Dr. Martin Zimmermann
Curriculum Vitae

Contact

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Employment

University of Liverpool Lecturer	October 2018 - present
Saarland University Postdoc	May 2013 - September 2018
University of Warsaw Postdoc	February 2012 - April 2013
RWTH Aachen University Research Assistant	February 2009 - January 2012

Education

RWTH Aachen University PhD Student Thesis: Solving Infinite Games with Bounds Adviser: Wolfgang Thomas	February 2009 - January 2012
RWTH Aachen University Diploma in Computer Science Minor in Business Administration Thesis: Time-optimal Winning Strategies in Infinite Games Adviser: Wolfgang Thomas	September 2003 - January 2009

Awards and Scholarships

Springorum Medal Awarded for diploma with distinction at RWTH Aachen University	2010
Fulbright Scholarship DePaul University, Chicago, IL	September 2007 - June 2008

Grants	**EPSRC Project "Ontology-Based Management of Many-Dimensional Quantitative Data"** June 2019 - May 2022
	Co-Investigator
	DFG Project "Tradeoffs in Controller Synthesis" January 2015 - September 2018
	Principal Investigator
	Financial support to organize the "Ninth International Symposium on Games, Automata, Logics, and Formal Verification" (GandALF 2018) in Saarbrücken from the DFG

Activities	**MOVEP 2022**
	Organizer
	GandALF
	Steering committee member
	GandALF 2020
	PC member
	GandALF 2019
	PC member
	GandALF 2018
	PC co-chair and organizing chair
	Highlights of Logic, Games, and Automata 2018
	PC member
	TIME 2017
	PC member

Events	**Workshop "Automata Theory and Applications: Games, Learning and Structures"**
	Invited Participant September 2021
	Workshop "Algorithmic Verification of Real-time Systems" December 2016
	Invited Speaker
	Workshop "Automata, Concurrency and Timed Systems" February 2015
	Invited Speaker
	Dagstuhl Seminar "Non-Zero-Sum-Games and Control" February 2015
	Invited Participant

Publications	All papers are available on my homepage.
Under Submission	
	From LTL to rLTL Monitoring: Improved Monitorability through Robust Semantics (journal version)
	Corto Mascle, Daniel Neider, Maximilian Schwenger, Paulo Tabuada, Alexander Weinert, and Martin Zimmermann
	arXiv:1807.08203

Journal Papers

Approximating the Minimal Lookahead Needed to Win Infinite Games
Martin Zimmermann
Accepted at Information Processing Letters (arXiv:2010.11706)

Good-for-games ω-Pushdown Automata
Karoliina Lehtinen and Martin Zimmermann
Accepted at LMCS (arXiv:2001.04392)

Robust, Expressive, and Quantitative Linear Temporal Logics: Pick any Two for Free
Daniel Neider, Alexander Weinert, and Martin Zimmermann
Accepted at Information and Computation (arXiv:1807.08203)

Finite-state Strategies in Delay Games
Sarah Winter and Martin Zimmermann
Information and Computation (Special Issue GandALF 2017), 272, 2020

Synthesizing Optimally Resilient Controllers
Daniel Neider, Alexander Weinert, and Martin Zimmermann
Acta Informatica 57(1), 2020

Parity Games with Weights
Sven Schewe, Alexander Weinert, and Martin Zimmermann
Logical Methods in Computer Science (Special Issue CSL 2018), 15(3), 2019

Visibly Linear Dynamic Logic
Alexander Weinert and Martin Zimmermann
Theoretical Computer Science, 747, 2018

Distributed Synthesis for Parameterized Temporal Logics
Swen Jacobs, Leander Tentrup, and Martin Zimmermann
Information and Computation (Special Issue GandALF 2016), 262(2), 2018

The Complexity of Counting Models of Linear-time Temporal Logic
Hazem Torfah and Martin Zimmermann
Acta Informatica, 55(3), 2018

Parameterized Linear Temporal Logics Meet Costs: Still not Costlier than LTL
Martin Zimmermann
Acta Informatica (Special Issue GandALF 2015), 55(2), 2018

Easy to Win, Hard to Master: Optimal Strategies in Parity Games with Costs
Alexander Weinert and Martin Zimmermann
Logical Methods in Computer Science, 13(3), 2017

Parametric Linear Dynamic Logic
Peter Faymonville and Martin Zimmermann
Information and Computation (Special Issue GandALF 2014), 253(3), 2017

Delay Games with WMSO+U Winning Conditions
Martin Zimmermann
RAIRO ITA, 50(2), 2016

How Much Lookahead is Needed to Win Infinite Games?
Felix Klein and Martin Zimmermann
Logical Methods in Computer Science, 12(3), 2016

