Anexa 1.

PROPUNERE DE ACORDARE A TITLULUI DE

DOCTOR HONORIS CAUSA SCIENTIARUM – DHC. SC.

Nume	Abraham
Prenume	Erika
Titlu complet	Prof. univ. dr.
Data nașterii	9.11.1970
Țara de origine	Germania
Poziția curentă sau trecută	Profesor universitar la RWTH Aachen University
Adresa de corespondență **Email** **Telefon**	Informatik 2, LuFG Theory of Hybrid Systems 52056 Aachen, Germany Email abraham@informatik.rwth-aachen.de Phone +49 241 80-21242
Titlul onorific pentru care e propus	Doctor Honoris Causa Scientiarum – Dhc. Sc.

Scurtă motivație

Doamna Erika Abraham este profesor universitar la Departamentul de Informatică de la RWTH Aachen University și coordonatoarea grupului de cercetare în Teoria Sistemelor Hibride. A obținut titlul de doctor la Universitatea din Leiden, a efectuat o serie de stagii post-doctorale la universități și institute de cercetare din Germania, iar din 2008 este cadru didactic și cercetător la RWTH Aachen University.

Prof. Erika Abraham a obținut o serie de rezultate relevante în domeniul verificării satisfiabilității, a dezvoltării de instrumente software pentru verificarea fiabilității în sisteme hibride și pentru analiza sistemelor probabiliste, precum și aplicații ale tehnicilor de verificare formală în analiza modelelor de învățare automata. A editat 20 de volume și a publicat peste 180 de lucrări științifice.

De-a lungul timpului a obținut mai multe premii pentru cea mai bună lucrare precum și în cadrul competițiilor destinate instrumentelor software bazate pe SMT (Satisfiability Modulo Theory). A susținut peste 90 de prezentări invitate și tutoriale la conferințe relevante în domeniul logicii, verificării formale, teoria programării și a raționamentului automat.

In ultimii 10 ani a co-organizat 12 evenimente în Germania, Olanda și SUA și a fost co-chair la peste 20 de conferințe. Este membru al consiliului director al Asociatiei Profesorilor universitari din Germania, iar începând cu 2017 a îndeplinit o serie de roluri în cadrul Societății Europene de Informatică (Informatics Europe).

Pe lângă valoroasa activitate de cercetare, prof. Erika Abraham s-a implicat în mai multe acțiuni ale Informatics Europe și ACM-W care au avut în vedere promovarea informaticii și a ingineriei software

în rândul tinerelor, cu scopul de a echilibra balanța de gen în domeniul informaticii atât în zona academică și de cercetare, cât și în industria IT.

A participat, atât în calitate de invitat cât și în calitate de chair de program, la mai multe ediții ale conferinței internaționale SYNASC, organizată anual în cadrul Facultății de Matematică și Informatică de la Universitatea de Vest din Timișoara și colaborează cu cercetători din cadrul Departamentului de Informatică în cadrul unor proiecte de cercetare.

Referenți care au acceptat să scrie scrisori de recomandare (maxim 3 pentru DHC)

1. Prof. univ. dr. James Davenport – University of Bath, UK
2. Prof. univ. dr. Dorel Lucanu – Universitatea A.I. Cuza, Iasi, Romania
3. Prof. univ. dr. Mircea Marin – Universitatea de Vest din Timișoara România
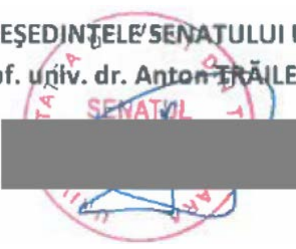
Persoana care face propunerea

Prof. univ. dr. Daniela ZAHARIE

Facultatea de Matematică și Informatică

daniela.zaharie@e-uvt.ro

AVIZE

APROBAT /~~RESPINS~~ În Ședința Consiliului Facultății de Matematică și Informatică din data de 18.06.2024	DECAN, Conf. Univ. Dr. Cosmin BONCHIS
APROBAT / RESPINS În Ședința Senatului UVT din data de 27.06.2024	PREȘEDINTELE SENATULUI UVT Prof. univ. dr. Anton TRĂILESCU

Anexa 2.

PROPUNERE COMISIE LAUDATIO
PENTRU ACORDAREA TITLULUI DOCTOR HONORIS CAUSA
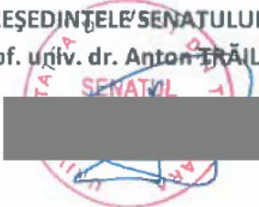
Doamnei Prof.dr. ERIKA ABRAHAM

Preşedinte (de regulă Rectorul sau decanul facultăţii care susţine propunerea):
Prof.dr. Marilen Gabriel Pirtea, Rectorul Universităţii de Vest din Timişoara

Prof. dr. Anton Trailescu, Presedinte Senat

Membri (5-7 membri cu titlul didactic de profesor):

1. Prof.dr. James Davenport, University of Bath, UK
2. Prof. dr. Laura Kovacs, Technical University of Vienna, Austria
3. Prof. dr. Dorel Lucanu, Universitatea A.I. Cuza, Iaşi
4. Prof.dr. Mircea Marin, Universitatea de Vest din Timişoara
5. Prof. dr. Viorel Negru, Universitatea de Vest din Timişoara
6. Prof. dr. Daniela Zaharie, Universitatea de Vest din Timişoara

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AVIZE

APROBAT /~~RESPINS~~ **În Şedinţa Consiliului Facultăţii de Matematică şi Informatică din data de 18.06.2024**	DECAN, Conf. Univ. Dr. Cosmin BONCHIS
APROBAT / RESPINS **În Şedinţa Senatului UVT** din data de 27.06.2024	PREŞEDINTELE SENATULUI UVT Prof. univ. dr. Anton TRĂILESCU SENATUL

FMI FACULTATEA
DE MATEMATICĂ
ŞI INFORMATICĂ

UNIVERSITATEA DE VEST DIN TIMIŞOARA

DECANAT

Extras din procesul verbal

Încheiat în data de 18.06.2024, ora 9:00, ședința extraordinară a Consiliului Facultății de Matematică și Informatică, prin procedura votului electronic, cu următoarea ordine de zi:

1. *Propunere de acordare a titlului de Doctor Honoris Causa Scientiarum (DHC)- Erika Abraham (Dosar DHC - ErikaAbraham)*
2. *Comisie de echivalări la dep. de Informatică (comisie)*

Comisia de Echivalare a disciplinelor de la departamentului de Informatică a Facultății de Matematică și Informatică

Membrii: Lect. univ. dr. Alexandra Fortis

Lect. univ. dr. Liviu Mafteiu-Scai

Asist. univ. dr. Florin Roșu

Vă rog să vă exprimați opțiunile **până mâine ora 09:00,** prin vot electronic AICI

= omis cele de omis =

1. *Propunerea de acordare a titlului de Doctor Honoris Causa Scientiarum (DHC)- Erika Abraham (Dosar DHC - ErikaAbraham),* a fost avizată cu un număr de 13 voturi de acord.

= omis cele de omis =

Decan,
Conf. univ. dr. Cosmin Bonchiș

Întocmit secretar şef,
Ancuţa-Sanda Eduţanu

Aprobat prin HS nr. 12 din 27.06.2024

Recommendation Letter

Professor Erika Ábrahám from RWTH Aachen University is one of the most important international scientists in the area of Formal Methods, with the focus on: modelling, synthesis, and analysis of hybrid systems; decision procedures for various logics and theories; modeling, synthesis, analysis of probabilistic systems; and research related to programming languages. Erika Abraham's work in the field of hybrid systems is influential and impactful. Hybrid systems combine continuous dynamics (modelled by differential equations) with discrete transitions (modelled by automata or state machines) and therefore ensuring correctness and safety in hybrid systems is challenging. Erika 's contributions include new techniques for model checking hybrid systems. Erika Abraham has contributed to the development of tools for analyzing hybrid systems. A distinguished such a tool is Flow*, an analyzer for non-linear hybrid systems. It combines reachability analysis with abstraction techniques. Another notable contribution here is the Taylor model flow-pipe construction, which provides over-approximations of reachable sets for non-linear systems. Erika's research also extends to probabilistic hybrid systems. The PROPhESY tool, designed and built for analyzing parametric Markov chains, had a significant impact in the research community. Erika Ábrahám has also significant contributions to the field of Satisfiability Modulo Theories (SMT), especially on topics including quantifier-free non-linear real arithmetic, SMT problems involving real algebraic theories, SMT-based planning and scheduling. In summary, Erika Ábrahám's research covers both theoretical aspects and practical applications. Her work contributes to advancing the state of the art in all above-mentioned areas.

I personally had the honor and the pleasure to meet and discuss with Erika Ábrahám at several conferences and meetings: SYNASC 2016, where she was invited speaker; SYNASC 2017, where she delivered a tutorial on SMT Solving for Arithmetic Theories, SYNASC 2028, when she was co-chair; WOLLIC 2022, and some Informatics Europe meetings. Every time I appreciated the availability and generosity with which she shared with me her rich knowledge and experience. These are also proven by the large number of presentations he gave at various top conferences, summer schools, or invitations by academic institutions. I am also impressed and personally appreciate her involvement in many activities and projects related to women in computer science.

Erika Ábrahám has been involved in various research projects, including those funded at the European level. In two such projects she had and continues to have strong collaborations with the team from West University of Timișoara: *Automated Reasoning in the Classroom* (ARC), a project within the EU Erasmus+ program that aims to enhance education in automated reasoning, and *From zero to expert! Introducing the potential of AI and Robotics for all!* (AiRobo), a project that aims to increase the level of competence and skills of the relevant academic staff in the field of AI-based Robotics. By awarding a honorary degree to Erika Ábrahám, I am sure that this will deepen this collaboration, with a mutual benefit.

Concluding, I strongly support and highly recommend the awarding of Doctor Honoris Causa degree to Prof. Erika Ábrahám by the University of Timișoara.

Dorel Lucanu, PhD   May 10th, 2024
Alexandru Ioan C███████████ași

Univ.-Prof. Dr. Mircea Marin
Department of Computer Science
Faculty of Mathematics and Informatics
West University of Timişoara
Blvd. Vasile Pârvan 4, Timişoara
300223 Timişoara, Romania

Tel. +40 737112762
Email: mircea.marin@e-uvt.ro

May 29, 2024

Letter of Recommendation: Univ.-Prof. Dr. Erika Ábrahám

It is my great pleasure to support the awarding of the title of Doctor Honoris Causa of the West University of Timisoara to Univ.-Prof. Dr. Erika Ábrahám from RWTH-Aachen University in Germany.

By way of introduction, I am Professor in Computer Science at West University of Timişoara and my main research interests are in symbolic techniques for proving, solving, and computing. A better understanding of my background and qualification may help you in interpreting this recommendation. I received my PhD degree in Computer Science from the Research Institute of Symbolic Computation (RISC-Linz) with a thesis about a computational model for functional logic programming with distributed constraint solving capabilities. After completing my PhD thesis, I joined research groups in Japan (Symbolic Computation Research Group from University of Tsukuba) and Austria (institutes RISC-Linz, and RICAM affiliated with the Austrian Academy of Sciences), and worked with leading experts in symbolic computation, declarative programming, and automated reasoning. In 2011, I returned to Romania and joined the academic staff of Computer Science at West University of Timişoara.
My research achievements are mainly in the design and implementation of computational models for declarative programming, together with symbolic computation techniques for constraint solving in many theories of practical interest. They have been published in more than 50 publications in journals and conference proceedings.

My recent research interests are closely related to Erika's work. Her main interest is in satisfiability modulo theories (SMT), which aims at the design of software tools, called SMT solvers, to solve efficiently satisfiability problems (SAT) in many formal theories of practical interest. Although the SMT problem is typically NP-hard and undecidable for many theories, there are also many decidable theories (fragments of first-order logic) where finding efficient decision procedures is possible and highly desirable.

This is a very important and active line of research where symbolic computation and SMT-solving techniques can be combined efficiently to work together. Nowadays, SMT-solvers are the main building blocks of many applications in Computer Science, including program analysis and verification, software testing, and automated theorem proving.

Universitatea de Vest din Timişoara

Erika is a renowned expert in satisfiability checking and SMT-solving. She took the first place at the SMT competitions in 2018, 2019 and 2020 at category quantifier-free non-linear mixed integer-real arithmetic.

Her current research activities don't stop here. They also include the analysis, synthesis, and analysis of hybrid systems; the analysis of probabilistic systems; SMT-base planning and scheduling; and applications related to energy optimization.
In 2018, Erika Ábrahám won a Planning and Execution Competition for Logistics Robots in Simulation.

Univ.-Prof. Dr. Erika Ábrahám has long standing contacts with West University of Timişoara. She participated in 2016, 2017, 2018, and 2023 at the conferences Symbolic and Numerical Algorithms for Scientific Computing (SYNASC) organized by our university, where she talked about SMT-techniques for arithmetic theories, and symbolic computation techniques for SAT solving. I was impressed by her talk at SYNASC 2023, about her insights how to combine SMT-solving with a powerful symbolic computation technique called cylindrical algebraic decomposition. It is a very interesting line of research where the SMT-solving people share interests with the community of symbolic computation.

Since 2019, Prof. Dr. Erika Ábrahám does joint research with members of our Department of Informatics, including me, in the frame of two projects coordinated by Conf. Dr. Isabela Dramnesc:
1. *Automated Reasoning in the Class* (2019-2022), whose goal was to develop teaching material (text and software) and good practice for using automated reasoning tools to teach Mathematical Logic, Automated Theorem Proving, Formal Methods, and related subjects.
2. *Artificial Intelligence based robotics* (2024-2027), whose goal is to increase the quality and the attractivity of related departments at the partner universities by a significant raise of the level of competence and skills of the relevant academic staff in the field of Artificial Intelligence based Robotics

The research interests of Erika are very much aligned with our ongoing research projects, and with the current research interests of our society.

In summary, I warmly recommend Prof. Erika Abraham for the award of the Doctor Honoris Causa Award by our university.

Sincerely,

Mircea Marin

Aprobat prin HS nr. 12 din 27.06.2024

Professor James H. Davenport
Hebron & Medlock Professor of Information Technology
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**Department of
Computer Science**
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The Magnificent Rector and the Senate,
Universitatea de Vest din Timișoara

22 May, 2024

JHD/UVT/20240522
Dear Rector

I am writing this letter to recommend Professor Dr Erika Ábrahám of RWTH Aachen as eminently worthy to receive a Doctorate of Science *honoris causa*.

- Her scientific contributions to various areas in computer science are notable. Her initial work was on verifying concurrency in Java, a notoriously tricky task in any language not explicitly designed for verification. She then worked on the Scalasca performance toolset, described in a major 2010 paper (https://doi.org/10.1002/cpe.1556). This continues to attract attention (27 citations last year), whereas many similar ideas attract attention at the time but are forgotten five years later.

  Then she moved into the area where I know her: the area of Satisfiability Modulo Theories (SMT), particularly the case where the theory is the nonlinear theory of real numbers. The SMT-RAT toolkit developed by her and her students is a significant software package in this area. However, the underlying algorithmic theory of Cylindrical Algebraic Decomposition (initially developed by Collins in 1975) is, in many ways, *too powerful*, and therefore too expensive, so we have developed a theory of Cylindrical Algebraic Coverings, which seems to be bth simpler and cheaper, and which has been imlemented by Kremer, one of her students, in the popular cvc5 SMT toolkit. This shows her innovation and unwillingness to accept the *status quo* of the subject.

- She is a great motivator of science. I first met her when she gave an invited talk (https://doi.org/10.1145/2755996.2756636) on "Building Bridges between Symbolic Computation and Satisfiability Checking" at ISSAC 2015. This inspired us to build that bridge, with an EU-funded project she and I wrote (www.sc-square.org/CSA). This project had its kick-off workshop in connection with SYNASC 2016 in Timișoara. The project lasted two years, but the workshop series is still continuing, showing the need for the bridge Erika envisaged in 2015.

- She is also a great role model. In general (though UVT is a wonderful counter-example) this area is pretty male-dominated, even by the standards of computer science. She does a great deal (see for example https://acmweurope.acm.org/newsletter-november-2022/#members) to encourage girls and women in computer science.

I strongly recommend her as a person of outstanding ability who is eminently worthy to receive an honorary degree from UVT. You may wonder why, if I have this opinion, I have not recommended her for an honorary degree from my own University. I am on our Honorary Degrees Committee, so cannot nominate myself. When I

leave that committee, I shall be nominating her for an honorary degree from Bath.

