

Martin Georg Fränzle
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Germany



Curriculum Vitae

1 Personal details

Name and title: Dr. rer. nat. Martin Georg Fränzle, Professor

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Date of birth: October 23, 1964
Nationality: German
Marital status: Married since 1989, two children (born 1992 and 1996)

2 Research interests

M. Fränzle's research interests are in modelling, verification, and synthesis of reactive, real-time, and hybrid dynamics in embedded and cyber-physical systems. He has worked on the semantics of high-level modelling and specification languages [12, 28, 31, 33, 41, 90, 91] and on decision problems and their application to verifying and synthesizing real-time and hybrid discrete-continuous systems [18, 23, 25, 27, 48, 68, 89, 70, 106, 111, a.o.], including settings subject to stochastic disturbances [86, 92, 97, 119]. The complexity barrier rapidly hit by such automated verification and synthesis procedures has been attacked through extending bounded model checking to very expressive temporal logics [29, 36, 38], branching-time abstractions [64, 73, 74], and by developing SAT-modulo-theory techniques for arithmetic constraint solving and tailoring them to the specific formulae structures arising in different verification domains [45, 46, 83] and in synthesis [40, 42]. Furthermore, SAT-modulo-theory techniques for arithmetic constraint solving have been extended to the undecidable domain of arithmetic constraints involving transcendental functions [43, 53, 54] and differential

equations [63, 67, 70, 101, 124] as well as to stochastic variants facilitating the fully symbolic analysis of probabilistic hybrid systems [59, 60, 69, 78, 93, 116, 129]. These exhaustive methods have recently been complemented by statistical evaluation methods enhanced by AI planning [97, 103, 119]. Another major line of research deals with robust notions of system correctness, i.e. with the construction of correctness certificates which remain valid under the ubiquitous kinds of disturbances like, e.g., manufacturing tolerances or incomplete information [23, 27, 41, 43, 62, 71, 90, 127, 128]. Fundamental research on these topics has mostly been pursued within large collaborative research projects, like the Transregional Collaborative Research Center SFB-TR 14 AVACS (Automatic Verification and Analysis of Complex Systems, [52]) or recently the Research Training Group DFG GRK 1765 SCARE (System Correctness under Adverse Conditions).

Applied research within, a.o., the projects IMoST (Integrated Modelling for Safe Transportation), SaLSA (Sichere autonome Logistik- und Transportfahrzeuge im Außenbereich), and MoVeS (Modeling, Verification and Control of Complex Systems), as well as within three industrial research contracts with DENSO Automotive, Volkswagen, and Daimler AG addresses industrial application domains, which range from advanced driver assistance systems (IMoST [81, 99, 103], Volkswagen) via self-driving cars (SaLSA [98], DENSO) to demand-response schemes in power supply networks (MoVeS [96, 110]). These lines of applied research are now extended within the Interdisciplinary Research Center Critical Systems Engineering for Socio-Technical Systems, where the safety impact of operator assistance both for maritime and road-bound transportation is investigated in cooperation with the pertinent industry within dedicated living labs.

3 Employment

since 2013/10: Dean of Faculty II: School of Computing Science, Business Administration, Economics, and Law at the Carl von Ossietzky Universität Oldenburg

since 2004/10: Professor (salary scale W 2) at the Department of Computing Science at the Carl von Ossietzky Universität Oldenburg, Germany; head of research group "Hybrid Systems"

2002/08–2004/09: Associate professor in Computer Science and Engineering at the Department of Informatics and Mathematical Modelling at the Technical University of Denmark, Kgs. Lyngby, Denmark.

2000/07–2002/07: German equivalent to an assistant professor (German C 1 scale) at the Department of Computing Science at the Carl von Ossietzky Universität Oldenburg, Germany.

1997/09–2000/06: Post-doctoral researcher at the Department of Computer Science of the Carl von Ossietzky Universität Oldenburg, Germany; member of the research group "Computer Architecture".

1991/03–1997/08: Research assistant at the Institute of Informatics of the Christian-Albrechts-Universität Kiel, Germany; member of the research group "Programming Languages and Compiler Construction".

1989/06–1991/02: Student researcher in the ESPRIT basic research action 3104 "Provably Correct Systems: ProCoS" at the Dpt. of Informatics of the Christian-Albrechts-Universität Kiel.

1985/07–1989/05: Part-time programmer in the Institute of Geography of the Christian-Albrechts-Universität Kiel, designing and implementing algorithms for computer-based cartography and for statistics in geo-ecological research.