Optimal Strategy Synthesis for Request-Response Games
Florian Horn, Wolfgang Thomas, Nico Wallmeier, and Martin Zimmermann
RAIRO ITA, 49(3), 2015

Down the Borel Hierarchy: Solving Muller Games via Safety Games
Daniel Neider, Roman Rabinovich, and Martin Zimmermann
Theoretical Computer Science (Special Issue GandALF 2012), 560, 2014

Parity and Streett Games with Costs
Nathanaël Fijalkow and Martin Zimmermann
Logical Methods in Computer Science, 10(2), 2014

Optimal Bounds in Parametric LTL Games
Martin Zimmermann
Theoretical Computer Science (Special Issue GandALF 2011), 493, 2013

Playing Muller Games in a Hurry
John Fearnley and Martin Zimmermann
International Journal of Foundations of Computer Science (Special Issue GandALF 2010), 23(3), 2012

Conference Papers

HyperLTL Satisfiability is Σ_1^1-complete, HyperCTL* Satisfiability is Σ_1^2-complete
Marie Fortin, Louwe B. Kuijer, Patrick Totzke, and Martin Zimmermann
Accepted at MFCS 2021 (arXiv:2105.04176)

A Bit of Nondeterminism Makes Pushdown Automata Expressive and Succinct
Shibashis Guha, Ismaël Jecker, Karoliina Lehtinen, and Martin Zimmermann
Accepted at MFCS 2021 (arXiv:2105.02611)

Optimal Strategies in Weighted Limit Games
Aniello Murano, Sasha Rubin, and Martin Zimmermann
In *Proceedings of GandALF 2020*, volume 326 of *EPTCS*, 2020

Optimally Resilient Strategies in Pushdown Safety Games
Daniel Neider, Patrick Totzke, and Martin Zimmermann
In *Proceedings of MFCS 2020*, volume 170 of *LIPIcs*, 2020

Good-for-games ω-Pushdown Automata
Karoliina Lehtinen and Martin Zimmermann
In *Proceedings of LICS 2020*, ACM, 2020

From LTL to rLTL Monitoring: Improved Monitorability through Robust Semantics
Corto Mascle, Daniel Neider, Maximilian Schwenger, Paulo Tabuada, Alexander Weinert, and Martin Zimmermann
In *Proceedings of HSCC 2020*, ACM, 2020

Promptness and Bounded Fairness in Concurrent and Parameterized Systems
Swen Jacobs, Mouhammad Sakr, and Martin Zimmermann
In *Proceedings of VMCAI 2020*, volume 11990 of *LNCS*, 2020

The Keys to Decidable HyperLTL Satisfiability: Small Models or Very Simple Formulas
Corto Mascle and Martin Zimmermann
In *Proceedings of CSL 2020*, volume 152 of *LIPIcs*, 2020

Robust, Expressive, and Quantitative Linear Temporal Logics: Pick any Two for Free
Daniel Neider, Alexander Weinert, and Martin Zimmermann
In *Proceedings of GandALF 2019*, volume 305 of *EPTCS*, 2019

Parity Games with Weights
Sven Schewe, Alexander Weinert, and Martin Zimmermann
In *Proceedings of CSL 2018*, volume 119 of *LIPIcs*, 2018

Synthesizing Optimally Resilient Controllers
Daniel Neider, Alexander Weinert, and Martin Zimmermann
In *Proceedings of CSL 2018*, volume 119 of *LIPIcs*, 2018

Parity to Safety in Polynomial Time for Pushdown and Collapsible Pushdown Systems
Matthew Hague, Roland Meyer, Sebastian Muskalla, and Martin Zimmermann
In *Proceedings of MFCS 2018*, volume 117 of *LIPIcs*, 2018

Team Semantics for the Specification and Verification of Hyperproperties
Andreas Krebs, Arne Meier, and Jonni Virtema, and Martin Zimmermann
In *Proceedings of MFCS 2018*, volume 117 of *LIPIcs*, 2018

Finite-state Strategies in Delay Games
Martin Zimmermann
In *Proceedings of GandALF 2017*, volume 256 of *EPTCS*, 2017

Games with Costs and Delays
Martin Zimmermann
In *Proceedings of LICS 2017*, IEEE Computer Society, 2017

Bounding Average-energy Games
Patricia Bouyer, Piotr Hofman, Nicolas Markey, Mickael Randour, and Martin Zimmermann
In *Proceedings of FOSSACS 2017*, volume 10203 of *LNCS*, 2017

The First-Order Logic of Hyperproperties
Bernd Finkbeiner and Martin Zimmermann
In *Proceedings of STACS 2017*, volume 66 of *LIPIcs*, 2017

Prompt Delay
Felix Klein and Martin Zimmermann
In *Proceedings of FSTTCS 2016*, volume 65 of *LIPIcs*, 2016