Yours faithfully

James Davenport

Curriculum Vitae - Erika Ábrahám

Contact information

Name	Erika Ábrahám
Title	Univ.-Prof. Dr.
Affiliation	RWTH Aachen University
	Informatik 2, LuFG Theory of Hybrid Systems
	52056 Aachen, Germany
Phone	+49 241 80-21242
Email	abraham@informatik.rwth-aachen.de
Home page	http://ths.rwth-aachen.de/
ORCID ID:	https://orcid.org/0000-0002-5647-6134
ResearcherID:	G-5259-2012
Scopus Author ID:	8730197200

Personal details

Date and place of birth	November 9, 1970, Szeged, Hungary
Nationality	Hungarian and German
Sex	female
Family status	unmarried, two children

Education

Jan 2005	Ph.D. received from the University of Leiden, The Netherlands
Promotors:	Prof. W.-P. de Roever and Prof. J. N. Kok
Co-Promotors:	Prof. F. S. de Boer and Prof. M. Steffen
Feb 1999	Diploma recevied from the Christian-Albrechts-University of Kiel, Germany
Major/Minor:	Computer Science / Physics
Average mark:	1.0 (distinguishing award)

Positions

2013-today	Full professor, RWTH Aachen University, Germany
	Head of the research group "Theory of Hybrid Systems"
2008-2013	Junior professor, RWTH Aachen University, Germany
	Head of the junior research group "Theory of Hybrid Systems"
2007-2008	Postdoctoral researcher, Jülich Research Centre, Germany
2005-2007	Postdoctoral researcher, Albert-Ludwigs-University Freiburg, Germany
1999-2005	Ph.D. student, Christian-Albrechts-University Kiel, Germany

Ten selected publications

- Satisfiability checking

  Jasper Nalbach, Erika Ábrahám, Philippe Specht, Christopher W. Brown, James H. Davenport and Matthew England: *Levelwise construction of a single cylindrical algebraic cell.* Journal of Symbolic Computation 123:102288, 2024. https://doi.org/10.1016/j.jsc.2023.102288

  Erika Ábrahám, Gereon Kremer, James Davenport and Matthew England: *Deciding the consistency of non-linear real arithmetic constraints with a conflict driven search using cylindrical algebraic coverings.* Journal of Logical and Algebraic Methods in Programming 119:100633, Elsevier, 2021. https://doi.org/10.1016/j.jlamp.2020.100633

  Erika Ábrahám: *Building bridges between symbolic computation and satisfiability checking.* Proc. of the 2015 ACM on Int. Symp. on Symbolic and Algebraic Computation (ISSAC'15), pages 1–6, ACM, 2015. https://doi.org/10.1145/2755996.2756636.

- Hybrid systems

  Stefan Schupp, Erika Ábrahám, Md Tawhid Bin Waez, Thomas Rambow and Zeng Qiu: On the applicability of hybrid systems safety verification tools from the automotive perspective. International Journal on Software Tools for Technology Transfer 26(1): 49-78 (2024). https://doi.org/10.1007/s10009-023-00707-0

  Stefan Schupp, Erika Ábrahám, Ibtissem Ben Makhlouf and Stefan Kowalewski: *HyPro: A C++ library for state set representations for hybrid systems reachability analysis.* Proc. of the 9th NASA Formal Methods Symp. (NFM'17), Volume 10227 of LNCS, pages 288–294, Springer, 2017. https://doi.org/10.1007/978-3-642-39799-8_18.

  Xin Chen, Erika Ábrahám and Sriram Sankaranarayanan: *Flow*: An analyzer for non-linear hybrid systems.* Proc. of the 25th Int. Conf. on Computer Aided Verification (CAV'13), Volume 8044 of LNCS, pages 258–263, Springer, 2013. https://doi.org/10.1007/978-3-642-39799-8_18.

- Probabilistic systems

  Christian Dehnert, Sebastian Junges, Nils Jansen, Florian Corzilius, Matthias Volk, Harold Bruintjes, Joost-Pieter Katoen and Erika Ábrahám: *PROPhESY: A probabilistic parameter synthesis tool.* Proc. of the 27th Int. Conf. on Computer Aided Verification (CAV'15), Volume 9206 of LNCS, pages 214–231, Springer, 2015. https://doi.org/10.1007/978-3-319-21690-4_13.

- Green energy

  Pascal Richter, David Laukamp, Levin Gerdes, Martin Frank and Erika Ábrahám: *Heliostat field layout optimization with evolutionary algorithms.* Proc. of the 2nd Global Conf. on Artifcial Intelligence (GCAI'16), Volume 41 of EPiC Series in Computing, pages 240-252, EasyChair, 2016. https://doi.org/10.29007/7p6t

- Supercomputing

  Markus Geimer, Felix Wolf, Brian J. N. Wylie, Erika Ábrahám, Daniel Becker and Bernd Mohr: *The Scalasca performance toolset architecture.* Concurrency and Computation: Practice and Experience 22(6):702–719, 2010. https://doi.org/10.1002/cpe.1556.

- Deductive proof systems

  Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever and Martin Steffen: *An assertion-based proof system for multithreaded Java.* Theoretical Computer Science 331(2-3):251–290, 2005. https://doi.org/10.1016/j.tcs.2004.09.019.

Project acquisition – running projects

AIRobo 2023-2026	*Artificial Intelligence based Robotics* EU Erasmus+ KA220 Cooperation Patnerships for Higher Education	
SMT-ART 2024-2026	*SMT Arithmetic Reasoning Techniques* German Reseach Foundation (DFG)	
RealySt 2022-2025	*Reachability Analysis for Stochastic Hybrid Systems* German Reseach Foundation (DFG)	
Sim4Dialog 2022-2025	*Simulationstool für den regionalen Dialog zum Ausbau erneuerbarer Energien* IN4climate.NRW	
REMARO 2020-2024	*Reliable AI for Marine Robotics* EU Horizon2020 MSCA-ITN-ETN Marie-Skłodowska-Curie Innovative Training Network	
UnRAVeL 2017-2026	*Uncertainty and Randomness in Algorithms, Verification and Logic* Research Training Group, German Reseach Foundation (DFG)	
EuroProofNet 2021-2025	European Research Network on Formal Proofs (COST Action CA20111, Management Committee member)	
EUGAIN 2020-2024	European Network for Gender Balance in Informatics (COST Action CA19122, Management Committee Member)	

Project acquisition – completed projects

Industrial project 2020-2022	*Digitalization and Energy Optimization in Buildings using Artificial Intelligence* BMWi/DEOKI research project with the MeteoViva company	
ARC 2020-2022	*Automated Reasoning in the Class* EU Erasmus+ project (KA203 - Strategic Partnerships for Higher Education)	
Industrial project 2018-2020	*Safety Verification for Mixed Discrete-Continuous Automotive Systems* Research project with Ford	
CAP 2015-2018	*Composition, Abstraction, and Parametrization for the Verification of Probabilistic and Hybrid Systems* CDZ Sino-German cooperation project	
HyPro 2013-2016, 2017-2018	*A Toolbox for the Reachability Analysis of Hybrid Systems using Geometric Approximations* German Reseach Foundation (DFG), coordinator	
Industrial project 2016-2018	*Simulink Formal Verification* Industrial research project with Ford	
Industrial project 2018	*SMT Solving for Configuration Management* Industrial research project with Siemens	
Industrial project 2018	*SMT Solving for Productline Optimisation* Research project with Bosch	
SC² 2016-2018	*Satisfiability Checking and Symbolic Computation – Uniting Two Communities to Solve Real Problems* H2020 FETOPEN CSA	
SMT4ROB 2016-2017	*Optimizing the Performance of Robot Fleets in Production Logistics Scenarios Using SMT* RWTH ICT Funds	

SMT4ABS 2015-2016	*Combining SMT-Solving with Type Checking for Real-Time ABS Programs* (German project coordinator) Norwegian-German DAAD ppp project
OASys 2012-2016	*Online Algorithms for Optimal Control of Hybrid Propulsion Systems* (project coordinator) German Reseach Foundation (DFG), coordinator
AlgoSyn 2011-2015	*Algorithmic Synthesis of Reactive and Discrete-Continuous Systems* Research Training Group, German Reseach Foundation (DFG)
2015-2015	*Modeling and Optimisation of Offshore Wind Farms* RWTH Seed Funds
ROCKS 2009-2013	*Rigorous Dependability Analysis using Model Checking Techniques for Stochastic Systems* (German site coordinator) Dutch-German NWO-DFG bilateral cooperation program, German coordinator
CeBUG 2010-2013	*Counterexample Generation for Stochastic Systems using Bounded Model Checking* German Reseach Foundation (DFG), coordinator
HySmart 2010-2011	*Hybrid Systems Modeling and Analysis with Rewriting Techniques* (German project coordinator) Norwegian-German DAAD ppp project

Awards and patents

Brigitte-Gilles award	from RWTH Aachen University, for the development and execution of a program to improve gender balance in computer science
Guest Professor	at TU Wien, March 2020
First place	SMT Competition 2020, category QF_NIRA (quantifier-free non-linear mixed integer-real arithmetic)
First place	SMT Competition 2019, category QF_NIRA (quantifier-free non-linear mixed integer-real arithmetic)
First place	SMT Competition 2018, category QF_NIRA (quantifier-free non-linear mixed integer-real arithmetic)
First place	Planning and Execution Competition for Logistics Robots in Simulation 2018
Best paper award	CSI Int. Symp. on Computer Science and Software Engineering (CSSE'11)
Best presentation award	Int. Conf. on Engineering of Complex Computer Systems (ICECCS'01)
Distinguishing award	for Diploma thesis, Christian-Albrechts-University of Kiel, 1999
Patents	Method and system for controlling loads in a building (EP4145243A1) Steuerung einer Versorgungstechnik eines Gebäudes mittels eines neuronalen Netzwerks (RWTH-AZ 2567)

Invited talks and invited tutorials

1. *TBA*, 36th International Conference on Computer Aided Verification (CAV'24), 07/2024

2. *On the Idea of Exploration-guided Satisfiability Checking*, International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR-25), 05/2024

3. *From Student to Professional: Challenges and Opportunities*, Cyber-Physical Systems and Internet-

of-Things Week, 05/2024

4. *Research on the Theory of Hybrid Systems at RWTH Aachen University*, University of West University of Timisoara, 12/2023

5. *SMT: Something you Must Try*, 18th International Conference on integrated Formal Methods (iFM'23), 11/2023

6. *SMT: Something you Must Try*, Eindhoven University of Technology, 11/2023

7. *SMT Solving*, Shonan Seminar 178, 10/2023

8. *The Story of Undecidability*, Guest lecture at Keio University, 10/2023

9. *Seven Years of SC-Square*, 25th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC'23), 09/2023

10. *The Theory of Hybrid Systems*, Remaro PhD School, 09/2023

11. *Building Bridges between Symbolic Computation and Satisfiability Checking*, UnRAVeL Talk Series "Biggest Milestones - Research at Its Peak", 04/2023

12. *Automated Exercise Generation for Satisfiability Checking*, Formal Methods Teaching Workshop (FMTea'23), 03/2023

13. *I completed my Master! — And now? PhD as a career path for women in CS*, Interdisciplinary Symposium for Women in STEM Fields (ISINA'23), 03/2023

14. *Automated Exercise Generation for Satisfiability Checking*, Friedrich-Alexander-Universität Erlangen-Nürnberg, 03/2023

15. *Probabilistic Hyperproperties*, Lorentz Seminar on New Challenges in Programming Language Semantics, 11/2022

16. *SMT solving for Arithmetic Theories*, Conference on Intelligent Computer Mathematics (CICM'22), 09/2022

17. *Recent Advances for Hybrid Systems Verification with HyPro*, International Workshop on Numerical Software Verification (NSV'22), 08/2022

18. *Probabilistic Hyperproperties*, Workshop on Verification of Probabilistic Programs (VeriProP'22), 08/2022

19. *SMT Solving: Historical Review and New Developments*, Computability in Europe (CiE'22), 07/2022

20. *Recent Advances for Hybrid Systems Verification with HyPro*, International Workshop on Formal Engineering of Cyber-Physical Systems (FE-CPS@TASE'22), 07/2022

21. *Automatic Exercise Generation for Satisfiability Checking*, Formal Methods Europe (FME) Teaching Tutorials 07/2022

22. *Automatic Exercise Generation for Satisfiability Checking*, Training Event on Automated Reasoning in the Class (ARC), 07/2022

23. *SMT Solving: Past, Present and Future*, International Symposium on Theoretical Aspects of Software Engineering (TASE'22), 07/2022

24. *The Challenge of Compositionality for Stochastic Hybrid Systems*, UnRAVeL Research Training Group at RWTH Aachen University, 05/2022

25. *Delay Propagation in Railway Networks*, Workshop on Rigorous Dependability Analysis using Model Checking Techniques for Stochastic Systems (ROCKS'22), 05/2022

26. *How my Hobby Turned into being my Job*, Mentoring Workshop at ETAPS 2022, 04/2022

27. *Analysing Hybrid Systems with HyPro*, USC CCI-MHI Cyber-Physical Systems Seminar, Aarhus University, 11/2021

28. *Inspiration Talk*, Doctoral Symposium at the International Symposium on Formal Methods (PhD@FM'21), 11/2021

29. *Frauenmangel in technischen Fächern - wieso eigentlich?*, Days of Diversity, RWTH Aachen University, 11/2021

30. *SMT Solving: Past, Present and Future*, Informatics Europe Webinar, 10/2021

31. *SMT-based Planning - Some recent developments*, Workshop on Reliable AI for Marine Robotics: Challenges and Opportunities (REMARO@IROS'21), 10/2021

32. *SMT Solving: Past, Present and Future*, NASA Formal Methods Symp. (NFM'21), 05/2021

33. *Symbolic Computation Techniques in SMT Solving: Mathematical Beauty meets Efficient Heuristics*, Simons Institute at Berkeley, Seminar on SAT/SMT for Math and Computer Algebra Systems, 04/2021

34. *Reachability Analysis Techniques for Hybrid Systems*, European Joint Conferences on Theory and Practice of Software (ETAPS'21), 03/2021

35. *Abstract Domains in SMT Solving for Real Algebra*, Int. Workshop on Numerical and Symbolic Abstract Domains (NSAD'20), 11/2020

36. *Probabilistic Hyperproperties*, Int. Symp. on Games, Automata, Logics, and Formal Verification (GandALF'20), 09/2020

37. *Solving Real-Algebraic Formulas wit SMT-RAT*, Int. Congress of Mathematical Software (ICMS'20), Braunschweig, Germany, 07/2020

38. *The Power of Satisfiability Checking*, TU Wien, Vienna, Austria, 03/2020

39. *Women in Computer Science*, Women in Computability at CiE'19, 07/2019

40. *Reachability Analysis Techniques for Hybrid Systems*, Summer School on Formal Methods for Cyber-Physical Systems, Verona, Italy, 06/2019

41. *Hybrid Systems Reachability Analysis*, Open Problems in Concurrency Theory (IFIP WG 1.8 at POPL'19), Cascais, Portugal, 01/2019

42. *Formal Verification of Automotive Simulink Controller Models: Empirical Technical Challenges, Evaluation and Recommendations*, 7th Int. Workshop on Cross-layer Resiliency (IWCR'19), Stuttgart, Germany, 07/2019.

43. *Women in Computer Science: Do We Still Need Equality Measures?*, Computing Is Too Important to Be Left to Men, Vienna, Austria, 12/2019.

44. *SMT Solving: Matematikai szépség és informatikai hatékonyság*, Debreceni ADA Konferencia (ADA'18), Debrecen, Hungary, 11/2018.

45. *Symbolic Computation Techniques in SMT Solving: Mathematical Beauty meets Efficient Heuristics*, 30th Nordic Workshop on Programming Theory (NWPT'18), Oslo, Norway, 10/2018.

