019
7. Michał Skrzypczak, “Büchi VASS recognise Σ_1^1 -complete ω -languages”. In *Springer-Verlag LNCS, Reachability Problems (RP)*: 133–145, 2018
8. Michał Skrzypczak, “Unambiguous Languages Exhaust the Index Hierarchy”. In *LIPIcs, International Colloquium on Automata, Languages, and Programming (ICALP) (2)*: 140:1–140:14, 2018
9. Udi Boker, Orna Kupferman, Michał Skrzypczak, “How Deterministic are Good-For-Games Automata?”. In *LIPIcs, Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*: 18:1–18:14, 2017
10. Filippo Cavallari, Henryk Michalewski, Michał Skrzypczak, “A characterisation of Π_2^0 regular tree languages”. In *LIPIcs, Mathematical Foundations of Computer Science (MFCS)*: 56:1–56:14, 2017
11. Leszek Kołodziejczyk, Henryk Michalewski, Pierre Pradic, Michał Skrzypczak, “The Logical Strength of Büchi’s Decidability Theorem”. In *LIPIcs, Computer Science Logic (CSL)*: 36:1–36:16, 2016
12. Henryk Michalewski, Michał Skrzypczak, “Unambiguous Büchi Is Weak”. In *Springer-Verlag LNCS, Developments in Language Theory (DLT)*: 319–33, 2016
13. Michał Skrzypczak, Igor Walukiewicz, “Deciding the Topological Complexity of Büchi Languages”. In *LIPIcs, International Colloquium on Automata, Languages, and Programming (ICALP) (2)*: 99:1–99:13, 2016
14. Marcin Przybyłko, Michał Skrzypczak, “On the Complexity of Branching Games with Regular Conditions”. In *LIPIcs, Mathematical Foundations of Computer Science (MFCS)*: 78:1–78:14, 2016

15. Alessandro Facchini, Filip Murlak, Michał Skrzypczak, “On the Weak Index Problem for Game Automata”. In Springer-Verlag LNCS, Workshop on Logic, Language, Information and Computation (WoLLIC): 93–108, 2015
16. Nathanaël Fijalkow, Michał Skrzypczak, “Irregular Behaviours for Probabilistic Automata”. In Springer-Verlag LNCS, Reachability Problems (RP): 33–36, 2015
17. Nathanaël Fijalkow, Florian Horn, Denis Kuperberg, Michał Skrzypczak, “Trading bounds for memory in games with counters”. In Springer-Verlag LNCS, International Colloquium on Automata, Languages, and Programming (ICALP) (2): 197–208, 2015
18. Denis Kuperberg, Michał Skrzypczak, “On Determinisation of Good-For-Games automata”. In Springer-Verlag LNCS, International Colloquium on Automata, Languages, and Programming (ICALP) (2): 299–310, 2015
19. Mikołaj Bojańczyk, Tomasz Gogacz, Henryk Michalewski, Michał Skrzypczak, “On the Decidability of MSO+U on Infinite Trees”. In Springer-Verlag LNCS, International Colloquium on Automata, Languages, and Programming (ICALP) (2): 50–61, 2014
20. Tomasz Gogacz, Henryk Michalewski, Matteo Mio, Michał Skrzypczak, “Measure Properties of Game Tree Languages”. In Springer-Verlag LNCS, Mathematical Foundations of Computer Science (MFCS) (1): 303–314, 2014
21. Marcin Bilkowski, Michał Skrzypczak, “Unambiguity and uniformization problems on infinite trees”. In LIPIcs, Computer Science Logic (CSL): 81–100, 2013
22. Udi Boker, Denis Kuperberg, Orna Kupferman, Michał Skrzypczak, “Nondeterminism in the Presence of a Diverse or Unknown Future”. In Springer-Verlag LNCS, International Symposium on Automata, Logic, and Programming (ICALP): 89–100, 2013
23. Alessandro Facchini, Filip Murlak, Michał Skrzypczak, “Rabin–Mostowski index problem: a step beyond deterministic automata”. In IEEE Computer Society, Logic in Computer Science (LICS): 499–508, 2013
24. Mikołaj Bojańczyk, Tomasz Idziaszek, Michał Skrzypczak, “Regular languages of thin trees”. In LIPIcs, International Symposium on Theoretical Aspects of Computer Science (STACS): 562–573, 2012
25. Szczepan Hummel, Michał Skrzypczak, Szymon Toruńczyk, “On the topological complexity of MSO+U and related automata models”. In Springer-Verlag LNCS, Mathematical Foundations of Computer Science (MFCS): 429–440, 2010

INVITED TALKS

1. “Presenting your work - TikZ & Tricks”, 6 July 2020, online, invited talk at 5th Logic Mentoring Workshop
2. “Games and complexity: from Banach-Mazur to automata theory”, 8 June 2018, Torino, Italy, invited talk at Workshop on Wadge Theory and Automata II
3. “Games in topology and their effective variants”, 7 December 2017, Warsaw, Poland, invited talk at Colloquium Of MIM Faculty
4. “Connecting decidability and complexity for MSO logic”, 10 August 2017, Liege, Belgium, invited talk during conference DLT 2017
5. “Deciding complexity of languages via games”, 8 July 2017, Warsaw, Poland, invited talk during conference FIT 2017
6. “Infinite computations, logic, and topological complexity”, 23 June 2016, Toulouse, France, invited talk during workshop Topology and Languages 2016
7. “An automata-theoretic hierarchy inside Δ_2^1 ”, 20 November 2015, Lausanne, Switzerland, invited talk during SSLPS Annual Meeting 2015
8. “Descriptive complexity vs. decidability for Monadic Second-Order logic”, 25 April 2013, Paris, France, invited talk during Journées d’Informatique Fondamentale

ORGANISATIONAL DUTIES

2020	Member of Program Committee of DLT 2020
2019	Member of Program Committee of ICALP 2019
2019	Member of Program Committee of STACS 2019
2019	Chair of Program Committee of DLT 2019
2019	Chair organiser of DLT 2019 in Warsaw
2018	Member of Program Committee of DLT 2018
2017	Co-editor of “200 Problems in Formal Languages and Automata Theory”
2017	Co-organiser of Lipa Summer School in Warsaw
2011	Help in organisation of MFCS 2011 in Warsaw