1983/06–1992/10: Voluntary service as a paramedic in the ambulance and rescue services at Preetz, Germany.

4 Other affiliations

Since 2014/10: Member of the supervisory board of the PhD programme “Safe Automation of Maritime Systems - SAMS” at Oldenburg University

Since 2013/09: Member of the working group on Harmonization of Pre-Crash Evaluation (PEARS) of the European automotive industry

Since 2013/04: Member of the Interdisciplinary Research Center Critical Systems Engineering for Socio-Technical Systems of Oldenburg University, OFFIS, and DLR Brunswick

Since 2012/10: Co-speaker of the Research Training Group (RTG) SCARE (System Correctness under Adverse Conditions) funded by the German Research Foundation (DFG GRK 1765).

2007–2010: Member of the Virtual Institute DESCAS (Design of Safety Critical Systems) of the Helmholtz Association of German Research Centres
(http://www.dlr.de/fs/desktopdefault.aspx/tabid-4534/7430_read-11178/).

2006/01–2008/12: Velux Visiting Professor at the Technical University of Denmark, Kgs. Lyngby, Denmark

Since 2005/04: Supervisor in the DFG Graduate School on Trustworthy Software Systems (Trustsoft, <http://www.uni-oldenburg.de/trustsoft/en/>)

Since 2004/12: Member of OFFIS Institut für Informatik e.V., Oldenburg, Germany
(<http://www.offis.de/>).

Since 2004/10: Member of the Interdisciplinary Research Center Safety-Critical Systems at the University of Oldenburg, Germany (http://fzsks.uni-oldenburg.de/index_en.html).

Since 2004/08: Project area coordinator within the transregional research center SFB-Transregio 14 “Automatic Verification and Analysis of Complex Systems” (AVACS) for project area Hybrid Systems (<http://www.avacs.org>)

Research stays: Oxford University, UK (multiple short stays between 1989 and 1995; June 2013); Max-Planck-Institut für Dynamik komplexer technischer Systeme, Magdeburg, Germany (April 2000); IT University København, Denmark (Oct. 2000); Verimag, Grenoble, France (March 2001); Institut für Informatik, Universität Freiburg, Germany (multiple short stays since March 2002); Tallinn Technical University, Estonia (May 2004); Universität des Saarlands and Max-Planck-Institut für Informatik, Saarbrücken, Germany (multiple short stays since 2004); Velux Visiting Professor at the Technical University of Denmark, Kgs. Lyngby, Denmark (part-time lecturer Jan. 2006 to Dec. 2008).

5 Education

1970/08–1974/06: Primary school in Aachen-Haaren (August to October 1970) and Schellhorn near Kiel (from November 1970)

1974/08–1983/06: Friedrich-Schiller-Gymnasium Preetz

1983/05: Abitur (approx. A Level)

1983/06–1985/08: Part-time apprenticeship as “Rettungssanitäter” (standard qualification of the paramedics in the German ambulance and rescue services at that time)

10/1983–02/1991: Study of informatics, mathematics, and logics at the Christian-Albrechts-Universität Kiel

- 1985/09–1990/12: Part-time apprenticeship as “Rettungsassistent” (highest qualification available to paramedics in the German ambulance and rescue services)
- 1986/05: Vordiplom (approx. B.Sc.) in informatics from the Dpt. of Informatics at Christian-Albrechts-Universität Kiel; grade: 1.0¹.
- 1990/12: Granted title “Rettungsassistent” by Schleswig-Holstein’s State Ministry of Health after a formal review rated the continued voluntary service and the associated part-time apprenticeship equivalent to a 3-year full-time apprenticeship as a paramedic.
- 1991/02: Diplom (approx. M.Sc.) in informatics from Dpt. of Informatics of the Christian-Albrechts-Universität Kiel; grade: 1.0¹.
Title of diploma thesis: *Specification and verification of a translator for a recursive, occam-like programming language*
- 1997/04: Doctoral degree in natural sciences (Dr. rer. nat.) from the Technical Faculty of the Christian-Albrechts-Universität Kiel; grade: “summa cum laude”.
Title of dissertation: *Controller Design from Temporal Logic: Undecidability Need Not Matter* (submitted Dec. 1996, defence April 1997; reviewers: Hans Langmaack, Wolfgang Thomas, Bengt Jonsson)

6 Awards

- 1983/02: Pupil’s research competition “Jugend Forscht”: second rank at state level (state Schleswig-Holstein, mathematics and computer science section of the competition) plus special prize for computer science research from the Datenzentrale Schleswig-Holstein.
- 1986–1989: Study grant from the Cusanuswerk e.V., Bonn.
- 1998/06: Best-dissertation award from Christian-Albrechts-Universität Kiel.