46. *Symbolic Computation Techniques in SMT Solving: Mathematical Beauty meets Efficient Heuristics*, 9th Int. Joint Conf. on Automated Reasoning (IJCAR'18), Oxford, UK, 07/2018

47. *Old-established Methods in a New Look: How HyPro Speeds up Reachability Computations for Hybrid Systems*, IFAC Conf. on Analysis and Design of Hybrid System (ADHS'18), Oxford, UK, 07/2018

48. *Reachability Analysis Techniques for Hybrid Systems*, Summer School on Cyber-Physical Systems (CPS'18), Halmstad, Sweden, 06/2018

49. *SMT Solving for AI Planning: Theory, Tools and Applications*, 28th Int. Conf. on Automated Planning and Scheduling (ICAPS'18), Delft, The Netherlands, 06/2018

50. *Symbolic Computation Techniques in SMT Solving: Mathematical Beauty meets Efficient Heuristics*, FBK, Trento, Italy, 05/2018

51. *Frauen in der Informatik: Brauchen wir noch Gleichstellung?*, Gender x Informatik, Chemnitz, Germany, 05/2018

52. *The Informatics Europe Working Group Women in Informatics Research and Education*, Gender Action Webinar, 03/2018

53. *Symbolic Computation Techniques in SMT Solving*, Evening Seminar of the London Mathematical Society and the British Computer Society, London, UK, 11/2017

54. *SMT Solving for Real Algebra*, Int. Conf. on Mathematics and Informatics (MathInfo'17), Târgu Mureş/Marosvásárhely, Romania, 09/2017

55. *SMT Solving for Arithmetic Theories: Theory and Tool Support*, 19th Int. Symp. on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC'17), Timisoara, Romania, 09/2017

56. *Techniques and Tools for Hybrid Systems Reachability Analysis*, Int. Workshop on Formal Methods for Rigorous Systems Engineering of Cyber-Physical Systems (RISE4CPS), Heidelberg, Germany, 07/2017

57. *Divide and Conquer: Variable Set Separation in Hybrid Systems Reachability Analysis*, 15th Int. Workshop on Quantitative Aspects of Programming Languages and Systems (QAPL'17), Uppsala, Sweden, 04/2017

58. *Exploiting Symbolic Computation Techniques in SAT-Modulo-Theories Solving*, University of Waterloo, Waterloo, Canada, 03/2017

59. *Symbolic Computation Techniques in Satisfiability Checking*, Johannes Kepler University, RISC, Linz, Austria, 11/2016

60. *Combining Static and Runtime Methods to Achieve Safe Standing-Up for Humanoid Robots*, 6th Int. Symp. on Leveraging Applications of Formal Methods, Verification and Validation (ISoLA'16), Track: Static and Runtime Verification: Competitors or Friends?, Crete, Greece, 10/2016

61. *The Power of Satisfiability Checking*, European Computer Science Summit (ECSS'16), Budapest, Hungary, 10/2016

62. *Computation Techniques in SAT-Modulo-Theories Solving*, University of Kassel, Kassel, Germany, 10/2016

63. *Symbolic Computation Techniques in Satisfiability Checking*, 18th Symp. of Symbolic and Numeric Algorithms for Scientific Computing (SYNASC'16), Timisoara, Romania, 09/2016

64. *Satisfiability Checking: Theory and Applications*, 14th Int. Conf. on Software Engineering and Formal Methods (SEFM'16), Vienna, Austria, 07/2016

65. *SMT Solving for Non-Linear Arithmetic Theories*, IST Austria, Vienna, Austria, 05/2016

66. *Building Bridges between Symbolic Computation and Satisfiability Checking*, Int. Symp. of Symbolic and Algebraic Computation (ISSAC'15), Bath, UK, 07/2015

67. *A Greedy Approach for the Efficient Repair of Stochastic Controller Models*, Abstraction and Synthesis of Correct-by-Construction Robotics Software: Reuniting Formal Methods with Model-Driven Software Engineering (AbSynth'15), Workshop at Robotics Science and Systems (RSS'15), Rome, Italy, 07/2015

68. *Model Repair for Probabilistic Controller*, NII Shonan Meeting "Static Analysis meets Runtime Verification", Shonan Village Center, Japan, 03/2015

69. *Current Challenges in the Verification of Hybrid Systems*, 5th Int. Workshop on Cyber Physical Systems (CyPhy'16), Amsterdam, The Netherlands, 10/2015

70. *Modeling and Verification of Hybrid Systems*, University of Genoa, Genoa, Italy, 10/2015

71. *Some Thoughts about Formal Methods in Robotics*, University of Genoa, Genoa, Italy, 10/2015

72. *SMT Solving for Real Arithmetic: What are the Challenges?*, CDZ Workshop "Computation and Reasoning with Constraints", Beijing, China, 11/2014

73. *Probabilistic Model Checking and Counterexample Generation*, IFIP WG2.2 Meeting on "Formal Description of Programming Concepts", Munich, Germany, 09/2014

74. *Reachability Analysis of Hybrid Systems*, INRIA, France, 06/2014

75. *Modeling and Analyzing Probabilistic Systems*, NVTI Theory Day, Utrecht, The Netherlands, 05/2014

76. *Reachability Analysis for Hybrid Systems*, Workshop on Computable Analysis and Rigorous Numerics, Maastricht, The Netherlands, 12/2013

77. *Formal Methods for Hybrid Systems*, University of Passau, Passau, Germany, 11/2013

78. *Modeling and Analysis of Hybrid Systems*, Formal Description of Programming Concepts (IFIP Working Group 2.2), Lisbon, Portugal, 09/2013

79. *Reachability Analysis for Hybrid Systems*, CDZ Workshop on "Probabilistic and Hybrid System Verification", Beijing, China, 09/2013

80. *Computing Counterexamples for Discrete-Time Probabilistic Systems*, ROCKS Autumn School "Rigorous Dependability Analysis for Stochastic Systems", Vahrn, Italy, 10/2012

81. *Hybrid Systems*, University of Twente, Enschede, The Netherlands, 08/2012

82. *SMT Solving Mechanisms for Non-Linear Real Arithmetic*, Albert-Ludwigs-University, Freiburg, Germany, 05/2012

83. *Heap-abstraction for a Multi-Threaded Object-Oriented Calculus*, Workshop on Automata and Logic for Data Manipulating Programs (LIAFA'10), Paris, France, 12/2010

84. *SMT-Solving for the Reals*, University of Karlsruhe, Germany, 09/2010

85. *SMT-Solving in the Verification and Synthesis of Hybrid Systems*, University of Freiburg, Germany, 07/2010

    A Lazy SMT-Solver for a Non-Linear Subset of Real Algebra, Dagstuhl Seminar "Verification over Discrete-Continuous Boundaries", Dagstuhl, Germany, 07/2010

86. *SMT-Solving for the First-Order Theory of the Reals*, Dagstuhl Seminar "Algorithms and Applications for the Next Generation of SAT Solvers", Dagstuhl, Germany, 11/2009

87. *SAT-Modulo-Theories Solving in the Context of Bounded Model Checking*, CWI Amsterdam, Amsterdam, The Netherlands, 06/2009

88. *SMT-solving in the Context of Bounded Model Checking*, University of Oslo, Oslo, Norway, 04/2009

89. *Heap-Abstraction for an Object-Oriented Calculus with Thread Classes*, Computability in Europe (CiE'06), Swansea, Great Britain, 07/2006

90. *A Proof System for Exception Handling in Multithreaded Java*, Christian-Albrechts-University, Kiel, Germany, 05/2004

91. *A Hoare Logic for Monitors in Java*, ICASE - NASA LaRC, 11/2002

92. *Verification for Java's Monitor Concept*, Int. Symp. on Formal Methods for Components and Objects (FMCO'02), Leiden, The Netherlands, 11/2002

Organisation of scientific events (since 2014)

- **Co-organiser** Dagstuhl Seminar *Integrated Rigorous Analysis in Cyber-Physical Systems Engineering*, Dagstuhl, Germany, 01/2023
- **Co-organiser** IPAM Workshop *Machine Assisted Proofs*, Los Angeles, USA, 02/2023
- **Co-organiser** Dagstuhl Seminar *New Perspectives in Symbolic Computation and Satisfiability Checking*, Dagstuhl, Germany, 02/2022
- **Co-organiser** 4th Workshop *Women in Informatics Research and Education*, online, 10/2020
- **Co-organiser** 2nd Workshop *Women in Informatics Research and Education*, Rome, Italy, 10/2018
- **Co-organiser** Summer School *Satisfiability Checking and Symbolic Computation*, Saarbrücken, Germany, 07-08/2017
- **Co-organiser** 1st Workshop *Women in Informatics Research and Education*, Gothenburgh, Sweden, 10/2017
- **Co-organiser** Dagstuhl Seminar *Computer-Assisted Engineering for Robotics and Autonomous Systems*, Dagstuhl, Germany, 02/2017
- **Co-organiser** *Festschrift and Celebration Event for Frank de Boer's 60th Birthday*, Eindhoven, the Netherlands, 04/2016
- **Co-organiser** GI-Dagstuhl Seminar *Formal Evaluation of Critical Infrastructures*, Dagstuhl, Germany, 12/2015
- **Co-organiser** Dagstuhl Seminar *Symbolic Computation and Satisfiability Checking*, Dagstuhl, Germany, 11/2015
- **Co-organiser** Dagstuhl Seminar *Randomized Timed and Hybrid Models for Critical Infrastructures*, Dagstuhl, Germany, 01/2014 (41 participants)
- **Organiser** of several workshops (see section *Program Committee co-chair* below)
- **Editor** of journal special issues (LMCS, STTT)

Scientific society memberships

- Since 2009: Member of the *German Association of University Professors and Lecturers (DHV)*
- Since 2009: Member of the *German Informatics Society (GI)*
- Since 2013: Member of the *Computability in Europe (CiE)* Association

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Steering Committee memberships

- **QEST** (2022-2025): Int. Conf. on Quantitative Evaluation of SysTems
- **SMT** (2018-2022): Int. Workshop on Satisfiability Modulo Theories
- **GE@ICSE** (since 2018): Workshop on Gender Equality in Software Engineering
- **SNR** (since 2017): Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis
- **iFM** (since 2016): Int. Conf. on integrated Formal Methods
- **SC^2** (2016-2019): Int. Workshop on Satisfiability Checking and Symbolic Computation
- **FORTE** (2014-2017): IFIP Int. Conf. on Formal Techniques for Distributed Objects, Components and Systems

- **ETAPS** (2013-2014): European Joint Conferences on Theory and Practice of Software

Program Committee co-chair

1. Int. Conf. on Runtime Verification (**RV'24**)
2. ACM Int. Conf. on Hybrid Systems: Computation and Control (**HSCC'24**)
3. Int. Colloquium on Theoretical Aspects of Computing (**ICTAC'23**)
4. Int. Workshop on Satisfiability Checking and Symbolic Computation (**SC^2'23**)
5. Int. Conf. on Fundamentals of Software Engineering (**FSEN'23**)
6. Software Verification and Testing Track at the ACM Symp. on Applied Computing (**SVT-SAC'22**)
7. Conf. on Quantitative Evaluation of SysTems (**QEST'22**)
8. Software Verification and Testing Track at the ACM Symp. on Applied Computing (**SVT-SAC'21**)
9. Industry Day at Formal Methods (**Industry@FM'21**)
10. Session on Real Algebraic Geometry at the Int. Congress on Mathematical Software (**ICMS'20**)
11. Int. Symp. on Symbolic and Numeric Algorithms for Scientific Computing (**SYNASC'18**)
12. Pre-Summit Workshop for Deans and Department Heads at the European Computer Science Summit (**ECSS'18**)
13. PhD Symp. at iFM'18 on Formal Methods: Algorithms, Tools and Applications (**PhD-iFM'18**)
14. Workshop on Gender Equality in Software Engineering (**GE@ICSE'18**)
15. PhD Symp. at iFM'17 on Formal Methods: Algorithms, Tools and Applications (**PhD-iFM'17**)
16. Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis (**SNR'17**)
17. Int. Conf. on integrated Formal Methods (**iFM'16**)
18. Int. Workshop on Satisfiability Checking and Symbolic Computation (**SC^2'16**)
19. Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis (**SNR'16**)
20. IFIP Int. Conf. on Formal Techniques for Distributed Objects, Components and Systems (**FORTE'14**)
21. Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (**TACAS'14**)

Program Committee member

1. Int. Conf. on Fundamentals of Software Engineering (**FSEN'25**)
2. Int. Symp. on Symbolic and Algebraic Computation (**ISSAC'25**)

3. Int. Symp. on Automated Technology for Verification and Analysis (**ATVA'24**)
4. IFAC Conf. on Analysis and Design of Hybrid Systems (**ADHS'24**)
5. Int. Conf. on Computer Aided Verification (**CAV'24**)
6. Design, Automation and Test in Europe Conference (**DATE'24**)
7. Int. Conf. on Fundamental Approaches to Software Engineering (**FASE'24**)
8. Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (**TACAS'24**)
9. Int. Symp. on Formal Methods (**FM'24**)

10. Formal Methods Teaching Workshop (**FMTea'24**)

11. Int. Colloquium on Theoretical Aspects of Computing (**ICTAC'24**)

12. Int. Workshop on Quantification (**QUANTIFY'24**)

13. Int. Workshop on Reliable AI for Marine Robotics (**REMARO'24**)

14. Int. Workshop on Satisfiability Checking and Symbolic Computation (**SC^2'24**)

15. Int. Symp. on Symbolic and Numeric Algorithms for Scientific Computing (**SYNASC'24**)

16. Int. Workshop on Rewriting Logic and its Applications (**WRLA'24**)

17. Design, Automation and Test in Europe Conference (**DATE'23**)

18. Int. Conf. on Fundamental Approaches to Software Engineering (**FASE'23**)

19. Int. Conf. on Hybrid Systems: Computation & Control (**HSCC'23**)

20. Software Verification and Testing Track at the ACM Symp. on Applied Computing (**SAC-SVT'23**)

21. Int. Conf. on Computer Aided Verification (**CAV'22**)

22. Int. Conf. on Coordination Models and Languages (**COORDINATION'22**)

23. Int. Conf. on Fundamental Approaches to Software Engineering (**FASE'22**)

24. Int. Workshop on Formal Engineering of Cyber-Physical Systems (**FE-CPS@TASE'22**)

25. Int. Conf. on Formal Methods in Computer-Aided Design (**FMCAD'22**)

26. Int. Conf. on Formal Methods for Industrial Critical Systems (**FMICS'22**)

27. Int. Conf. on Formal Modeling and Analysis of Timed Systems (**FORMATS'22**)

28. Int. Conf. on Hybrid Systems: Computation & Control (**HSCC'22**)

29. Workshop on Advances in Human-Centric Experiments in Software Engineering (**HUMAN'22**)

30. Int. Conf. on integrated Formal Methods (**iFM'22**)

31. Int. Joint Conf. on Automated Reasoning (**IJCAR'22**)

32. Int. Symp. on NASA Formal Methods (**NFM'22**)

33. Parallel and Distributed Automated Reasoning (**PDAR'22**)

34. IEEE Real-Time Systems Symposium (**RTSS'22**)

35. Int. Workshop on Satisfiability Checking and Symbolic Computation (**SC^2'22**)

36. Theoretical Aspects of Software Engineering Conf. (**TASE'22**)

37. Int. Workshop on Algebraic Development Techniques (**WADT'22**)

38. Int. Workshop on Rewriting Logic and its Applications (**WRLA'22**)

39. IFAC Conf. on Analysis and Design of Hybrid Systems (**ADHS'21**)

40. Int. Symp. on Automated Technology for Verification and Analysis (**ATVA'21**)

41. Int. Conf. on Computer Aided Verification (**CAV'21**)

42. Int. Conf. on Formal Methods in Computer-Aided Design (**FMCAD'21**)

43. Int. Conf. on Formal Methods for Industrial Critical Systems (**FMICS'21**)

44. Int. Conf. on Fundamentals of Software Engineering (**FSEN'21**)

45. Int. Conf. on Hybrid Systems: Computation & Control (**HSCC'21**)

46. Int. Colloquium on Theoretical Aspects of Computing (**ICTAC'21**)

47. Int. Symp. on NASA Formal Methods (**NFM'21**)

48. ACM SIGPLAN Conf. on Object-Oriented Programming, Systems, Languages, and Applications (**OOPSLA'21**)

49. Int. Conf. on Software Engineering and Formal Methods (**SEFM'21**)

50. Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis (**SNR'21**)

51. Theoretical Aspects of Software Engineering Conf. (**TASE'21**)

52. Int. Symp. on Automated Technology for Verification and Analysis (**ATVA'20**)

53. Int. Conf. on Formal Methods in Computer-Aided Design (**FMCAD'20**)

54. Int. Colloquium on Theoretical Aspects of Computing (**ICTAC'20**)

55. Int. Conf. on integrated Formal Methods (**iFM'20**)

56. Int. Conf. on Logic for Programming, Artificial Intelligence and Reasoning (**LPAR-23**)

57. Int. GI/ITG Conf. on Measurement, Modelling and Evaluation of Computing Systems (**MMB'20**)

58. Int. Symp. on NASA Formal Methods (**NFM'20**)

59. Int. Workshop on Satisfiability Checking and Symbolic Computation (**SC^2'20**)

60. Int. Conf. on Software Engineering and Formal Methods (**SEFM'20**)

61. Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis (**SNR'20**)

