

Dr. Martin Zimmermann

Curriculum Vitae

Contact

Mail:

Department of Computer Science
University of Liverpool
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Liverpool L69 3BX
United Kingdom

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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

February 2009 - January 2012

Thesis: Solving Infinite Games with Bounds
Adviser: Wolfgang Thomas

RWTH Aachen University

September 2003 - January 2009

Diploma in Computer Science
Minor in Business Administration
Thesis: Time-optimal Winning Strategies in Infinite Games
Adviser: Wolfgang Thomas

Awards and Scholarships

Springorum Medal

2010

Awarded for diploma with distinction at RWTH Aachen University

Fulbright Scholarship

September 2007 - June 2008

DePaul University, Chicago, IL
GPA (through one year): 4.0

- Grants**
- EPSRC Project “Ontology-Based Management of Many-Dimensional Quantitative Data”** June 2019 - May 2022
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**
- 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 “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**
- Synthesizing Optimally Resilient Controllers** (journal version)
Daniel Neider, Alexander Weinert, and Martin Zimmermann
arXiv:1709.04854
- Parity Games with Weights** (journal version)
Sven Schewe, Alexander Weinert, and Martin Zimmermann
arXiv:1804.06168
- Robust, Expressive, and Quantitative Linear Temporal Logics: Pick any Two for Free**
Daniel Neider, Alexander Weinert, and Martin Zimmermann
arXiv:1808.09028
- From LTL to rLTL Monitoring: Improved Monitorability through Robust Semantics**
Corto Mascle, Daniel Neider, Maximilian Schwenger, Paulo Tabuada, Alexander Weinert, and Martin Zimmermann
arXiv:1807.08203

Journal Papers

Finite-state Strategies in Delay Games

Sarah Winter and Martin Zimmermann

Accepted for publication in *Information and Computation* (arXiv:1704.08887)

Visibly Linear Dynamic Logic

Alexander Weinert and Martin Zimmermann

Theoretical Computer Science 747

Distributed Synthesis for Parameterized Temporal Logics

Swen Jacobs, Leander Tentrup, and Martin Zimmermann

Information and Computation 262(2)

The Complexity of Counting Models of Linear-time Temporal Logic

Hazem Torfah and Martin Zimmermann

Acta Informatica 55(3)

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

Martin Zimmermann

Acta Informatica (Special Issue GandALF 2015), 55(2)

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 **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

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.

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-Streets 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, Al-MoTh 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) March 2018
Host: Aniello Murano

Aalborg University (three weeks) August 2015
Host: Kim G. Larsen

University of Warwick (six weeks) March 2010 - April 2010
Host: Marcin Jurdziński

Advising

Alexander Weinert (PhD student) 2015 - 2018

Moritz Lichter (research immersion lab) 2017

Tobias Salzmann (master thesis) 2015

Teaching

Saarland University

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** Summer 2014
(co-taught with B. Finkbeiner)

Lecture **Infinite Games** Winter 2013/14

Lecture **Verification** (co-taught with B. Finkbeiner) Summer 2013

RWTH Aachen University

Seminar on **Automata Theory** (advised three students) Winter 2011/12

Problem classes for lecture
Applied Automata Theory (with J. Olschewski) Summer 2011

Lab Course **Web Programming for Mathematicians** (with I. Felscher) Summer 2011

Seminar on **Automata Theory** (advised two students) Winter 2010/11

Lab course **Web Programming and LaTeX** (with I. Felscher) Winter 2010/11

Seminar on **Automata Theory** (advised one student) Summer 2010

Lab course **Web Programming for Mathematicians** (with I. Felscher) Summer 2010

Problem classes for lecture
Regular and Context-Free Languages: Advanced Results Winter 2009/10

Seminar on **Automata Theory** (advised one student) Winter 2009/10

Lab course **Web Programming and LaTeX** (with I. Felscher) Winter 2009/10
Seminar on **Automata Theory** (advised two students) Summer 2009

**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.

Reviewer for Mathematical Reviews.

May 20, 2019