7 Teaching experience

At Christian-Albrechts-Universität Kiel, 1991–1997

- Summer 1992: Lectures and exercise classes “Introduction to systematic programming” for students in the natural sciences
- Winter 92/93: Exercise classes in “Computer Science III”
- Summer 93: Exercise classes in “Provably correct systems I”
- Winter 93/94: Seminar “Safety-critical systems” (together with H. Langmaack)
- Summer 96: Seminar “Provably Correct Hardware Compilation” (together with H. Langmaack)
- Summer 97: Seminar “Recent research results in programming languages and compiler construction” (together with H. Langmaack)

At Carl von Ossietzky Universität Oldenburg, 1997–2002

- Summer 1998: Advanced lectures on “Automatic controller synthesis from regular languages”
- Summer 1999: Lectures and exercise classes “Design of embedded systems” (together with W. Damm, K. Lüth, and B. Josko).

¹In a scale from 1 (best) to 5 (insufficient).

Summer 2000: Lectures and exercise classes “Safety-critical embedded systems” (together with W. Damm and J. Bohn).

Winter 2000/01: Advanced lectures on “Hybrid systems”.

Summer 2001: Lab course “Design of robotics systems with StateMate” (together with D. Janssen and A. Metzner).

Winter 2001/02: Lectures and exercise classes “Embedded systems I” (entry module of the curriculum in Embedded Systems at Oldenburg).

At the Technical University of Denmark, 2002–2004

Fall 2002: Lectures and exercise classes “Languages and Parsing” (together with M. R. Hansen)

Spring 2003: Lectures and exercise classes “Real-Time Systems”

Spring 2003: Ph.D. course “Advanced Analysis and Verification Techniques” (together with H. R. Nielson and F. Nielson)

Apr. 2003: Research seminar “Safe and Secure IT Systems”

Fall 2003: Lectures and exercise classes “Languages and Parsing” (together with M. R. Hansen)

Fall 2003: Lectures and exercise classes “Distributed Embedded Systems” (together with K. S. Christensen)

Jan. 2004: Lab course “Distributed Embedded Systems” (together with K. S. Christensen)

Spring 2004: Lectures and exercise classes “Real-Time Systems”

Fall 2004: Lectures and exercise classes “Distributed Embedded Systems” (together with K. S. Christensen)

At Carl von Ossietzky Universität Oldenburg, since 2004

Summer 2005: Lectures and exercise classes “Formale Methoden Eingebetteter Systeme” (Formal Methods for Embedded System design)

Summer 2005: Seminar “Hybrid diskret-kontinuierliche eingebettete Systeme” (Hybrid discrete-continuous systems)

Summer 2005: Project group “Car Platooning” (together with W. Damm, A. Metzner, A. Mikschl)

Winter 2005/06: Lectures and exercise classes “Eingebettete Systeme I” (Embedded systems I)

Winter 2005/06: Lectures and exercise classes “Modellbasierte Entwicklung eingebetteter Systeme” (Model-based Design of Embedded Systems; together with B. Josko and H. Hungar)

Winter 2005/06: Project group “Car Platooning” (together with W. Damm, A. Metzner, A. Mikschl)

Summer 2006: Lectures and exercise classes “Eingebettete Systeme II” (Embedded systems II)

Summer 2006: Lectures and exercise classes “Formale Methoden Eingebetteter Systeme” (Formal Methods for Embedded System design)

Winter 2006/07: Lectures and exercise classes “Hybrid diskret-kontinuierliche Systeme” (Hybrid discrete-continuous systems)

Summer 2007: Lectures and exercise classes “Formale Methoden Eingebetteter Systeme” (Formal Methods for Embedded System design)

Summer 2007: Seminar “An der Grenzlinie der Entscheidbarkeit: Berechnungsmodelle zwischen Echtzeit und hybrid diskret-kontinuierlichem Verhalten” (At the borderline of decidability: computational models between real-time and hybrid discrete-continuous dynamics; together with E.-R. Olderog)

Winter 2007/08: Lectures and exercise classes “Compilerbau” (Compiler construction)

Winter 2007/08: Project group “easyDrive - Einfädelungsassistent für Autobahnanschlussstellen” (easyDrive — a lane change assistant for motorway access; together with W. Damm and G. Ehmen)

Summer 2008: Lectures and exercise classes “Formale Methoden Eingebetteter Systeme” (Formal Methods for Embedded System design)