62. Int. Symp. on Theoretical Aspects of Software Engineering (**TASE'20**)

63. Int. Workshop on Rewriting Logic and its Applications (**WRLA'20**)

64. Debreceni ADA Konferencia (**ADA'19**)

65. Int. Symp. on Automated Technology for Verification and Analysis (**ATVA'19**)

66. Computability in Europe (**CiE'19**)

67. Int. Workshop on Model-Based Design of Cyber Physical Systems (**CyPhy'19**)

68. Int. Conf. on Formal Methods in Computer-Aided Design (**FMCAD'19**)

69. Student Forum at Int. Conf. on Formal Methods in Computer-Aided Design (**Student@FMCAD'19**)

70. Int. Conf. on Fundamentals of Software Engineering (**FSEN'19**)

71. Int. Conf. on Hybrid Systems: Computation & Control (**HSCC'19**)

72. Int. Conf. on integrated Formal Methods (**iFM'19**)

73. Int. Symp. on NASA Formal Methods (**NFM'19**)

74. Int. Symp. on Practical Aspects of Declarative Languages (**PADL'19**)

75. Int. Workshop on Satisfiability Checking and Symbolic Computation (**SC^2'19**)

76. Int. Conf. on Software Engineering and Formal Methods (**SEFM'19**)

77. Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis (**SNR'19**)

78. Int. Symp. on Theoretical Aspects of Software Engineering (**TASE'19**)

79. Debreceni ADA Konferencia (**ADA'18**)

80. IFAC Conf. on Analysis and Design of Hybrid Systems (**ADHS'18**)

81. Int. Workshop on Model-Based Design of Cyber Physical Systems (**CyPhy'18**)

82. IEEE Int. Workshop on Formal Methods Integration (**FMi'18**)

83. Int. Conf. on Hybrid Systems: Computation & Control (**HSCC'18**)

84. Int. Congress on Mathematical Software (**ICMS'18**)

85. Int. Conf. on integrated Formal Methods (**iFM'18**)

86. Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (**MBMV'18**)

87. Int. Symp. on NASA Formal Methods (**NFM'18**)

88. Int. Symp. on Practical Aspects of Declarative Languages (**PADL'18**)

89. Int. Conf. on Quantitative Evaluation of SysTems (**QEST'18**)

90. Int. Workshop on Satisfiability Checking and Symbolic Computation (**SC^2'18**)

91. Int. Conf. on Software Engineering and Formal Methods (**SEFM'18**)

92. Studierendenkonferenz Informatik (**SKILL'18**)

93. Int. Workshop on Satisfiability Modulo Theories (**SMT'18**)

94. Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis (**SNR'18**)

95. Int. Symp. on Theoretical Aspects of Software Engineering (**TASE'18**)

96. IEEE Int. Workshop on Formal Methods Integration (**FMi'17**)

97. Int. Conf. on Formal Modeling and Analysis of Timed Systems (**FORMATS'17**)

98. Int. Conf. on Fundamentals of Software Engineering (**FSEN'17**)

99. Int. Conf. on Hybrid Systems: Computation & Control (**HSCC'17**)

100. Int. Conf. on integrated Formal Methods (**iFM'17**)

101. Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (**MBMV'17**)

102. Int. Symp. on Practical Aspects of Declarative Languages (**PADL'17**)

103. Int. Conf. on Quantitative Evaluation of SysTems (**QEST'17**)

104. Int. Workshop on Satisfiability Checking and Symbolic Computation (**SC^2'17**)

105. Symp. on Dependable Software Engineering: Theories, Tools and Applications (**SETTA'17**)

106. Int. Conf. on Simulation and Modeling Methodologies, Technologies and Applications (**SIMULTECH'17**)

107. Int. Conf. on Current Trends in Theory and Practice of Computer Science (**SOFSEM'17**)

108. Int. SPIN Symp. on Model Checking of Software (**SPIN'17**)

109. Int. Symp. on Theoretical Aspects of Software Engineering (**TASE'17**)

110. Int. Conf. on Tools and Methods of Program Analysis (**TMPA'17**)

111. Int. Conf. on Verification, Model Checking, and Abstract Interpretation (**VMCAI'17**)

112. Int. Workshop on Exascale Multi/many Core Computing Systems (**E-MuCoCoS'16**)

113. Int. Symp. on Formal Methods (**FM'16**)

114. IEEE Int. Workshop on Formal Methods Integration (**FMi'16**)

115. Int. Conf. on Formal Techniques for Distributed Objects, Components and Systems (**FORTE'16**)

116. Int. Workshop Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (**MBMV'16**)

117. PhD Symp. at iFM'16 on Formal Methods: Algorithms, Tools and Applications (**PhD-iFM'16**)

118. Int. Conf. on Runtime Verification (**RV'16**)

119. Symp. on Dependable Software Engineering: Theories, Tools and Applications (**SETTA'16**)

120. Int. Workshop on Satisfiability Modulo Theories (**SMT'16**)

121. Int. SPIN Symp. on Model Checking Software (**SPIN'16**)

122. Int. Symp. on Theoretical Aspects of Software Engineering (**TASE'16**)

123. IFAC Conf. on Analysis and Design of Hybrid Systems (**ADHS'15**)

124. Int. Symp. on Automated Technology for Verification and Analysis (**ATVA'15**)

125. Int. Workshop on Design and Implementation of Formal Tools and Systems (**DIFTS'15**)

126. Int. Workshop on Exascale Multi/many Core Computing Systems (**E-MuCoCoS'15**)

127. Young Researchers' Conf. Frontiers of Formal Methods (**FFM'15**)

128. Int. Symp. on Formal Methods (**FM'15**)

129. IEEE Int. Workshop on Formal Methods Integration (**FMi'15**)

130. Int. Conf. on Formal Techniques for Distributed Objects, Components and Systems (**FORTE'15**)

131. IARCS Annual Conf. on Foundations of Software Technology and Theoretical Computer Science (**FSTTCS'15**)

132. Int. Conf. on Hybrid Systems: Computation and Control (**HSCC'15**)
    (Additionally, **chair** of the HSCC'15 commission for the **Best Student Paper Award**)

133. Int. Symp. on NASA Formal Methods (**NFM'15**)

134. Int. Conf. Quantitative Evaluation of SysTems (**QEST'15**)

135. Summer Computer Simulation Conf. (**SCSC'15**)

136. Int. Conf. on Advances in System Simulation (**SIMUL'15**)

137. Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (**TACAS'15**)

138. Int. Conf. on Verification, Model checking, and Abstract Interpretation (**VMCAI'15**)

139. Int. Workshop on Design and Implementation of Formal Tools and Systems (**DIFTS'14**)

140. IEEE Int. Workshop on Formal Methods Integration (**FMi'14**)

141. Int. Conf. on Formal Modeling and Analysis of Timed Systems (**FORMATS'14**)

142. Int. Workshop on Formal Techniques for Safety-Critical Systems (**FTSCS'14**)

143. Workshop on Hybrid Autonomous Systems (**HAS'14**)

144. Int. Conf. on Hybrid Systems: Computation and Control (**HSCC'14**)

145. Int. Conf. on integrated Formal Methods (**iFM'14**)

146. Summer Computer Simulation Conf. (**SCSC'14**)

147. Int. Conf. on Advances in System Simulation (**SIMUL'14**)

148. Int. Conf. on Simulation and Modeling Methodologies, Technologies and Applications (**SIMULTECH'14**)

149. Int. Workshop on Harnessing Theories for Tool Support in Software (**TTSS'14**)

150. IEEE Int. Workshop on Formal Methods Integration (**FMi'13**)
151. Int. Conf. on Formal Modeling and Analysis of Timed Systems (**FORMATS'13**)
152. Int. Workshop on Formal Techniques for Safety-Critical Systems (**FTSCS'13**)
153. Int. Conf. on Hybrid Systems: Computation and Control (**HSCC'13**)
154. Int. Conf. on integrated Formal Methods (**iFM'13**)
155. Int. Conf. on Advances in System Simulation (**SIMUL'13**)
156. Int. Conf. on Simulation and Modeling Methodologies, Technologies and Applications (**SIMULTECH'13**)
157. Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (**TACAS'13**)

158. Int. Symp. on Formal Aspects of Component Software (**FACS'12**)
159. Int. Workshop on Formal Techniques for Safety-Critical Systems (**FTSCS'12**)
160. Int. Conf. on Hybrid Systems: Computation and Control (**HSCC'12**)
161. Int. Workshop on Numerical Software Verification (**NSV'12**)
162. Int. Conf. on Quantitative Evaluation of Systems (**QEST'12**)
163. Int. Conf. on Simulation and Modeling Methodologies, Technologies and Applications (**SIMULTECH'12**)

164. Int. Symp. on Formal Aspects of Component Software (**FACS'11**)
165. Int. Symp. on Fundamentals of Computation Theory (**FCT'11**)
166. Int. Conf. on Simulation and Modeling Methodologies, Technologies and Applications (**SIMULTECH'11**)

167. Int. Workshop on Rewriting Techniques for Real-Time Systems (**RTRTS'10**)
168. Int. Symp. on Theoretical Aspects of Software Engineering (**TASE'10**)

Further reviewing activities

- Guest editor for several journal special issues

- Since 2021: ToCL editorial board member

- 2021-2023: FMSD editorial board member

- 2020-2021: Member of the Evaluation Panel for INRIA Project Teams

- 2018: Member of the NSERC (Natural Sciences and Engineering Research Council of Canada) Evaluation Group for Computer Science

- Further project reviews: European Commission; German Research Foundation (DFG), Germany; Bavarian Research Institut for Digital Transformation (bidt), Germany; Israel Science Foundation; FFG, Austria; Stadt Wien, Austria; FWF, Austria; Linz Institute of Technology, Austria; FEMtech, Austria; City University of Hong Kong, China

- Book reviewer for Springer International Publishing

- Reviewer for numerous journals (computer science, mathematics)

Commission work

Since 2024	Board member of the German Association of University Professors and Lecturers (Deutscher Hochschulverband, DHV), Region Aachen
Since 2018	Editorial Board member of *Progress in Computer Science and Applied Logic* (*PCSAL*), Springer International Publishing
Since 2017	Representative of the German Informatics Society at the Fachgruppe Computeralgebra
2018-2019	Board member Informatics Europe
Since 2017	Member and 2018-2019 leader of the Informatics Europe Working Group *Women in Informatics Research and Education*
2016	Jury member for the *2016 Minerva Informatics Equality Award*
Since 2012	Deputy equal opportunity commissioner of the RWTH Aachen University
2010-2011	Speaker of the young scientists at RWTH Aachen University
Since 2008	Member of different commissions at RWTH Aachen University

Supervision of Ph.D. students

Current supervision: László Antal, Lina Gerlach, József Kovács, Jasper Nalbach, Valentin Promies, Nicolai Radke (RWTH Aachen University, Aachen, Germany)

Graduated 10/2022: Rebecca Haehn (RWTH Aachen University, Aachen, Germany)

Graduated 05/2020: Francesco Leofante (co-tutelle: RWTH Aachen University, Aachen, Germany and Università di Genova, Genoa, Italy)
Optimal Planning Modulo Theories

Graduated 03/2020: Gereon Kremer (RWTH Aachen University, Aachen, Germany)
Cylindrical Algebraic Decomposition for Nonlinear Arithmetic Problems

Graduated 09/2019: Stefan Schupp (RWTH Aachen University, Aachen, Germany)
State Set Representations and their Usage in the Reachability Analysis of Hybrid Systems

Graduated 12/2018: Ulrich Loup (RWTH Aachen University, Aachen, Germany)
On Solving Real-algebraic Formulas in a Satisfiability-Modulo-Theories Framework

Graduated 12/2016: Johanna Nellen (RWTH Aachen University, Aachen, Germany)
Analysis and Synthesis of Hybrid Systems in Control Engineering

Graduated 10/2016: Florian Corzilius (RWTH Aachen University, Aachen, Germany)
Integrating Virtual Substitution into Strategic SMT Solving

Graduated 04/2015: Daniela Lepri (University of Oslo, Oslo, Norway)
Timed Temporal Logic Model Checking of Real-Time Systems – A Rewriting-Logic-Based Approach

Graduated 03/2015: Xin Chen (RWTH Aachen University, Aachen, Germany)
Reachability Analysis of Non-Linear Hybrid Systems Using Taylor Models

Graduated 03/2015: Nils Jansen (RWTH Aachen University, Aachen, Germany)
Counterexamples in Probabilistic Verification

Graduated 09/2014: Muhammad Fadlisyah (University of Oslo, Oslo, Norway)
A Rewriting-Logic-Based Approach for the Formal Modeling and Analysis of Interacting Hybrid Systems

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Evaluation commissions

Ph.D. reviewer:	Birgit van Huijgevoort, Eindhoven University of Technology, 2023
	Peter Varnai, KTH Royal Institute of Technology, 2022
	Guillaume Dupont, National Polytechnic Institute, Toulouse, France, 2021
	Vicktorio El Hakim, University of Twente, the Netherlands, 2021
	Andreas Humenberger, TU Wien, Austria, 2021
	Carina Pilch, TU Münster, Germany, 2021
	Anton Pirogov, RWTH Aachen University, Germany, 2021
	Siham Khoussi, Verimag Grenoble, France, 2021
	Shukun Tokas, University of Oslo, Norway, 2021
	Jannik Hüls, University of Münster, Germany, 2020
	Andrei Sandler, University of Hertfordshire, UK, 2020
	Bruto Da Costa Antonio Anastasio, Indian Institute of Technology Kharagpur, India, 2020
	Bjornat Luteberget, University of Oslo, Norway, 2019
	Braham Lotfi Mediouni, Université Grenoble-Alpes, France
	Leonhard Asselborn, University of Kassel, Germany, 2018
	Ahmed Irfan, University of Trento, Italy, 2018
	Hadi Zaatiti, University Paris-Sud, France, 2018
	Ayman Aljarbouh, INRIA Rennes / IRISA, France, 2017
	Haniel Barbose, INRIA Nancy, France, 2017
	Curtis Bright, University of Waterloo, Canada, 2017
	Christian Meirich, RWTH Aachen University, Germany, 2017
	Yuliia Romenska, VERIMAG Grenoble, France, 2017
	Niloofar Safiran, RWTH Aachen University, Germany, 2017
	Souha Ben-Rayana, VERIMAG Grenoble, France, 2016
	Crystal Din, University of Oslo, Norway, 2014
	Georgeta Igna, University of Nijmegen, the Netherlands, 2013

	Melanie Winkler, RWTH Aachen University, Germany, 2013
	Romain Testylier, VERIMAG Grenoble, France, 2013
Appointment and habilitation committees:	Aalborg University, Denmark (2024); University of Bath, UK (2024); University of Hildesheim, Germany (2024); École Polytechnique, France (2024); University of Grenoble, France (2023); Karlsruhe Institute of Technology, Germany (2022); University of Braunschweig, Germany (2022); University of Bremen, Germany (2022), KIT, Germany (2021); University of Cyprus (2021); Western Norway University of Applied Sciences (2021); Universität Oldenburg, Germany (2019); University of Halmstad (2019); TU Wien, Austria (2019); TU München, Germany (2019); MPI Saarbrücken, Germany (2019); Chalmers University of Technology, Sweden (2018); Radboud University Nijmegen, the Netherlands (2016); University of Twente, the Netherlands (2015-2016); Aarhus University, Denmark (2013-2014); RWTH Aachen University, Germany (numerous since 2008)

Teaching since 2008

Bachelor/Master at RWTH Aachen University:

Annually since 2009 (each winter term):	Lecture on *Satisfiability Checking* (200-350 students) Average evaluation: 1.5 (scale 1-5 with 1 being the best)
Annually since 2010 (each sommer term):	Lecture on *Modeling and Analysis of Hybrid Systems* (150-250 students) Average evaluation: 1.6 (scale 1-5 with 1 being the best)
Each semester:	*Seminars* and *practical courses*
Summer term 2014:	*Data Structures and Algorithms* (~600 students) Average evaluation: 1.7 (scale 1-5 with 1 being the best)
Winter term 2017/18:	Bridging Course *Foundations of Informatics*
Summer term 2020:	*Algorithms and Data Structures (Service)* (~150 students)

Doctoral studies:

08/2025:	One-day tutorial *SMT Solving* at the Marktoberdorf Summer School, Marktoberdorf, Germany
09/2022:	One-day tutorial *SMT Solving* at the Summer School of the European Research Training Network on Reliable AI for Marine Robotics (REMARO), Aachen, Germany
07/2022:	One-day tutorial *Understanding and Using SMT Solving* at the Summer School on Automated Reasoning in the Class (ARC), Linz, Austria
03/2020:	10-days doctoral course *Reachability Analysis Techniques for Hybrid Systems* at TU Wien, Austria
06/2018:	Half-day tutorial *Reachability Analysis Techniques for Hybrid Systems* at the 2018 Summer School on Cyber-physical Systems, Halmstad, Sweden
09-10/2017:	Doctoral course *Modeling and Analysis of Hybrid Systems* at the University of Szeged, Hungary
10/2015:	Doctoral course *Formal Methods for Hybrid Systems* at the University of Genoa, Italy

| 06/2014: | Half-day tutorial *Probabilistic Modeling and Model Checking* at the Int. School on Formal Methods for the Design of Computer, Communication and Software Systems: Executable Software Models (SFM-14:ESM), Bertinoro, Italy |

High-school activities:

Organisation of annual events for high-school students: Lecture series "What is Computer Science?", Summer University, Aachen Computer Science Days

Contribution to different events for pupils and high-school students: Girls' Day, Helle Köpfe, Cybermentor

April 5, 2024

Publications of Erika Ábrahám

Theses

[1] Erika Ábrahám. *An Assertional Proof System for Multithreaded Java — Theory and Tool Support.* PhD thesis, University of Leiden, 2005.