Visibly Linear Dynamic Logic
Alexander Weinert and Martin Zimmermann
In *Proceedings of FSTTCS 2016*, volume 65 of *LIPIcs*, 2016

Limit your Consumption! Finding Bounds in Average-energy Games
Kim G. Larsen, Simon Laursen, and Martin Zimmermann
In *Proceedings of QAPL 2016*, volume 227 of *EPTCS*, 2016

Approximating Optimal Bounds in Prompt-LTL Realizability in Doubly-exponential Time
Leander Tentrup, Alexander Weinert, and Martin Zimmermann
In *Proceedings of GandALF 2016*, volume 226 of *EPTCS*, 2016

Distributed PROMPT-LTL Synthesis
Swen Jacobs, Leander Tentrup, and Martin Zimmermann
In *Proceedings of GandALF 2016*, volume 226 of *EPTCS*, 2016

Easy to Win, Hard to Master: Optimal Strategies in Parity Games with Costs
Alexander Weinert and Martin Zimmermann
In *Proceedings of CSL 2016*, volume 62 of *LIPIcs*, 2016

Parameterized Linear Temporal Logics Meet Costs: Still not Costlier than LTL
Martin Zimmermann
In *Proceedings of GandALF 2015*, volume 193 of *EPTCS*, 2015

What are Strategies in Delay Games? Borel Determinacy for Games with Lookahead
Felix Klein and Martin Zimmermann
In *Proceedings of CSL 2015*, volume 41 of *LIPIcs*, 2015

Delay Games with WMSO+U Winning Conditions
Martin Zimmermann
In *Proceedings of CSR 2015*, volume 9139 of *LNCS*, 2015

How Much Lookahead is Needed to Win Infinite Games?
Felix Klein and Martin Zimmermann
In *Proceedings of ICALP 2015, part II*, volume 9135 of *LNCS*, 2015

The Complexity of Counting Models of Linear-time Temporal Logic
Hazem Torfah and Martin Zimmermann
In *Proceedings of FSTTCS 2014*, volume 29 of *LIPIcs*, 2014

Parametric Linear Dynamic Logic
Peter Faymonville and Martin Zimmermann
In *Proceedings of GandALF 2014*, volume 161 of *EPTCS*, 2014

Cost-Parity and Cost-Streett Games
Nathanaël Fijalkow and Martin Zimmermann
In *Proceedings of FSTTCS 2012*, volume 18 of *LIPIcs*, 2012

Playing Pushdown Parity Games in a Hurry
Wladimir Fridman and Martin Zimmermann
In *Proceedings of GandALF 2012*, volume 96 of *EPTCS*, 2012

Down the Borel Hierarchy: Solving Muller Games via Safety Games
Daniel Neider, Roman Rabinovich, and Martin Zimmermann
In *Proceedings of GandALF 2012*, volume 96 of *EPTCS*, 2012

Degrees of Lookahead in Context-free Infinite Games
Wladimir Fridman, Christof Löding, and Martin Zimmermann
In *Proceedings of CSL 2011*, volume 12 of *LIPIcs*, 2011

Optimal Bounds in Parametric LTL Games
Martin Zimmermann
In *Proceedings of GandALF 2011*, volume 54 of *EPTCS*, 2011

Playing Muller Games in a Hurry
John Fearnley and Martin Zimmermann
In *Proceedings of GandALF 2010*, volume 25 of *EPTCS*, 2010

Time-optimal Winning Strategies for Poset Games
Martin Zimmermann
In *Proceedings of CIAA 2009*, volume 5642 of *LNCS*, 2009

Posters	**Adaptive Strategies for rLTL Games** Satya Prakash Nayak, Daniel Neider, and Martin Zimmermann In *Proceedings of HSCC 2021*, ACM 2021
Theses	**Tradeoffs in Infinite Games** Habilitation Thesis, Saarland University, 2018
	Solving Infinite Games with Bounds PhD Thesis, RWTH Aachen University, 2012
	Time-optimal Winning Strategies in Infinite Games Diploma Thesis, RWTH Aachen University, 2009

Talks

Slides are available on my homepage.