Summer 2008: Project group “easyDrive - Einfädelungsassistent für Autobahnanschlussstellen” (easyDrive — a lane change assistant for motorway access; together with W. Damm and G. Ehmen)

Winter 2008/09: Lectures and exercise classes “Technische Informatik I” (Introduction to Technical Computer Science)

Winter 2008/09: Lectures and seminar “Design of Safety-Critical Automotive Systems”

Winter 2009/10: Lectures and seminar “Mechanismen der automatischen Fahrzeugführung” (Principles of Autonomous Driving)

Winter 2009/10: Seminar “Spielen der Korrektheit wegen: Spiele im Entwurf eingebetteter Systeme” (Game Theory for Synthesis of Embedded Systems)

Summer 2010: Lecture “Formale Methoden eingebetteter Systeme” (Formal Methods for Embedded System design)

Summer 2010: Lecture “Hybride Systeme” (Hybrid Systems)

Summer 2010: Seminar “Automatisierte Techniken für die Analyse komplexer Systeme” (Automatic Analysis of Complex Systems)

Winter 2010/11: Lecture “Technische Informatik I” (Introduction to Technical Computer Science)

Winter 2010/11: Practical course “Quantitatives Model-Checking” (Quantitative Model Checking)

Winter 2010/11: Proseminar “Kooperative und mobile Systeme” (Cooperating and Mobile Ssystems)

Summer 2011: Lecture “Formale Methoden eingebetteter Systeme” (Formal Methods for Embedded System design)

Summer 2011: Lecture “Signal- und Bildverarbeitung” (Signal and Image Processing; first half of semester)

Summer 2011: Student project group “ReACT 2” (autonomous driving in protected spaces; together with A. Hahn and W. Damm)

Winter 2011/12: Lecture “Hybride Systeme” (Hybrid Systems)

Winter 2011/12: Student project group “ReACT 2” (continuation; together with A. Hahn and W. Damm)

Winter 2011/12: Lecture series “IKT zur Energieeffizienz” (IT for Energy Efficiency; together with M. Sonnenschein, S. Lehnhoff, H.-J. Appelrath et al.)

Winter 2011/12: Proseminar “Why Computerized Systems Fail”, held in English

Summer 2012: Lecture “Modellierung und Analyse eingebetteter Systeme” (Formal Methods for Embedded System design), held in English

Summer 2012: Lecture “Signal- und Bildverarbeitung” (Signal and Image Processing; first half of semester)

Winter 2012/13: Lecture “Grundlagen der Technischen Informatik” (Introduction to Technical Computer Science)

Winter 2012/13: Lecture “Hybride Systeme” (Hybrid Systems), held in English

Winter 2012/13: Proseminar “Spielen der Korrektheit wegen” (Game Theory for Design and Analysis of Embedded Systems)

Winter 2012/13: Lecture series “IKT zur Energieeffizienz” (IT for Energy Efficiency; together with M. Sonnenschein, S. Lehnhoff, H.-J. Appelrath et al.)

Summer 2013: Lecture “Modellierung und Analyse eingebetteter Systeme” (Formal Methods for Embedded System design)

Summer 2013: Lecture “Signal- und Bildverarbeitung” (Signal and Image Processing; first half of semester)

Summer 2013: Student project group “MIPSwarm” on autonomous service robotics (together with W. Damm)

Winter 2013/14: Lecture “Grundlagen der Technischen Informatik” (Introduction to Technical Computer Science)

Winter 2013/14: Lecture “Hybride Systeme” (Hybrid Systems)

Winter 2013/14: Student project group “MIPSwarm II” on autonomous service robotics (together with W. Damm)

Summer 2014: Lecture “Signal- und Bildverarbeitung” (Signal and Image Processing; first half of semester)

Winter 2014/15: Lecture “Hybride Systeme” (Hybrid Systems), held in English

Winter 2014/15: Lecture “Modellierung und Analyse eingebetteter Systeme” (Formal Methods for Embedded System Design)

Summer 2015: Lecture “Signal- und Bildverarbeitung” (Signal and Image Processing; first half of semester)

Summer 2015: Lecture and seminar “Autonome Systeme” (Autonomous Systems)

plus

- a permanent group seminar, where BSc, MSc, and PhD students report on the progress of their thesis work,
- the seminar of the transregional research center SFB/TR 14 “Automatic Verification and Analysis of Complex Systems” (AVACS),
- the seminar of the DFG Graduate School on Trustworthy Software Systems (Trustsoft) or — since 2012— its successor System Correctness under Adverse Conditions (SCARE)
- the mentoring programme for BSc and MSc students in CS and MSc students in Embedded Systems and Microrobotics

throughout all the aforementioned semesters.