[2] Erika Ábrahám-Mumm. Bestimmung der Gesichtspose mit künstlichen neuronalen Netzen. Master's thesis, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, 1998.

Books and edited proceedings

[3] Erika Ábrahám, Stefan Hallerstede, John Hatcliff, Danielle Stewart, and Noah Abou El Wafa. Integrated Rigorous Analysis in Cyber-Physical Systems Engineering (Dagstuhl Seminar 23041). *Dagstuhl Reports*, 13(1):155–183, 2023.

[4] Isabela Drămnesc, Tudor Jebelean, Erika Ábrahám, Sorin Stratulat, Gábor Kusper, Mircea Marin, Adrian Crăciun, Csaba Biró, Gergely Kovásznai, Nikolaj Popov, and Rebecca Haehn. *Computational Logic: A Practical Approach.* Editura Universitatii de Vest, Timisoara, 2023.

[5] Hossein Hojjat and Erika Ábrahám, editors. *Proc. of the 10th Int. Conf. on Fundamentals of Software Engineering (FSEN'23)*, volume 14155 of *LNCS*. Springer-Verlag, 2023.

[6] Erika Ábrahám, Clemens Dubslaff, and Silvia Lizeth Tapia Tarifa, editors. *Proc. of the 20th Int. Symp. on Theoretical Aspects of Computing (ICTAC'23)*, volume 14446 of *LNCS*. Springer-Verlag, 2023.

[7] Erika Ábrahám and Thomas Sturm, editors. *Proc. of the 8th SC-Square Workshop (SC-Square@ISSAC'23)*, volume 3455 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2023.

[8] Erika Ábrahám, James H. Davenport, Matthew England, and Alberto Griggio. New Perspectives in Symbolic Computation and Satisfiability Checking (Dagstuhl Seminar 22072). *Dagstuhl Reports*, 12(2):67–86, 2022.

[9] Erika Ábrahám and Marco Paolieri, editors. *Proc. of the 19th Int. Conf. on Quantitative Evaluation of Systems (QEST'22)*, volume 13479 of *LNCS*. Springer-Verlag, 2022.

[10] Erika Ábrahám and Silvia Lizeth Taipa Tarifa, editors. *Proc. of the PhD Symp. at iFM'18 on Formal Methods: Algorithms, Tools and Applications (PhD-iFM'18)*. Research report 483, August 2018, University of Oslo, 2018.

[11] Erika Ábrahám and Sergiy Bogomolov, editors. *Proc. of the 3rd Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR'17)*, volume 247 of *Electronic Proceedings in Theoretical Computer Science*, 2017.

[12] Erika Ábrahám, Hadas Kress-Gazit, Lorenzo Natale, and Armando Tacchella. Computer-Assisted Engineering for Robotics and Autonomous Systems (Dagstuhl Seminar 17071). *Dagstuhl Reports*, 7(2):48–63, 2017.

[13] Erika Ábrahám and Marieke Huisman, editors. *Proc. of the 12th Int. Conf. on Integrated Formal Methods (iFM'16)*, volume 9681 of *LNCS*. Springer-Verlag, 2016.

[14] Erika Ábrahám, James H. Davenport, and Pascal Fontaine, editors. *Proc. of the 1st Workshop on Satisfiability Checking and Symbolic Computation (SC² 2016)*, volume 1804 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2017.

[15] Erika Ábrahám and Sergiy Bogomolov, editors. *Proc. of the 2016 Int. Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR'16)*. IEEE Computer Society, 2016.

[16] Erika Ábrahám, Marcello M. Bonsangue, and Einar Broch Johnsen, editors. *Theory and Practice of Formal Methods - Essays Dedicated to Frank de Boer on the Occasion of His 60th Birthday*, volume 9660 of *LNCS*. Springer-Verlag, 2016.

[17] Erika Ábrahám, Pascal Fontaine, Thomas Sturm, and Dongming Wang. Symbolic Computation and Satisfiability Checking (Dagstuhl Seminar 15471). *Dagstuhl Reports*, 5(11):71–89, 2015.

[18] Erika Ábrahám and Klaus Havelund, editors. *Proc. of the 20th Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'14)*, volume 8413 of *LNCS*. Springer-Verlag, 2014.

[19] Erika Ábrahám and Catuscia Palamidessi, editors. *Proc. of the 34th IFIP WG 6.1 Int. Conf. on Formal Techniques for Distributed Objects, Components, and Systems (FORTE'14)*, volume 8461 of *LNCS*. Springer-Verlag, 2014.

[20] Erika Ábrahám, Alberto Avritzer, Anne Remke, and William H. Sanders. Randomized Timed and Hybrid Models for Critical Infrastructures (Dagstuhl Seminar 14031). *Dagstuhl Reports*, 4(1):36–82, 2014.

Invited publications

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[21] Erika Ábrahám, József Kovács, and Anne Remke. SMT: Something you Must Try. In *Proc. of the 18th Int. Conf. on integrated Formal methods (iFM'23)*, volume 14300 of *LNCS*, pages 3–18. Springer-Verlag, 2023.

[22] Erika Ábrahám, Jasper Nalbach, and Valentin Promies. Automated exercise generation for satisfiability checking. In *Proc. of the 5th Int. Workahop on Formal Methods Teaching (FMTea'23)*, volume 13962 of *LNCS*, pages 1–16. Springer-Verlag, 2023.

[23] Erika Ábrahám. Symbolic computation techniques in SMT solving: Mathematical beauty meets efficient heuristics (abstract). In *Proc. of the 9th Int. Joint Conf. on Automated Reasoning (IJCAR'18)*, volume 10900 of *LNCS*, page XII. Springer-Verlag, 2018.

[24] Stefan Schupp, Johanna Nellen, and Erika Ábrahám. Divide and conquer: Variable set separation in hybrid systems reachability analysis. In *Proc. of the 15th Workshop on Quantitative Aspects of Programming Languages and Systems (QAPL'17)*, volume 250 of *Electronic Proceedings in Theoretical Computer Science*, pages 1–14. Open Publishing Association, 2017.

[25] Francesco Leofante, Erika Ábrahám, Tim Niemueller, Gerhard Lakemeyer, and Armando Tacchella. On the synthesis of guaranteed-quality plans for robot fleets in logistics scenarios via optimization modulo theories. In *Proc. of the 2017 IEEE Int. Conf. on Information Reuse and Integration (IRI'17)*, pages 403–410. IEEE Computer Society, 2017.

[26] Erika Ábrahám and Gereon Kremer. SMT solving for arithmetic theories: Theory and tool support. In *Proc. of the 19th Int. Symp. on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC'17)*, pages 1–8. IEEE Computer Society, 2017.

[27] Erika Ábrahám and Gereon Kremer. Satisfiability checking: Theory and applications. In *Proc. of the 14th Int. Conf. on Software Engineering and Formal Methods (SEFM'16)*, volume 9763 of *LNCS*, pages 9–23. Springer-Verlag, 2016.

[28] Erika Ábrahám. Symbolic computation techniques in satisfiability checking. In *Proc. of the 18th Int. Symp. on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC'16)*, pages 3–10. IEEE Computer Society, 2016.

[29] Erika Ábrahám and Klaus Havelund. Some recent advances in automated analysis. *Software Tools for Technology Transfer*, 18(2):121–128, 2016.

[30] Stefan Schupp, Erika Ábrahám, Xin Chen, Ibtissem Ben Makhlouf, Goran Frehse, Sriram Sankaranarayanan, and Stefan Kowalewski. Current challenges in the verification of hybrid systems. In *Proc. of the 5th Workshop on Design, Modeling, and Evaluation of Cyber Physical Systems (CyPhy'15)*, volume 9361 of *Information Systems and Applications, incl. Internet/Web, and HCI*, pages 8–24. Springer-Verlag, 2015.

[31] Erika Ábrahám. Building bridges between symbolic computation and satisfiability checking. In *Proc. of the 2015 ACM on Int. Symp. on Symbolic and Algebraic Computation (ISSAC'15)*, pages 1–6. ACM, 2015.

[32] Erika Ábrahám, Bernd Becker, Christian Dehnert, Nils Jansen, Joost-Pieter Katoen, and Ralf Wimmer. Counterexample generation for discrete-time Markov models: An introductory survey (invited contribution). In *Proc. of the 14th Int. School on Formal Methods for the Design of Computer, Communication, and Software Systems (SFM'14)*, volume 8483 of *LNCS*, pages 65–121. Springer-Verlag, 2014.

[33] Ralf Wimmer and Erika Ábrahám. Maybe or maybe not: Contributions to stochastic verification. In *Aspekte der Technischen Informatik: Festschrift zum 60. Geburtstag von Bernd Becker*, pages 119–127. MV-Verlag, 2014.

[34] Johanna Nellen and Erika Ábrahám. A CEGAR approach for the reachability analysis of PLC-controlled chemical plants. In *Proc. of the 15th IEEE Int. Conf. on Information Reuse and Integration (IRI'14)*, pages 500–507. IEEE Computer Society, 2014.

[35] Sriram Sankaranarayanan, Xin Chen, and Erika Ábrahám. Lyapunov function synthesis using Handelman representations. In *Proc. of the 9th IFAC Symp. on Nonlinear Control Systems (NOLCOS'13)*, pages 576–581. IFAC-PapersOnLine, 2013.

[36] Erika Ábrahám, Andreas Grüner, and Martin Steffen. Heap-abstraction for an object-oriented calculus with thread classes. In *Proc. of the 2nd Conf. on Computability in Europe: Logical Approaches to Computational Barriers (CiE'06)*, volume 3988 of *LNCS*, pages 1–10. Springer-Verlag, 2006.

[37] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. A compositional operational semantics for Java$_{MT}$. In *Verification: Theory and Practice, Celebrating Zohar Manna's 64th Birthday*, volume 2772 of *LNCS*, pages 290–303. Springer-Verlag, 2004.

[38] Erika Ábrahám-Mumm, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. A tool-supported proof system for multithreaded Java. In *Proc. of the 1st Int. Symp. on Formal Methods for Components and Objects (FMCO'02)*, volume 2852 of *LNCS*, pages 1–32. Springer-Verlag, 2003.

Peer-reviewed journal publications and book chapters

[39] Jasper Nalbach, Erika Ábrahám, Philippe Specht, Christopher W. Brown, James H. Davenport, and Matthew England. Levelwise construction of a single cylindrical algebraic cell. *Journal of Symbolic Computation*, 123:102288, 2024.

[40] Stefan Schupp, Erika Ábrahám, Md Tawhid Bin Waez, Thomas Rambow, and Zeng Qiu. On the applicability of hybrid systems safety verification tools from the automotive perspective. *International Journal on Software Tools for Technology Transfer*, 26(1):49–78, 2024.

[41] Stefan Schupp, Erika Ábrahám, and Tristan Ebert. Recent developments in theory and tool support for hybrid systems verification with HyPro. *Information and Computation*, 289(Part):104945, 2022.

[42] Oyendrila Dobe, Erika Ábrahám, Ezio Bartocci, and Borzoo Bonakdarpour. Model checking hyperproperties for Markov decision processes. *Information and Computation*, 289(Part):104978, 2022.

[43] Isabela Drămnesc, Erika Ábrahám, Tudor Jebelean, Gábor Kusper, and Sorin Stratulat. Automated reasoning in the class. *Computeralgebra Rundbrief*, 71:21–27, 2022.

[44] Erika Ábrahám, James H. Davenport, Matthew England, and Gereon Kremer. Deciding the consistency of non-linear real arithmetic constraints with a conflict driven search using cylindrical algebraic coverings. *Journal of Logical and Algebraic Methods in Programming*, 119:100633, 2021.

[45] Gereon Kremer and Erika Ábrahám. Fully incremental cylindrical algebraic decomposition. *Journal of Symbolic Computation*, 100:11–37, 2020.

[46] Stefan Schupp, Justin Winkens, and Erika Ábrahám. Context-dependent reachability analysis for hybrid systems. In *Reuse in Intelligent Systems*, pages 161–180. CRC Press, 2020.

[47] Francesco Leofante, Erika Ábrahám, Tim Niemueller, Gerhard Lakemeyer, and Armando Tacchella. Integrated synthesis and execution of optimal plans for multi-robot systems in logistics. *Information Systems Frontiers*, 21(1):87–107, 2019.

[48] Gereon Kremer and Erika Ábrahám. Modular strategic SMT solving with SMT-RAT. *Acta Universitatis Sapientiae, Informatica*, 10(1):5–25, 2018.

[49] Erika Ábrahám, John Abbott, Bernd Becker, Anna M. Bigatti, Martin Brain, Bruno Buchberger, Alessandro Cimatti, James H. Davenport, Matthew England, Pascal Fontaine, Stephen Forrest, Alberto Griggio, Daniel Kroening, Werner M. Seiler, and Thomas Sturm. Satisfiability checking and symbolic computation. *ACM Communications in Computer Algebra*, 50(4):145–147, 2016.

[50] Erika Ábrahám, Thi Mai Thuong Tran, and Martin Steffen. Observable interface behavior and inheritance. *Mathematical Structures in Computer Science*, 26(3):561–605, 2016.

[51] Johanna Nellen, Kai Driessen, Martin R. Neuhäußer, Erika Ábrahám, and Benedikt Wolters. Two CEGAR-based approaches for the safety verification of PLC-controlled plants. *Information Systems Frontiers*, 18(5):927–952, 2016.

[52] Mohamed Amin Ben Sassi, Sriram Sankaranarayanan, Xin Chen, and Erika Ábrahám. Linear relaxations of polynomial positivity for polynomial Lyapunov function synthesis. *IMA Journal of Mathematical Control and Information*, 33(3):723–756, 2016.

[53] Ralf Wimmer, Nils Jansen, Erika Ábrahám, and Joost-Pieter Katoen. High-level counterexamples for probabilistic automata. *Logical Methods in Computer Science*, 11(1:15):1–23, 2015.

[54] Daniela Lepri, Erika Ábrahám, and Peter Csaba Ölveczky. Sound and complete timed CTL model checking of timed Kripke structures and real-time rewrite theories. *Science of Computer Programming*, 99:128–192, 2015.

[55] Muhammad Fadlisyah, Peter Csaba Ölveczky, and Erika Ábrahám. Formal modeling and analysis of interacting hybrid systems in HI-Maude: What happened at the 2010 Sauna World Championships? *Science of Computer Programming*, 99:95–127, 2015.

[56] Nils Jansen, Ralf Wimmer, Erika Ábrahám, Barna Zajzon, Joost-Pieter Katoen, Bernd Becker, and Johann Schuster. Symbolic counterexample generation for large discrete-time Markov chains. *Science of Computer Programming*, 91(A):90–114, 2014.

[57] Ralf Wimmer, Nils Jansen, Erika Ábrahám, Joost-Pieter Katoen, and Bernd Becker. Minimal counterexamples for linear-time probabilistic verification. *Theoretical Computer Science*, 549:61–100, 2014.