Optimal Strategies in Weighted Limit Games GandALF 2020

Optimally Resilient Strategies in Pushdown Safety Games MFCS 2020, Highlights 2020

Temporal Logics for Information-flow Policies Royal Holloway 2020

Robust, Expressive, and Quantitative Linear Temporal Logics: Pick any Two for Free GandALF 2019

Synthesizing Optimally Resilient Strategies Highlights 2018

Finite-state Strategies in Delay Games GandALF 2017

The First-order Logic of Hyperproperties Centre Fédéré en Vérification (Brussels) 2017, RWTH Aachen University 2017, STACS 2017, Leibniz University Hannover 2017, Highlights 2017

Easy to Win, Hard to Master: Playing Parity Games with Costs Optimally AVeRTS 2016, University of Liverpool 2017

Prompt Delay FSTTCS 2016

Distributed Prompt-LTL Synthesis GandALF 2016

Visibly Linear Dynamic Logic Highlights 2016, FSTTCS 2016

Approximating Optimal Bounds in Prompt-LTL Realizability in Doubly-exponential Time QAPL 2016

Limit your Consumption! Finding Bounds in Average-energy Games QAPL 2016

Unbounded Lookahead in WMSO+U Games University of Warsaw 2015

Parameterized Linear Temporal Logics Meet Costs: Still not Costlier than LTL GandALF 2015

What are Strategies in Delay Games? Borel Determinacy for Games with Lookahead CSL 2015

Delay Games with WMSO+U Winning Conditions Dagstuhl 2015, Avacs Meeting 2015, CSR 2015, Highlights 2015

Parametric Linear Temporal Logics Aalborg 2015

Infinite Games University of Oldenburg 2014 (invited)

Optimal Strategy Synthesis for Request-Response Games AVACS Meeting 2014

The Complexity of Counting Models of Linear-time Temporal Logic Highlights 2014, RWTH Aachen University 2015

How much Lookahead is Needed to Win Infinite Games? Algosyn/PUMA Meeting 2014, ACTS 2015, Aalborg University 2015, University of Napoli 2018

Cost-Parity and Cost-Streett Games RWTH Aachen University 2012, TU München 2013, Saarland University 2013

Playing Pushdown Parity Games in a Hurry AISS 2012, GandALF 2012, Games 2012

Down the Borel Hierarchy Solving Muller Games via Safety Games University of Warsaw 2011, Algosyn Workshop 2011, Gasics Meeting 2011, LICS 2012, AVACS Meeting 2014

Degrees of Lookahead in Context-free Infinite Games AlMoTh 2011, Gasics Meeting 2011, Games 2011

Playing Muller Games in a Hurry Gasics Meeting 2010, GandALF 2010, MoVeP 2010, Games 2010

Time-optimal Strategies for Infinite Games Warwick University 2010

Optimal Bounds in Parametric LTL Games Games 2009, Gasics Meeting 2009, AlMoTh 2010, Gasics Meeting 2010, GandALF 2011, AVACS Meeting 2013

Time-optimal Winning Strategies for Poset Games Gasics Meeting 2009, CIAA 2009

Academic Visits	**University of Naples** (two weeks) Host: Aniello Murano	March 2018
	Aalborg University (three weeks) Host: Kim G. Larsen	August 2015
	University of Warwick (six weeks) Host: Marcin Jurdziński	March 2010 - April 2010
Advising	Satya Prakash Nayak (intern)	2020-2021
	Corto Mascle (intern)	2019
	Alexander Weinert (PhD student)	2015 - 2018
	Moritz Lichter (research immersion lab)	2017
	Tobias Salzmann (master thesis)	2015
Teaching	Module **COMP313: Formal Methods**	since 2018
	Lecture **Reactive Synthesis** (co-taught with S. Jacobs)	Winter 2017/18
	Lecture **Infinite Games**	Summer 2016

Lecture **Recursion Theory**		Summer 2015
Seminar **Advanced Topics in Infinite Games** (co-taught with B. Finkbeiner)		Summer 2014
Lecture **Infinite Games**		Winter 2013/14
Lecture **Verification** (co-taught with B. Finkbeiner)		Summer 2013

PhD Committees	Quentin Hautem (University of Mons)	June 2018
	Alexander Wieder (Saarland University)	November 2017
	Hassan Hatefi Ardakani (Saarland University)	December 2016
	Rayna Dimitrova (Saarland University)	June 2014
	Rüdiger Ehlers (Saarland University)	October 2013

Reviewing   RP 2009, LPAR 2010, MFCS 2010, JCSS, LICS 2010, LATA 2010, FSTTCS 2010, CSL 2011, FSTTCS 2011, LICS 2013, ICALP 2013, TIME 2013, SICOMP, STACS 2014, TACAS 2014, FOSSACS 2014, I&C, CAV 2014, LMCS, YuriFest 2015, STACS 2015, LICS 2016, ATVA 2016, ESOP 2017, TCS, STACS 2018, FOSSACS 2018, MFCS 2018, Acta Informatica, I&C, RP 2019, ATVA 2019, FSTTCS 2019, STACS 2020, MFCS 2020, FSTTCS 2020, TAC, TOCS, MFCS 2021, WOLLIC 2021, TOCL.

Reviewer for Mathematical Reviews.

July 1, 2021