PhD courses and invited tutorials at various places

- Nov. 2002: Norchip Tutorial “Design and Verification of Embedded Computing Systems” for Scandinavian Ph.D. students, Copenhagen, Denmark (together with J. Madsen)
- May 2004: Summer school “Advanced Topics in Computer Science”, Tallinn Technical University, Tallinn, Estonia
- June 2007: ARTIST2 PhD course “Automated Formal Methods for Embedded Systems”, Technical University of Denmark, Kgs. Lyngby, Denmark (together with S. Perathoner, N. Stoimenov, W. Haid, A. Hamann, R. Racu)
- July 2007: Invited tutorial “Verification of Hybrid Systems” at CAV 2007, Berlin, Germany
- June 2008: ARTIST2 PhD course “Automated Formal Methods for Embedded Systems”, Technical University of Denmark, Kgs. Lyngby, Denmark (together with J. Vain)
- Sept. 2008: Summer school “Verification Technology, Systems & Applications” of the Université franco-allemande, Saarbrücken, Germany (together with C. Barrett, G. Barthe, R. Mateescu, G. Sutre)
- Aug. 2009: Summer school “Modern Computational Science”, Oldenburg, Germany (together with colleagues from the Departments of Physics, Mathematics, Biology, and Marine Sciences)
- Mar. 2010: PhD School Quantitative Model Checking (QMC '10), ITU København, Denmark (Lecture on “Automatic Analysis of Hybrid Systems”)
- Mar. 2010: 1st AVACS Spring School, Oldenburg, Germany (Lecture on “From Efficient SAT Solving to Automatic Analysis of Hybrid Systems”)
- June 2010: International Summer School Modelling and Verification of Parallel Processes (MoVeP 2010), RWTH Aachen, Germany (Lecture on “Bounded Model Checking of Hybrid Systems”)
- Sep. 2010: Summer Camp Informatik — Entfesselte Automaten, Universität des Saarlands, Saarbrücken, Germany (Lecture on “Hybride Systeme”)
- June 2012: 2nd International SAT/SMT Summer School, Fondazione Bruno Kessler, Trento, Italy (Lecture on “SMT modulo Ordinary Differential Equations”)
- Aug. 2012: Summer School Modern Computational Science, Universität Oldenburg, Germany (Lecture on “Interval Methods I & II”)
- Sept. 2012: Invited tutorial “SAT Modulo Ordinary Differential Equations: An Analysis Method for Hybrid Systems” at Chinese Academy of Sciences, Beijing, PR China
- Oct. 2012: ROCKS Autumn School, Kloster Neustift, Varn, Italy (Lecture on “Applications of Hybrid Systems”)
- Apr. 2013: Invited tutorial “Cyber-Physical Systems” at ETAPS 2013, Rome, Italy
- Nov. 2014: Invited tutorial “From Reasoning with Constraints to Mining Constraints” at Beihang University, Beijing, PR China

8 Graduate and undergraduate students

Current Ph.D. students

1. Dipl.-Inform. Christian Ellen, “Integrating Systematic Search and Statistical Model-Checking for Stochastic Satisfiability Modulo Theory”

2. Dipl.-Inform. Sönke Eilers, “Prädiktion und Bahnplanung für sicheres autonomes Fahren” (thesis to be submitted Summer 2015)
3. MSc Gao Yang, “Automatic Analysis of Stochastic Hybrid Systems”
4. MSc Saifullah Khan, “Geometry-Predicting Ad-Hoc Routing Protocols for Car2X Applications”
5. MSc Ahmed Mahdi, “Advancing Software Model-Checking by SMT Interpolation Beyond Decidable Arithmetic”
6. MSc Peter Nazier Mossaad, “Reach Set Computation for Stochastic Delay Differential Equations”
7. MSc Zhazira Oskenbayeva, topic to be confirmed
8. MSc Stella Parisi, “Bewertung der kooperativen Situationswahrnehmung von Brückenbesetzungen”
9. Dipl.-Inform. Stefan Puch, “Co-Simulation in der modellbasierten Entwicklung von Fahrerassistenzsystemen”
10. Dipl.-Inform. Gerald Sauter, “Automatische modellbasierte Bewertung der Sicherheitskritikalität von Mensch-Maschine-Interaktionen”
11. MSc Sven Sieverding, “Test Automation for Embedded Real-Time Systems”

For all the forementioned PhD candidates, I am the first (and in most cases only) supervisor. Furthermore, I am currently co-supervising Liang Zou at the Institute of Software of the Chinese Academy of Sciences and Mohammed Abdelaal, Björn Engelmann, Maher Fakh, Eike Möhlmann, Heinrich Ody, and Man Zhu at the University of Oldenburg.