[58] Erika Ábrahám, Tobias Schubert, Bernd Becker, Martin Fränzle, and Christian Herde. Parallel SAT solving in bounded model checking. *Journal of Logic and Computation*, 21(1):5–21, 2011.

[59] Markus Geimer, Felix Wolf, Brian J. N. Wylie, Erika Ábrahám, Daniel Becker, and Bernd Mohr. The Scalasca performance toolset architecture. *Concurrency and Computation: Practice and Experience*, 22(6):702–719, 2010.

[60] Erika Ábrahám, Immo Grabe, Andreas Grüner, and Martin Steffen. Behavioural interface description of an object-oriented language with futures and promises. *Journal of Logic and Algebraic Programming*, 78(7):491–518, 2009.

[61] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. A deductive proof system for multithreaded Java with exceptions. *Fundamenta Informaticae*, 82(4):391–463, 2008.

[62] Erika Ábrahám, Andreas Grüner, and Martin Steffen. Heap-abstraction for an object-oriented calculus with thread classes. *Software and Systems Modeling*, 7(2):177–208, 2008.

[63] Erika Ábrahám, Andreas Grüner, and Martin Steffen. Abstract interace behavior of object-oriented languages with monitors. *Theory of Computing Systems*, 43(3):322–361, 2008.

[64] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. An assertion-based proof system for multithreaded Java. *Theoretical Computer Science*, 331(2-3):251–290, 2005.

Peer-reviewed conference publications

[65] Jasper Nalbach and Erika Ábrahám. Subtropical satisfiability for SMT solving. In *Proc. of the 15th NASA Formal Methods Symp. (NFM'23)*, volume 13903 of *LNCS*, pages 430–446. Springer-Verlag, 2023.

[66] Lina Gerlach, Oyendrila Dobe, Erika Ábrahám, Ezio Bartocci, and Borzoo Bonakdarpour. Introducing asynchronicity to probabilistic hyperproperties. In *Proc. of the 20th Int. Conf. on Quantitative Evaluation of Systems (QEST'23)*, volume 14287 of *LNCS*, pages 47–64. Springer-Verlag, 2023.

[67] Lisa Willemsen, Anne Remke, and Erika Ábrahám. Comparing two approaches to include stochasticity in hybrid automata. In *Proc. of the 20th Int. Conf. on Quantitative Evaluation of Systems (QEST'23)*, volume 14287 of *LNCS*, pages 238–254. Springer-Verlag, 2023.

[68] Joanna Delicaris, Stefan Schupp, Erika Ábrahám, and Anne Remke. Maximizing reachability probabilities in rectangular automata with random clocks. In *Proc. of the 17th Int. Symp. on Theoretical Aspects of Software Engineering (TASE'23)*, volume 13931 of *LNCS*, pages 164–182. Springer-Verlag, 2023.

[69] Jasper Nalbach, Valentin Promies, Erika Ábrahám, and Paul Kobialka. FMplex: A novel method for solving linear real arithmetic problems. In *Proc. of the 14th Int. Symp. on Games, Automata, Logics, and Formal Verification (GandALF'23)*, volume 390 of *Electronic Proceedings in Theoretical Computer Science*, pages 16–32, 2023.

[70] Eshita Zaman, Gianfranco Ciardo, Erika Ábrahám, and Borzoo Bonakdarpour. HyperPCTL model checking by probabilistic decomposition. In *Proc. of the 17th Int. Conf. on Integrated Formal Methods (iFM'22)*, volume 13274 of *LNCS*, pages 209–226. Springer-Verlag, 2022.

[71] Isabela Dramnesc, Erika Ábrahám, Tudor Jebelean, Gábor Kusper, and Sorin Stratulat. Experiments with automated reasoning in the class. In *Proc. of the 15th Int. Conf. on Intelligent Computer Mathematics (CICM'22)*, volume 13467 of *LNCS*, pages 287–304. Springer-Verlag, 2022.

[72] Oyendrila Dobe, Lukas Wilke, Erika Ábrahám, Ezio Bartocci, and Borzoo Bonakdarpour. Probabilistic hyperproperties with rewards. In *Proc. of the 14th NASA Formal Methods Symp. (NFM'22)*, volume 13260 of *LNCS*, pages 656–673. Springer-Verlag, 2022.

[73] Rebecca Haehn, Erika Ábrahám, and Niklas Kotowski. Acceleration techniques for symbolic simulation of railway timetables. In Simon Collart Dutilleul, Anne E. Haxthausen, and Thierry Lecomte, editors, *Proc. of the 4th Int. Conf. on Reliability, Safety, and Security of Railway Systems (RSSRail'22)*, volume 13294 of *LNCS*, pages 46–62. Springer-Verlag, 2022.

[74] Oyendrila Dobe, Erika Ábrahám, Ezio Bartocci, and Borzoo Bonakdarpour. HyperProb: A model checker for probabilistic hyperproperties. In *Proc. of the 24th Int. Symp. (FM'21)*, volume 13047 of *LNCS*, pages 657–666. Springer-Verlag, 2021.

[75] Jasper Nalbach, Erika Ábrahám, and Gereon Kremer. Extending the fundamental theorem of linear programming for strict inequalities. In Frédéric Chyzak and George Labahn, editors, *Proc. of the 2021 Int. Symp. on Symbolic and Algebraic Computation (ISSAC'21)*, pages 313–320. ACM, 2021.

[76] Felix Freiberger, Stefan Schupp, Holger Hermanns, and Erika Ábrahám. Controller verification meets controller code: A case study. In *Proc. of the 19th ACM-IEEE Int. Conf. on Formal Methods and Models for System Design (MEMOCODE'21)*, pages 98–103. ACM, 2021.

[77] Rebecca Haehn, Erika Ábrahám, and Nils Nießen. Symbolic simulation of railway timetables under consideration of stochastic dependencies. In *Proc. of the 18th Int. Conf. on Quantitative Evaluation of Systems (QEST'21)*, volume 12846 of *LNCS*, pages 257–275. Springer-Verlag, 2021.

[78] Gereon Kremer, Erika Ábrahám, Matthew England, and James H. Davenport. On the implementation of cylindrical algebraic coverings for satisfiability modulo theories solving. In *Proc. of the 23rd Int. Symp. on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC'21)*, pages 37–39. IEEE, 2021.

[79] Erika Ábrahám, Ezio Bartocci, Borzoo Bonakdarpour, and Oyendrila Dobe. Probabilistic hyperproperties with nondeterminism. In *Proc. of the 18th Int. Symp. on Automated Technology for Verification and Analysis (ATVA '20)*, volume 12302 of *LNCS*, pages 518–534. Springer-Verlag, 2020.

[80] Rebecca Haehn, Erika Ábrahám, and Nils Nießen. Probabilistic simulation of a railway timetable. In *Prof. of the 20th Symp. on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS'20)*, volume 85 of *OASIcs*, pages 16:1–16:14. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2020.

[81] Francesco Leofante, Enrico Giunchiglia, Erika Ábrahám, and Armando Tacchella. Optimal planning modulo theories. In *Proc. of the 29th Int. Joint Conf. on Artificial Intelligence (IJCAI'20)*, pages 4128–4134. ijcai.org, 2020.

[82] Erika Ábrahám, Ezio Bartocci, Borzoo Bonakdarpour, and Oyendrila Dobe. Parameter synthesis for probabilistic hyperproperties. In *Proc. of the 23rd Int. Conf. on Logic for Programming, Artificial Intelligence and Reasoning (LPAR-23)*, volume 73 of *EPiC Series in Computing*, pages 12–31. EasyChair, 2020.

[83] Carina Pilch, Maurice Krause, Anne Remke, and Erika Ábrahám. A transformation of hybrid Petri nets with stochastic firings into a subclass of stochastic hybrid automata. In *Proc. of the 12th NASA Formal Methods Symp. (NFM'20)*, volume 12229 of *LNCS*, pages 381–400. Springer-Verlag, 2020.

[84] Rebecca Haehn, Erika Ábrahám, and Nils Nießen. Freight train scheduling in railway systems. In *Proc. of the 20th Int. GI/ITG Conf. on Measurement, Modelling and Evaluation of Computing Systems (MMB'20)*, volume 12040 of *LNCS*, pages 225–241. Springer-Verlag, 2020.

[85] Francesco Leofante, Stefan Schupp, Erika Ábrahám, and Armando Tacchella. Engineering controllers for swarm robotics via reachability analysis in hybrid systems. In *Proc. of the 33rd Int. ECMS Conf. on Modelling and Simulation (ECMS'19)*, pages 407–413. European Council for Modeling and Simulation, 2019.

[86] Philipp Berger, Johanna Nellen, Joost-Pieter Katoen, Erika Ábrahám, Md Tawhid Bin Waez, and Thomas Rambow. Multiple analyses, requirements once: Simplifying testing and verification in automotive model-based development. In *Proc. of the 24th Int. Conf. on Formal Methods for Industrial Critical Systems (FMICS'19)*, volume 11687 of *LNCS*, pages 59–75. Springer-Verlag, 2019.

[87] Stefan Schupp and Erika Ábrahám. Spread the work: Multi-threaded safety analysis for hybrid systems. In *Proc. of the 16th Int. Conf. on Software Engineering and Formal Methods (SEFM'18)*, volume 10886 of *LNCS*, pages 89–104. Springer-Verlag, 2018.

[88] Stefan Schupp, Justin Winkens, and Erika Ábrahám. Context-dependent reachability analysis for hybrid systems. In *Proc. of the 2018 IEEE Int. Conf. on Information Reuse and Integration (IRI'18)*, pages 518–525. IEEE Computer Society, 2018.

[89] Erika Ábrahám and Borzoo Bonakdarpour. HyperPCTL: A temporal logic for probabilistic hyperproperties. In *Proc. pf the 15th Int. Conf. on Quantitative Evaluation of Systems (QEST'18)*, volume 11024 of *LNCS*, pages 20–35. Springer-Verlag, 2018.

[90] Francesco Leofante, Erika Ábrahám, and Armando Tacchella. Task planning with OMT: An application to production logistics. In *Proc. of the 14th Int. Conf. on Integrated Formal Methods (iFM'18)*, volume 11023 of *LNCS*, pages 316–325. Springer-Verlag, 2018.

[91] Philipp Berger, Joost-Pieter Katoen, Erika Ábrahám, Md Tawhid Bin Waez, and Thomas Rambow. Verifying auto-generated C code from Simulink - An experience report in the automotive domain. In *Proc. of the 22nd Int. Symp. on Formal Methods (FM'18)*, volume 10951 of *LNCS*, pages 312–328. Springer-Verlag, 2018.

[92] Johanna Nellen, Thomas Rambow, Md Tawhid Bin Waez, Erika Ábrahám, and Joost-Pieter Katoen. Formal verification of automotive Simulink controller models: Empirical technical challenges, evaluation and recommendations. In *Proc. of the 22nd Int. Symp. on Formal Methods (FM'18)*, volume 10951 of *LNCS*, pages 382–398. Springer-Verlag, 2018.

[93] Stefan Schupp and Erika Ábrahám. Efficient dynamic error reduction for hybrid systems reachability analysis. In *Proc. of the 24th Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'18)*, volume 10806 of *LNCS*, pages 287–302. Springer-Verlag, 2018.

[94] Stefan Schupp, Erika Ábrahám, Ibtissem Ben Makhlouf, and Stefan Kowalewski. HyPro: A C++ library for state set representations for hybrid systems reachability analysis. In *Proc. of the 9th NASA Formal Methods Symp. (NFM'17)*, volume 10227 of *LNCS*, pages 288–294. Springer-Verlag, 2017.

[95] Jannik Hüls, Stefan Schupp, Anne Remke, and Erika Ábrahám. Analyzing hybrid Petri nets with multiple stochastic firings using HyPro. In *Proc. of the 11th EAI Int. Conf. on Performance Evaluation Methodologies and Tools (VALUETOOLS'17)*, pages 178–185. ACM, 2017.

[96] Erika Ábrahám and Tudor Jebelean. Adapting cylindrical algebraic decomposition for proof specific tasks. In *Proc. of the 10th Int. Conf. on Applied Informatics (ICAI'17)*, 2017.

[97] Erika Ábrahám, John Abbott, Bernd Becker, Anna M. Bigatti, Martin Brain, Bruno Buchberger, Alessandro Cimatti, James H. Davenport, Matthew England, Pascal Fontaine, Stephen Forrest, Alberto Griggio, Daniel Kroening, Werner M. Seiler, and Thomas Sturm. Satisfiability checking and symbolic computation. In *Proc. of the 41th Int. Symp. on Symbolic and Algebraic Computation (ISSAC'16)*, volume abs/1607.06945 of *CoRR*, 2016.

[98] Erika Ábrahám, John Abbott, Bernd Becker, Anna M. Bigatti, Martin Brain, Bruno Buchberger, Alessandro Cimatti, James H. Davenport, Matthew England, Pascal Fontaine, Stephen Forrest, Alberto Griggio, Daniel Kroening, Werner M. Seiler, and Thomas Sturm. SC^2: Satisfiability checking meets symbolic computation. In *Proc. of the 9th Conf. on Intelligent Computer Mathematics (CICM'16)*, volume 9791 of *LNCS*, pages 28–43. Springer-Verlag, 2016.

[99] Pascal Richter, David Laukamp, Levin Gerdes, Martin Frank, and Erika Ábrahám. Heliostat field layout optimization with evolutionary algorithms. In *Proc. of the 2nd Global Conf. on Artificial Intelligence (GCAI'16)*, volume 41 of *EPiC Series in Computing*, pages 240–252. EasyChair, 2016.

[100] Simone Vuotto, Erika Ábrahám, Armando Tacchella, and Nils Jansen. Combining static and runtime methods to achieve safe standing-up for humanoid robots. In *Leveraging Applications of Formal Methods, Verification and Validation: Foundational Techniques, Part I*, volume 9952 of *LNCS*, pages 496–514. Springer-Verlag, 2016.

[101] Erika Ábrahám, Florian Corzilius, Einar Broch Johnsen, Gereon Kremer, and Jacopo Mauro. Zephyrus2: On the fly deployment optimization using SMT and CP technologies. In *Proc. of Dependable Software Engineering: Theories, Tools, and Applications (SETTA'16)*, volume 9984 of *LNCS*, pages 229–245. Springer-Verlag, 2016.

[102] Christian Dehnert, Sebastian Junges, Nils Jansen, Florian Corzilius, Matthias Volk, Harold Bruintjes, Joost-Pieter Katoen, and Erika Ábrahám. PROPhESY: A probabilistic parameter synthesis tool. In *Proc. of the 27th Int. Conf. on Computer Aided Verification (CAV'15)*, volume 9206 of *LNCS*, pages 214–231. Springer-Verlag, 2015.

[103] Tim Quatmann, Nils Jansen, Christian Dehnert, Ralf Wimmer, Erika Ábrahám, Joost-Pieter Katoen, and Bernd Becker. Counterexamples for expected rewards. In *Proc. of the 20th Int. Symp. on Formal Methods (FM'15)*, volume 9109 of *LNCS*, pages 435–452. Springer-Verlag, 2015.

[104] Shashank Pathak, Erika Ábrahám, Nils Jansen, Armando Tacchella, and Joost-Pieter Katoen. A greedy approach for the efficient repair of stochastic models. In *Proc. of the 7th NASA Formal Methods Symp. (NFM'15)*, volume 9058 of *LNCS*, pages 295–309. Springer-Verlag, 2015.

[105] Florian Corzilius, Gereon Kremer, Sebastian Junges, Stefan Schupp, and Erika Ábrahám. SMT-RAT: An open source C++ toolbox for strategic and parallel SMT solving. In *Proc. of the 18th Int. Conf. on Theory and Applications of Satisfiability Testing (SAT'15)*, volume 9340 of *LNCS*, pages 360–368. Springer-Verlag, 2015.

[106] Xin Chen, Stefan Schupp, Ibtissem Ben Makhlouf, Erika Ábrahám, Goran Frehse, and Stefan Kowalewski. A benchmark suite for hybrid systems reachability analysis. In *Proc. of the 7th NASA Formal Methods Symp. (NFM'15)*, volume 9058 of *LNCS*, pages 408–414. Springer-Verlag, 2015.

[107] Johanna Nellen, Erika Ábrahám, and Benedikt Wolters. A CEGAR tool for the reachability analysis of PLC-controlled plants using hybrid automata. In *Formalisms for Reuse and Systems Integration*, volume 346 of *Advances in Intelligent Systems and Computing*, pages 55–78. Springer-Verlag, 2015.