Former Ph.D. students

1. Dr. rer. nat. Christian Herde, “Efficient Solving of Large Arithmetic Constraint Systems with Complex Boolean Structure — Proof Engines for the Analysis of Hybrid Dynamical Systems” (2010, grade “summa cum laude”)
2. Dr. rer. nat. Tino Teige, “Stochastic Satisfiability Modulo Theory: A Technique for the Analysis of Probabilistic Hybrid Systems” (2012, grade “summa cum laude”)
3. Dr. Nils Müllner, “Unmasking fault tolerance: Quantifying deterministic recovery dynamics in probabilistic environments” (2014, co-supervision)
4. Dr. rer. nat. Bertram Wortelen, “Das Adaptive-Information-Expectancy-Modell zur Aufmerksamkeitssimulation eines kognitiven Fahrermodells” (2014, co-supervision)
5. Dr.-Ing. Andreas Eggers, “Integrating SAT-Modulo-Theory and Safe Integration of ODEs” (2014, grade “summa cum laude”; award of the Engineering Chamber of Lower Saxony 2015)
6. Dr. rer. nat. Christian Kuka, “Qualitätssensitive Datenstromverarbeitung zur Erstellung von dynamischen Kontextmodellen” (2015, co-supervision)
7. M.Tech. Mani Swaminathan, “A Framework for Efficient Symbolic Robust Safety Analysis of Timed Systems” (thesis submitted May 2015)

I furthermore served as chair or reviewer on multiple PhD committees at Oldenburg (more than 20 committees since 2004), as reviewer and committee member at Freiburg (3 committees), Saarbrücken (4 committees), Kgs. Lyngby (1 committee), and Oslo (1 committee), as well as committee member for the Distinguished Dissertation Competition 2013 of the BCS Academy of Computing.

BSc, MSc, and Diploma students. I am permanently supervising BSc and MSc students in the areas of theoretical computer science (especially model checking and SAT/SMT solving), technical computer science (modeling and analysis of hybrid, embedded, and real-time systems), and related applications (in particular autonomous driving, advanced driver assistance, control of power networks). The total number of theses supervised at bachelor's, master's, and diploma student level is around 50.

9 Services in the self-administration of the university, of affiliated institutes, and of collaborative research actions

since 2004/08: Member of the board of the transregional research center SFB-Transregio 14 “Automatic Verification and Analysis of Complex Systems” (AVACS) for project area Hybrid Systems (<http://www.avacs.org>)

since 2004/11: Person in charge for internationalization at the Dpt. of Computing Science, Carl von Ossietzky Universität Oldenburg

2004/11 – 2009/03: Person in charge for federal student support (BAFöG) at the Dpt. of Computing Science, Carl von Ossietzky Universität Oldenburg

2007/01–2013/03: Member of the board of the collaborative research actions IMoST and IMoST II (Integrated Modeling for Safe Transportation; Universität Oldenburg, DLR Brunswick, and OFFIS Institut für Informatik)

Since 2011/03: Member of the university president's panel for advancement of internationalization, Carl von Ossietzky Universität Oldenburg

Since 2011/03: Member of the board of research division Transportation, OFFIS Institut für Informatik, Oldenburg

2011/04–2013/03: Deputy member of the university senate, Carl von Ossietzky Universität Oldenburg

Since 2012/07: Member of the board of the Interdisciplinary Research Center Safety-Critical Systems at the University of Oldenburg

Since 2012/10: Co-speaker of the Research Training Group (RTG) SCARE (System Correctness under Adverse Conditions) funded by the German Research Foundation (DFG GRK 1765).

2013/04–2013/09: Member of the university senate, Carl von Ossietzky Universität Oldenburg

2013/04–2015/03 & 2015/04–today: Member of the university senate's standing committee for the university constitution, Carl von Ossietzky Universität Oldenburg

2013/10–2015/03: Dean of Faculty II: School of Computing Science, Business Administration, Economics, and Law at the Carl von Ossietzky Universität Oldenburg

10 Projects

1. ESPRIT BRA 3014 “ProCoS I — Provably Correct Systems”: Researcher (1989–91).
2. Project “APPLY — ein bedarfsgerechtes und effizientes LISP”, funded by the German Ministry of Research and Technology: Researcher (1991–92).
3. DFG-La 426/13-1 “Echtzeitmodelle (models of real-time)”, funded by the Deutsche Forschungsgemeinschaft: Applicant and researcher (1993–95).

4. ESPRIT BRA 7071 “ProCoS II — Provably Correct Systems”: Contribution to fund-raising (1992) and association to the project (1992–95).
5. DFG-La 426/13-12 “Semantische Modelle, Verfeinerungskonzepte und Beweisregeln für Echtzeitmodelle (semantic models, refinement concepts, and proof rules for real-time models)”, funded by the Deutsche Forschungsgemeinschaft: Applicant and researcher (1993–95).
6. ESPRIT WG 8694 “ProCoS-WG”: Member (1994–97).
7. DFG-Da 206/5-1 “Events I — An event-driven approach to rapid prototyping of embedded control systems”, funded by the Deutsche Forschungsgemeinschaft: Researcher (1997–98).
8. DFG-Da 206/5-2 “Events II”, funded by the Deutsche Forschungsgemeinschaft: Contribution to fund-raising and researcher (1998–2000).
9. DFG-Da 206/5-3 “Events III”, funded by the Deutsche Forschungsgemeinschaft: Contribution to fund-raising (2000).
10. SFB/TR 14/1 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject H1 “Deduction and Automata Based Approaches”: Applicant and subproject coordinator (1.1.2004–31.12.2007)
11. SFB/TR 14/1 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject H2 “Bounded Model Checking and Inductive Verification of Hybrid Systems”: Applicant and subproject leader (1.1.2004–31.12.2007)
12. Velux Visiting Professors Programme (Velux Fonden, Søborg, Denmark, 1.1.2006–31.12.2008): grant for extended research stays at the Technical University of Denmark
13. Collaborative research action “IMoST: Integrated Modelling for Safe Transportation” funded by the State of Lower Saxony: applicant and subproject coordinator (1.1.2007–31.03.2010)
14. Virtual Institute DESCAS (Design of Safety Critical Systems) of the Helmholtz Association of German Research Centres: member 2007-2010 (Az. VH-VI-212)
15. SFB/TR 14/2 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject H1/2 “Constraint-Based Verification for Hybrid Systems”: Applicant and subproject coordinator (1.1.2008–31.12.2011)
16. SFB/TR 14/2 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject H4 “Automatic Verification of Hybrid System Stability”: Applicant and subproject leader (1.1.2008–31.12.2011)
17. SFB/TR 14/2 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject R1 “Beyond Timed Automata”: Applicant and subproject leader (1.1.2008–31.12.2011)
18. “Sichere autonome Logistik- und Transportfahrzeuge im Außenbereich (SaLSA)” together with Götting KG, Fraunhofer Institut für Materialfluss und Logistik IML, Innotec DATA GmbH & Co. KG, IFM electronic GmbH, all Germany (German Ministry of Economics and Labour, Nov. 2009 – Oct. 2012)
19. Collaborative research action “IMoST II: Integrated Modelling for Safe Transportation” funded by the State of Lower Saxony: applicant and subproject coordinator (1.4.2010 – 31.3.2013)
20. EU FP7 STREP “Modelling, verification and control of complex systems: From foundations to power network applications (MoVeS)” under ICT Call 5, together with ETH Zurich, RWTH Aachen, TU Delft, and Politecnico di Milano (Oct. 2010–Sept. 2013)
21. SafeGrid (State of Lower Saxony, 1.4.2011–31.12.2011)