[108] Sascha Geulen, Martina Josevski, Johanna Nellen, Janosch Fuchs, Lukas Netz, Benedikt Wolters, Dirk Abel, Erika Ábrahám, and Walter Unger. Learning-based control strategies for hybrid electric vehicles. In *Proc. of the 2015 IEEE Conf. on Control Applications (CCA'15)*, pages 1722–1728. IEEE Computer Society, 2015.

[109] Johanna Nellen, Benedikt Wolters, Lukas Netz, Sascha Geulen, and Erika Ábrahám. A genetic algorithm based control strategy for the energy management problem in PHEVs. In *Proc. of the 1st Global Conf. on Artificial Intelligence (GCAI'15)*, volume 36 of *EPiC Series in Computer Science*, pages 196–214. EasyChair, 2015.

[110] Sascha Geulen, Martina Josevski, Johanna Nellen, Janosch Fuchs, Lukas Netz, Benedikt Wolters, Erika Ábrahám, Walter Unger, and Dirk Abel. Online Lernen als Kontrollstrategie in Hybridfahrzeugen. In *Proc. of the 7th VDI/VDE Fachtagung AUTOREG: Auf dem Weg zum automatisierten Fahren*, volume 2233 of *VDI-Berichte*, pages 101–112. VDI Verlag, 2015.

[111] Nils Jansen, Florian Corzilius, Matthias Volk, Ralf Wimmer, Erika Ábrahám, Joost-Pieter Katoen, and Bernd Becker. Accelerating parametric probabilistic verification. In *Proc. of the 11th Int. Conf. on Quantitative Evaluation of Systems (QEST'14)*, volume 8657 of *LNCS*, pages 404–420. Springer-Verlag, 2014.

[112] Pascal Richter, Martin Frank, and Erika Ábrahám. Multi-objective optimization of solar tower power plants. In *Proc. of the 18th European Conf. on Mathematics for Industry (ECMI'14)*, Mathematics in Industry. Springer-Verlag, 2014.

[113] Xin Chen, Sriram Sankaranarayanan, and Erika Ábrahám. Under-approximate flowpipes for non-linear continuous systems. In *Proc. of Formal Methods in Computer-Aided Design (FMCAD'14)*, pages 59–66. IEEE Computer Society, 2014.

[114] Christian Dehnert, Nils Jansen, Ralf Wimmer, Erika Ábrahám, and Joost-Pieter Katoen. Fast debugging of PRISM models. In *Proc. of the Int. Symp. on Automated Technology for Verification and Analysis (ATVA'14)*, volume 8837 of *LNCS*, pages 146–162. Springer-Verlag, 2014.

[115] Ulrich Loup, Karsten Scheibler, Florian Corzilius, Erika Ábrahám, and Bernd Becker. A symbiosis of interval constraint propagation and cylindrical algebraic decomposition. In *Proc. of the 24th Int. Conf. on Automated Deduction (CADE-24)*, volume 7898 of *LNCS*, pages 193–207. Springer-Verlag, 2013.

[116] Sebastian Junges, Ulrich Loup, Florian Corzilius, and Erika Ábrahám. On Gröbner bases in the context of satisfiability-modulo-theories solving over the real numbers. In *Proc. of the 5th Int. Conf. on Algebraic Informatics (CAI'13)*, volume 8080 of *LNCS*, pages 186–198. Springer-Verlag, 2013.

[117] Daniela Lepri, Erika Ábrahám, and Peter Csaba Ölveczky. A timed CTL model checker for Real-Time Maude. In *Proc. of the 5th Int. Conf. on Algebra and Coalgebra in Computer Science (CALCO'13)*, volume 8089 of *LNCS*, pages 334–339. Springer-Verlag, 2013.

[118] Xin Chen, Erika Ábrahám, and Sriram Sankaranarayanan. Flow*: An analyzer for non-linear hybrid systems. In *Proc. of the 25th Int. Conf. on Computer Aided Verification (CAV'13)*, volume 8044 of *LNCS*, pages 258–263. Springer-Verlag, 2013.

[119] Yan Zhang, Sriram Sankaranarayanan, Fabio Somenzi, Xin Chen, and Erika Ábrahám. From statistical model checking to statistical model inference: Characterizing the effect of process variations in analog circuits. In *Proc. of the IEEE/ACM Int. Conf. on Computer-Aided Design (ICCAD'13)*, pages 662–669. IEEE/ACM, 2013.

[120] Ralf Wimmer, Nils Jansen, Andreas Vorpahl, Erika Ábrahám, Joost-Pieter Katoen, and Bernd Becker. High-level counterexamples for probabilistic automata. In *Proc. of the 10th Int. Conf. on Quantitative Evaluation of Systems (QEST'13)*, volume 8054 of *LNCS*, pages 39–54. Springer-Verlag, 2013.

[121] Nils Jansen, Erika Ábrahám, Barna Zajzon, Ralf Wimmer, Johann Schuster, Joost-Pieter Katoen, and Bernd Becker. Symbolic counterexample generation for discrete-time Markov chains. In *Proc. of the 9th Int. Symp. on Formal Aspects of Component Software (FACS'12)*, volume 7684 of *LNCS*, pages 134–151. Springer-Verlag, 2012.

[122] Xin Chen, Erika Ábrahám, and Sriram Sankaranarayanan. Taylor model flowpipe construction for non-linear hybrid systems. In *Proc. of the 33rd IEEE Real-Time Systems Symp. (RTSS'12)*, pages 183–192. IEEE Computer Society, 2012.

[123] Florian Corzilius, Ulrich Loup, Sebastian Junges, and Erika Ábrahám. SMT-RAT: An SMT-compliant non-linear real arithmetic toolbox. In *Proc. of the 15th Int. Conf. on Theory and Applications of Satisfiability Testing (SAT'12)*, volume 7317 of *LNCS*, pages 442–448. Springer-Verlag, 2012.

[124] Ralf Wimmer, Nils Jansen, Erika Ábrahám, Bernd Becker, and Joost-Pieter Katoen. Minimal critical subsystems for discrete-time Markov models. In *Proc. of the 18th Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'12)*, volume 7214 of *LNCS*, pages 299–314. Springer-Verlag, 2012.

[125] Nils Jansen, Erika Ábrahám, Matthias Volk, Ralf Wimmer, Joost-Pieter Katoen, and Bernd Becker. The COMICS tool - Computing minimal counterexamples for DTMCs. In *Proc. of the 10th Int. Symp. on Automated Technology for Verification and Analysis (ATVA'12)*, volume 7561 of *LNCS*, pages 349–353. Springer-Verlag, 2012.

[126] Xin Chen and Erika Ábrahám. Choice of directions for the approximation of reachable sets for hybrid systems. In *Proc. of the 13th Int. Conf. on Computer Aided Systems Theory (EUROCAST'11)*, volume 6927 of *LNCS*, pages 535–542. Springer-Verlag, 2012.

[127] Florian Corzilius and Erika Ábrahám. Virtual substitution for SMT solving. In *Proc. of the 18th Int. Symp. on Fundamentals of Computation Theory (FCT'11)*, volume 6914 of *LNCS*, pages 360–371. Springer-Verlag, 2011.

[128] Ulrich Loup and Erika Ábrahám. I-RiSC: An SMT-compliant solver for the existential fragment of real algebra. In *Proc. of the 4th Int. Conf. on Algebraic Informatics (CAI'11)*, volume 6742 of *LNCS*, pages 230–246. Springer-Verlag, 2011.

[129] Ulrich Loup and Erika Ábrahám. GiNaCRA: A C++ library for real algebraic computations. In *Proc. of the 3rd NASA Formal Methods Symp. (NFM'11)*, volume 6617 of *LNCS*, pages 512–517. Springer-Verlag, 2011.

[130] Muhammad Fadlisyah, Peter Csaba Ölveczky, and Erika Ábrahám. Formal modeling and analysis of hybrid systems in rewriting logic using higher-order numerical methods and discrete-event detection. In *Proc. of the 4th Int. Conf. on Computer Science and Software Engineering (CSSE'11)*, pages 1–8. IEEE Computer Society, 2011.

[131] Muhammad Fadlisyah, Peter Csaba Ölveczky, and Erika Ábrahám. Object-oriented formal modeling and analysis of interacting hybrid systems in HI-Maude. In *Proc. of the 9th Int. Conf. on Software Engineering and Formal Methods (SEFM'11)*, volume 7041 of *LNCS*, pages 415–430. Springer-Verlag, 2011.

[132] Nils Jansen, Erika Ábrahám, Jens Katelaan, Ralf Wimmer, Joost-Pieter Katoen, and Bernd Becker. Hierarchical counterexamples for discrete-time Markov chains. In *Proc. of the 9th Int. Symp. on Automated Technology for Verification and Analysis (ATVA'11)*, volume 6996 of *LNCS*, pages 443–452. Springer-Verlag, 2011.

[133] Bettina Braitling, Ralf Wimmer, Bernd Becker, Nils Jansen, and Erika Ábrahám. Counterexample generation for Markov chains using SMT-based bounded model checking. In *Proc. of the 13th IFIP Int. Conf. on Formal Techniques for Distributed Systems (FMOODS/FORTE'11)*, volume 6722 of *LNCS*, pages 75–89. Springer-Verlag, 2011.

[134] Pascal Richter, Erika Ábrahám, and Gabriel Morin. Optimisation of concentrating solar thermal power plants with neural networks. In *Proc. of the 10th Int. Conf. on Adaptive and Natural Computing Algorithms (ICANNGA'11)*, volume 6593 of *LNCS*, pages 190–199. Springer-Verlag, 2011.

[135] Erika Ábrahám, Nadine Bergner, Philipp Brauner, Florian Corzilius, Nils Jansen, Thiemo Leonhardt, Ulrich Loup, Johanna Nellen, and Ulrik Schroeder. On collaboratively conveying computer science to pupils. In *Proc. of the 11th Koli Calling Int. Conf. on Computing Education Research (KOLI'11)*, pages 132–137. ACM, 2011.

[136] Erika Ábrahám, Nils Jansen, Ralf Wimmer, Joost-Pieter Katoen, and Bernd Becker. DTMC model checking by SCC reduction. In *Proc. of the 7th Int. Conf. on Quantitative Evaluation of Systems (QEST'10)*, pages 37–46. IEEE Computer Society, 2010.

[137] Erika Ábrahám, Philipp Brauner, Nils Jansen, Thiemo Leonhardt, Ulrich Loup, and Ulrik Schroeder. Podcastproduktion als kollaborativer Zugang zur theoretischen Informatik. In *Proc. of the 8th E-Learning Fachtagung Informatik: Interaktive Kulturen (DeLFI'10)*, volume 169 of *LNI*, pages 239–251. GI, 2010.

[138] Natalia Kalinnik, Tobias Schubert, Erika Ábrahám, Ralf Wimmer, and Bernd Becker. Picoso - a parallel interval constraint solver. In *Proc. of the Int. Conf. on Parallel and Distributed Processing Techniques and Applications (PDPTA'09)*, pages 473–479. CSREA Press, 2009.

[139] Erika Ábrahám, Tobias Schubert, Bernd Becker, Martin Fränzle, and Christian Herde. Parallel SAT solving in bounded model checking. In *Proc. of the 5th Int. Workshop on Parallel and Distributed Methods in Verification (PDMC'06)*, volume 4346 of *LNCS*, pages 301–315. Springer-Verlag, 2006.

[140] Erika Ábrahám, Andreas Grüner, and Martin Steffen. Abstract interface behavior of object-oriented languages with monitors. In *Proc. of the 8th IFIP Int. Conf. on Formal Methods for Open Object-Based Distributed Systems (FMOODS'06)*, volume 4037 of *LNCS*, pages 218–232. Springer-Verlag, 2006.

[141] Erika Ábrahám, Bernd Becker, Felix Klaedke, and Martin Steffen. Optimizing bounded model checking for linear hybrid systems. In *Proc. of the 6th Int. Conf. on Verification, Model Checking, and Abstract Interpretation (VMCAI'05)*, volume 3385 of *LNCS*, pages 396–412. Springer-Verlag, 2005.

[142] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. Inductive proof outlines for exceptions in multithreaded Java. In *Proc. of the IPM Int. Workshop on Foundations of Software Engineering (Theory and Practice) (FSEN'05)*, volume 159 of *Electronic Notes in Theoretical Computer Science*, pages 281–297. Elsevier Science Publishers, 2005.

[143] Erika Ábrahám, Marcello M. Bonsangue, Frank S. de Boer, and Martin Steffen. Object connectivity and full abstraction for a concurrent calculus of classes. In *Proc. of the 1st Int. Colloquium on Theoretical Aspects of Computing (ICTAC'04)*, volume 3407 of *LNCS*, pages 37–51. Springer-Verlag, 2005.

[144] Frank S. de Boer, Marcello M. Bonsangue, Martin Steffen, and Erika Ábrahám. A fully abstract trace semantics for UML components. In *Proc. of the 3rd Int. Symp. on Formal Methods for Components and Objects (FMCO'04)*, volume 3657 of *LNCS*, pages 49–69. Springer-Verlag, 2005.

[145] Erika Ábrahám, Frank S. de Boer, Marcello M. Bonsangue, Andreas Grüner, and Martin Steffen. Observability, connectivity, and replay in a sequential calculus of classes. In *Proc. of the 3rd Int. Symp. on Formal Methods for Components and Objects (FMCO'04)*, volume 3657 of *LNCS*, pages 296–316. Springer-Verlag, 2005.

[146] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. Inductive proof-outlines for monitors in Java. In *Proc. of the 6th IFIP Int. Conf. on Formal Methods for Open Object-Based Distributed Systems (FMOODS'03)*, volume 2884 of *LNCS*, pages 155–169. Springer-Verlag, 2003.

[147] Erika Ábrahám-Mumm, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. Verification for Java's reentrant multithreading concept. In *Proc. of the 5th Int. Conf. on Foundations of Software Science and Computation Structures (FoSSaCS'02)*, volume 2303 of *LNCS*, pages 5–20. Springer-Verlag, 2002.

[148] Erika Ábrahám-Mumm, Ulrich Hannemann, and Martin Steffen. Verification of hybrid systems: Formalization and proof rules in PVS. In *Proc. of the 16th IEEE Int. Conf. on Engineering of Complex Computer Systems (ICECCS'01)*, pages 48–57. IEEE Computer Society, 2001.

[149] Erika Ábrahám-Mumm, Ulrich Hannemann, and Martin Steffen. Assertion-based analysis of hybrid systems with PVS. In *Proc. of the 8th Int. Workshop on Computer Aided Systems Theory (EURO-CAST'01)*, volume 2178 of *LNCS*, pages 94–109. Springer-Verlag, 2001.

[150] Erika Ábrahám-Mumm and Frank S. de Boer. Proof-outlines for threads in Java. In *Proc. of the 11th Int. Conf. on Concurrency Theory (CONCUR'00)*, volume 1877 of *LNCS*, pages 229–242. Springer-Verlag, 2000.

Invited workshop contributions

[151] Matthias Althoff, Erika Ábrahám, Marcelo Forets, Goran Frehse, Daniel Freire, Christian Schilling, Stefan Schupp, and Mark Wetzlinger. ARCH-COMP21 category report: Continuous and hybrid systems with linear continuous dynamics. In *Proc. of the 8th Int. Workshop on Applied Verification of Continuous and Hybrid Systems (ARCH'21)*, volume 80 of *EPiC Series in Computing*, pages 1–31. EasyChair, 2021.

[152] Erika Ábrahám. Techniques and tools for hybrid systems reachability analysis. In *Proc. of the 10th Int. Workshop on Numerical Software Verification (NSV'17)*, volume 10381 of *LNCS*, pages XVI–XVII. Springer-Verlag, 2017.

[153] Erika Ábrahám, Ulrich Loup, Florian Corzilius, and Thomas Sturm. A lazy SMT solver for a non-linear subset of real algebra. In *Proc. of the Dagstuhl Seminar on Verification over Discrete-Continuous Boundaries*. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik, Germany, 2010.

[154] Erika Ábrahám and Ulrich Loup. SMT-solving for the first-order theory of the reals. In *Proc. of the Dagstuhl Seminar on Algorithms and Applications for the Next Generation of SAT Solvers*. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik, Germany, 2009.

Peer-reviewed workshop contributions

[155] Philipp Bär, Jasper Nalbach, Erika Ábrahám, and Christopher W. Brown. Exploiting strict constraints in the cylindrical algebraic covering. In *Proc. of the 21st Int. Workshop on Satisfiability Modulo Theories (SMT'23)*, volume 3429 of *CEUR Workshop Proceedings*, pages 33–45. CEUR-WS.org, 2023.

[156] László Antal, Hana Masara, and Erika Ábrahám. Extending neural network verification to a larger family of piece-wise linear activation functions. In *Proc. of the 5th Int. Workshop on Formal Methods for Autonomous Systems (FMAS@iFM'23)*, volume 395 of *Electronic Proceedings in Theoretical Computer Science*, pages 30–68, 2023.

[157] Erika Ábrahám, James H. Davenport, Matthew England, and Gereon Kremer. Proving UNSAT in SMT: The case of quantifier free non-linear real arithmetic. In Martin Suda and Sarah Winkler, editors, *Proc. of the 3rd Int. Workshop on Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements (ARCADE@CADE'21)*, pages 1–5, 2021.

[158] Stefan Schupp, Francesco Leofante, Leander Behr, Erika Ábrahám, and Armando Tacchella. Robot swarms as hybrid systems: Modelling and verification. In Anne Remke and Dung Hoang Tran, editors, *Proc. of the 7th Int. Workshop on Symbolic-Numeric Methods for Reasoning about CPS and IoT (SNR'21)*, volume 361 of *Electronic Proceedings in Theoretical Computer Science*, pages 61–77, 2021.

[159] Erika Ábrahám, James H. Davenport, Matthew England, Gereon Kremer, and Zak Tonks. New opportunities for the formal proof of computational real geometry? In *Proc. of the 5th Int. Workshop on Satisfiability Checking and Symbolic Computation (SC^2'20)*, volume 2752 of *CEUR Workshop Proceedings*, pages 178–188. CEUR-WS.org, 2020.

[160] Jasper Nalbach, Gereon Kremer, and Erika Ábrahám. On variable orderings in MCSAT for non-linear real arithmetic. In *Proc. of the 4th Int. Workshop on Satisfiability Checking and Symbolic Computation (SC^2 2019)*, volume 2460 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2019.

[161] Gereon Kremer, Erika Ábrahám, and Vijay Ganesh. On the proof complexity of MCSAT. In *Proc. of the 4th Int. Workshop on Satisfiability Checking and Symbolic Computation (SC^2 2019)*, volume 2460 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2019.

[162] Rebecca Haehn, Gereon Kremer, and Erika Ábrahám. Evaluation of equational constraints for CAD in SMT solving. In *Proc. of the 3rd Int. Workshop on Satisfiability Checking and Symbolic Computation (SC^2 2018)*, volume 2189 of *CEUR Workshop Proceedings*, pages 19–32. CEUR-WS.org, 2018.

[163] Stefan Schupp and Erika Ábrahám. The HyDRA tool – A playground for the development of hybrid systems reachability analysis methods. In *Proc. of the PhD Symp. at iFM'18 on Formal Methods: Algorithms, Tools and Applications (PhD-iFM'18)*. Research report 483, August 2018, University of Oslo, 2018.

[164] Tarik Viehmann, Gereon Kremer, and Erika Ábrahám. Comparing different projection operators in the cylindrical algebraic decomposition for SMT solving. In *Proc. of the 2nd Int. Workshop on Satisfiability Checking and Symbolic Computation (SC^2 2017)*, volume 1974 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2017.

[165] Erika Ábrahám, Jasper Nalbach, and Gereon Kremer. Embedding the virtual substitution method in the model constructing satisfiability calculus framework. In *Proc. of the 2nd Int. Workshop on Satisfiability Checking and Symbolic Computation (SC^2 2017)*, volume 1974 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2017.

[166] Erika Ábrahám, John Abbott, Bernd Becker, Anna M. Bigatti, Martin Brain, Alessandro Cimatti, James H. Davenport, Matthew England, Pascal Fontaine, Stephen Forrest, Vijay Ganesh, Alberto Griggio, Daniel Kroening, and Werner M. Seiler. SC^2: When satisfiability checking and symbolic computation join forces. In *Proc. of the 1st Int. Workshop on Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements (ARCADE'17)*, volume 51 of *EPiC Series in Computing*, pages 6–10. EasyChair, 2017.

[167] Tim Niemueller, Gerhard Lakemeyer, Francesco Leofante, and Erika Ábrahám. Towards CLIPS-based task execution and monitoring with SMT-based decision optimization. In *Proc. of the 5th Workshop on Planning and Robotics (PlanRob'17)*. Available online http://icaps17.icaps-conference.org/workshops/PlanRob/planrob_proceedings.pdf, 2017.

[168] Christian Dehnert, Sebastian Junges, Nils Jansen, Florian Corzilius, Matthias Volk, Joost-Pieter Katoen, Erika Ábrahám, and Harold Bruintjes. Parameter synthesis for probabilistic systems. In *Proc. of the 19th GI/ITG/GMM Workshop Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (MBMV'16)*, pages 72–74. Albert-Ludwigs-Universität Freiburg, 2016.

[169] Gereon Kremer, Florian Corzilius, and Erika Ábrahám. A generalised branch-and-bound approach and its application in SAT modulo nonlinear integer arithmetic. In *Proc. of the 18th Int. Workshop on Computer Algebra in Scientific Computing (CASC'16)*, volume 9890 of *LNCS*, pages 315–335. Springer-Verlag, 2016.

[170] Xin Chen, Sriram Sankaranarayanan, and Erika Ábrahám. Flow* 1.2: More effective to play with hybrid systems. In *Proc. of the 1st and 2nd Int. Workshop on Applied veRification for Continuous and Hybrid Systems (ARCH'15)*, volume 34 of *EasyChair Proceedings in Computing*, pages 152–159. EasyChair, 2015.

[171] Erika Ábrahám, Costas Bekas, Ivona Brandic, Samir Genaim, Einar Broch Johnsen, Ivan Kondov, Sabri Pllana, and Achim Streit. Preparing HPC applications for exascale: Challenges and recommendations. In *Proc. of the 18th Int. Conf. on Network-Based Information Systems (NbIS'15)*. IEEE Computer Society, 2015.

[172] Johanna Nellen, Erika Ábrahám, Xin Chen, and Pieter Collins. Counterexample generation for hybrid automata. In *Proc. of the 2nd Int. Workshop on Formal Techniques for Safety-Critical Systems (FTSCS'13)*, volume 419 of *Communications in Computer and Information Science*, pages 88–106. Springer-Verlag, 2013.

[173] Yan Zhang, Xin Chen, Sriram Sankaranarayanan, and Erika Ábrahám. Empirical flowpipe constructions for analog circuits. In *Workshop on Frontiers in Analog CAD (FAC'13)*, 2013.

[174] Bettina Braitling, Ralf Wimmer, Bernd Becker, and Erika Ábrahám. Stochastic bounded model checking: Bounded rewards and compositionality. In *Proc. of Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (MBMV'13)*, pages 243–254. Institut für Angewandte Mikroelektronik und Datentechnik, Fakultät für Informatik und Elektrotechnik, Universität Rostock, 2013.

[175] Ralf Wimmer, Nils Jansen, Erika Ábrahám, Joost-Pieter Katoen, and Bernd Becker. Minimal critical subsystems as counterexamples for *omega*-regular DTMC properties. In *Proc. of the 15th Workshop Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (MBMV'12)*, pages 169–180. Verlag Dr. Kovac, 2012.

[176] Johanna Nellen and Erika Ábrahám. Hybrid sequential function charts. In *Proc. of the 15th Workshop Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (MBMV'12)*, pages 109–120. Verlag Dr. Kovac, 2012.

[177] Daniela Lepri, Erika Ábrahám, and Peter Csaba Ölveczky. Timed CTL model checking in Real-Time Maude. In *Proc. of the 9th Int. Workshop on Rewriting Logic and its Applications (WRLA'12)*, volume 7571 of *LNCS*, pages 182–200. Springer-Verlag, 2012.

[178] Muhammad Fadlisyah, Peter Csaba Ölveczky, and Erika Ábrahám. Some like it very hot: Formal modeling and analysis of extreme heat exposure to the human body in HI-Maude. In *Proc. of the 9th Int. Workshop on Rewriting Logic and its Applications (WRLA'12)*, volume 7571 of *LNCS*, pages 139–161. Springer-Verlag, 2012.

[179] Xin Chen, Erika Ábrahám, and Sriram Sankaranarayanan. Taylor model over-approximations for flowpipe/guard intersections. In *5th Int. Workshop on Numerical Software Verification (NSV'12)*, 2012.

13

[180] Xin Chen, Erika Ábrahám, and Goran Frehse. Efficient bounded reachability computation for rectangular automata. In *Proc. of the 5th Workshop on Reachability Problems (RP'11)*, volume 6945 of *LNCS*, pages 139–152. Springer-Verlag, 2011.

[181] Bettina Braitling, Ralf Wimmer, Bernd Becker, Nils Jansen, and Erika Ábrahám. SMT-based counterexample generation for Markov chains. In *Proc. of Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (MBMV'11)*, pages 19–28. OFFIS Oldenburg, 2011.

[182] Bettina Braitling, Ralf Wimmer, Bernd Becker, Nils Jansen, and Erika Ábrahám. SMT-based counterexample generation for discrete-time Markov chains. In *Proc. of Workshop on Rigorous Dependability Analysis using Model Checking Techniques for Stochastic Systems (ROCKS'11)*, 2011.

[183] Thi Mai Thuong Tran, Martin Steffen, and Erika Ábrahám. Inheritance and observability. In *Proc. of the 23rd Nordic Workshop on Programming Theory (NWPT'11)*, Mathematical Structures in Computer Science, 2011.

[184] Muhammad Fadlisyah, Peter Csaba Ölveczky, and Erika Ábrahám. Adaptive-step-size numerical methods in rewriting-logic-based formal analysis of interacting hybrid systems. In *Proc. of the Int. Workshop on Harnessing Theories for Tool Support in Software (TTSS'10)*, volume 274 of *Electronic Notes in Theoretical Computer Science*, pages 17–32. Elsevier Science Publishers, 2011.

[185] Erika Ábrahám, Ulrich Loup, Ralf Wimmer, and Joost-Pieter Katoen. On the minimization of hybrid automata. In *22nd Nordic Workshop on Programming Theory (NWPT'10)*, 2010.

[186] Muhammad Fadlisyah, Erika Ábrahám, and Peter Csaba Ölveczky. Rewriting-logic-based formal modeling and analysis of interacting hybrid systems. In *22nd Nordic Workshop on Programming Theory (NWPT'10)*, 2010.

[187] Daniela Lepri, Peter Csaba Ölveczky, and Erika Ábrahám. Model checking classes of metric LTL properties of object-oriented Real-Time Maude specifications. In *Proc. of the 1st Int. Workshop on Rewriting Techniques for Real-Time Systems (RTRTS'10)*, volume 36 of *Electronic Proceedings in Theoretical Computer Science*, pages 117–136, 2010.

[188] Muhammad Fadlisyah, Erika Ábrahám, Daniela Lepri, and Peter Csaba Ölveczky. A rewriting-logic-based technique for modeling thermal systems. In *Proc. of the 1st Int. Workshop on Rewriting Techniques for Real-Time Systems (RTRTS'10)*, volume 36 of *Electronic Proceedings in Theoretical Computer Science*, pages 82–100, 2010.

[189] Erika Ábrahám, Ulrich Loup, Florian Corzilius, and Thomas Sturm. A lazy SMT-solver for a non-linear subset of real algebra. In *8th Int. Workshop on Satisfiability Modulo Theories (SMT'10)*, 2010.

[190] Kai Bollue, Michaela Slaats, Erika Ábrahám, Wolfgang Thomas, and Dirk Abel. Synthesis of behavioral controllers for DES: Increasing efficiency. In *Proc. of the 10th Int. Workshop on Discrete-Event Systems (WODES'10)*, pages 30–37. IFAC, 2010.

[191] Natalia Kalinnik, Erika Ábrahám, Tobias Schubert, Ralf Wimmer, and Bernd Becker. Exploiting different strategies for the parallelization of an SMT solver. In *Proc. of the 13th Workshop Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (MBMV'10)*, pages 97–106. Fraunhofer Verlag, 2010.

[192] Markus Geimer, Felix Wolf, Brian J. N. Wylie, Erika Ábrahám, Daniel Becker, and Bernd Mohr. The SCALASCA performance toolset architecture. In *Proc. of the Int. Workshop on Scalable Tools for High-End Computing (STHEC'08)*, pages 56–65, 2008.

[193] Felix Wolf, Brian J. N. Wylie, Erika Ábrahám, Daniel Becker, Wolfgang Frings, Karl Fürlinger, Markus Geimer, Marc-André Hermanns, Bernd Mohr, Shirley Moore, Matthias Pfeifer, and Zoltán Szebenyi. Usage of the SCALASCA toolset for scalable performance analysis of large-scale parallel applications. In *Proc. of the 2nd HLRS Parallel Tools Workshop*, pages 157–167. Springer-Verlag, 2008. doi:10.1007/978-3-540-68564-7_10.

[194] Marc Herbstritt, Bernd Becker, Erika Ábrahám, and Christian Herde. On variable selection in SAT-LP-based bounded model checking of linear hybrid automata. In *Proc. of the 10th IEEE Workshop on Design & Diagnostics of Electronic Circuits & Systems (DDECS'07)*, pages 391–396. IEEE Computer Society, 2007.

[195] Erika Ábrahám, Immo Grabe, Andreas Grüner, and Martin Steffen. Abstract interface behavior of an object-oriented language with futures and promises. In *Proc. of the 19th Nordic Workshop on Programming Theory (NWPT'07)*, 2007.

[196] Erika Ábrahám, Marc Herbstritt, Bernd Becker, and Martin Steffen. Bounded model checking with parametric data structures. In *Proc. of the 4th Int. Workshop on Bounded Model Checking (BMC'06)*, volume 174(3) of *Electronic Notes in Theoretical Computer Science*, pages 3–16. Elsevier Science Publishers, 2007.

[197] Erika Ábrahám, Marc Herbstritt, Bernd Becker, and Martin Steffen. Memory-aware bounded model checking for linear hybrid systems. In *Proc. of Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen (MBMV'06)*, pages 153–162. Shaker Verlag, 2006.

[198] Erika Ábrahám, Andreas Grüner, and Martin Steffen. Dynamic heap-abstraction for open, object-oriented systems with thread classes. In *Proc. of the 1st Int. Workshop on the Verification of Concurrent Systems with Dynamic Allocated Heaps (COSMICAH'05)*, pages 47–61. Queen Mary Technical Report RR-05-04, 2005.

[199] Erika Ábrahám, Marcello M. Bonsangue, Frank S. de Boer, and Martin Steffen. Classes, object connectivity, and observability (extended abstract). In *Proc. of the 12th Kolloquium Programmiersprachen und Grundlagen der Programmierung*, 2004.

[200] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. Inductive proof outlines for multithreaded Java with exceptions. In *Proc. of the 12th Kolloquium Programmiersprachen und Grundlagen der Programmierung*, 2004.

[201] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. A tool-supported assertional proof system for multithreaded Java. In *Proc. of the 5th Workshop on Formal Techniques for Java-like Programs (FTfJP'03)*. Appeared as technical report 408 from the ETH Zürich, 2003.

[202] Erika Ábrahám-Mumm, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. Deductive verification for multithreaded Java. In *Proc. of the 11th Kolloquium Programmiersprachen und Grundlagen der Programmierung*, pages 121–126, 2001.

[203] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen. Proof outlines for threads in Java. In *Proc. of the 11th Kolloquium Programmiersprachen und Grundlagen der Programmierung*, 2001.

[204] Jan B. de Meer and Erika Ábrahám-Mumm. Formal methods for reflective system specification. In *Proc. of the 10th GI/ITG-Fachgespräch Formale Beschreibungstechniken für verteilte Systeme*, pages 51–57. Shaker Verlag, 2000.

[205] Jörg Bruske, Erika Ábrahám-Mumm, Josef Pauli, and Gerald Sommer. Head-pose estimation from facial images with subspace neural networks. In *Proc. of the Int. Conf. on Neural Network and Brain (ICNN&B'98)*, pages 528–530. Publishing House of Electronics Industry, 1998.

[206] Jörg Bruske, Erika Ábrahám-Mumm, and Gerald Sommer. Visuomotorische Koordination eines Roboterarmes mit Kohonen-Karten, Neuronalem Gas und Dynamischen Zellstrukturen - Ein Vergleich. In *Proc. of the Workshop Selbstorganisation von Adaptivem Verhalten (SOAVE'97)*, Fortschrittsberichte VDI, Reihe 8, Nr. 663, pages 203–211. VDI Verlag, 1997.

Aprobat prin HS nr. 12 din 27.06.2024