22. SFB/TR 14/3 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject H1/2 “Constraint-Based Verification for Hybrid Systems”: Applicant and subproject coordinator (1.1.2012–31.12.2015)
23. SFB/TR 14/3 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject H4 “Automatic Verification of Hybrid System Stability”: Applicant and subproject leader (1.1.2012–31.12.2015)
24. SFB/TR 14/3 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject R1 “Beyond Timed Automata”: Applicant and subproject leader (1.1.2012–31.12.2015)
25. DFG GRK 1765 “System Correctness Under Adverse Conditions” (SCARE): Applicant and Co-Speaker (1.10.2012 – 31.3.2017)
26. Interdisciplinary Research Center on “Critical Systems Engineering for Socio-Technical Systems” funded by the State of Lower Saxony: applicant and principal investigator in three sub-projects (April 2013 – March 2016)
27. Industrial research contract by DENSO Automotive concerning safety of autonomous driving (May – December 2013)
28. Industrial research contract by Volkswagen Corporate Research concerning use of ancillary information services in advanced driver assistance systems (September 2013 – May 2014, followup contract under negotiation)
29. EU FP 7 “Cooperative mobility solution for supervised platooning (COMPANION)”, together with Volkswagen Group Research, KTH Stockholm, IDIADA Automotive Technology in Spain, S&T Netherlands, and Transportes Cerezuela in Spain (1.10.2013–30.9.2016)
30. SFB/TR 14/3 “Automatic Verification and Analysis of Complex Systems” (AVACS), subproject T1 “Accurate Dead Code Detection in Embedded C Code by Arithmetic Constraint Solving”: Applicant and subproject coordinator (1.1.2014–31.12.2016)
31. Industrial research contract by DENSO Automotive concerning safety of autonomous driving (June 2014 – January 2015)
32. PhD Programme “Safe Automation of Maritime Systems — SAMS”, funded by the State of Lower Saxony: co-applicant (Oct. 2014 – Sept. 2018)
33. Industrial research contract by Daimler AG concerning complexity of embedded system testing (Oct. – Dec. 2014)

11 Services to the scientific community

Recent program committees (last 5 years)

- FORMATS (13th International Conference on Formal Modeling and Analysis of Timed Systems) 2015
- QUEST (12th International Conference on Quantitative Evaluation of SysTems) 2015
- SIMUL (The Seventh International Conference on Advances in System Simulation) 2015
- SEFM (13th International Conference on Software Engineering and Formal Methods) 2015
- SETTA (Symposium on Dependable Software Engineering: Theories, Tools and Applications) 2015 (Publications chair)

- SNR (1st International Workshop on Symbolic and Numerical Methods for Reachability Analysis) 2015
- FFM (Young Researchers' Conference "Frontiers of Formal Methods") 2015
- SKILL (Studierendenkonferenz Informatik) 2015
- HSCC (Hybrid Systems: Computation and Control) 2015
- 2nd International AVACS School 2015 (PC chair and organizing chair)
- ECAI (21st European Conference on Artificial Intelligence) 2014
- FORMATS (12th International Conference on Formal Modeling and Analysis of Timed Systems) 2014
- SIMUL (The Sixth International Conference on Advances in System Simulation) 2014
- MoVeP (School for young researchers about Modelling and Verifying Parallel processes) 2014
- SEFM (12th International Conference on Software Engineering and Formal Methods) 2014
- HSCC (Hybrid Systems: Computation and Control) 2014 (PC Co-Chair)
- TACAS (Tools and Algorithms for the Construction and Analysis of Systems) 2014
- SIMUL (5th International Conference on Advances in System Simulation) 2013
- EMSOFT (13th International Conference on Embedded Software) 2013
- ICTAC (10th International Colloquium on Theoretical Aspects of Computing) 2013
- 3rd Workshop on Hybrid Autonomous Systems, ETAPS 2013
- SEFM (11th International Conference on Software Engineering and Formal Methods) 2013
- SWIM — 5th Small Workshop on Interval Methods 2012 (PC chair and organizing chair)
- SEFM'12 (Tenth International Conference on Software Engineering and Formal Methods) 2012
- EMSOFT (12th International Conference on Embedded Software) 2012
- MoVeP (School for young researchers about Modelling and Verifying Parallel processes) 2012.
- FESCA@ETAPS (Formal Engineering Approaches to Software Components and Architectures) 2011
- FORMATS (9th International Conference on Formal Modeling and Analysis of Timed Systems) 2011
- SEFM'11 (Ninth International Conference on Software Engineering and Formal Methods) 2011
- FSTTCS (31st IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science) 2011
- 1st Workshop on Hybrid Autonomous Systems at ETAPS 2011 (PC chair)
- SMT'11: 9th International Workshop on Satisfiability Modulo Theories, 2011
- SUMo (International Workshop on Scalable and Usable Model Checking for Petri Nets and other models of concurrency) 2010
- iFM (International Conference on integrated Formal Methods) 2010

- CAV (International Conference on Computer Aided Verification) 2010
- HSCC (Hybrid Systems: Computation and Control) 2010
- International Workshop on Modeling and Verification of Uncertain Hybrid Systems at the CPS week 2010
- FESCA@ETAPS (Formal Engineering Approaches to Software Components and Architectures) 2010
- FORMS/FORMAT (Formal Methods for Automation and Safety in Railway and Automotive Systems) 2010
- 1st International AVACS Spring School 2010 (PC chair and organizing chair)

Recent responsibilities as chair or organizer:

- PC chair and organizing chair of the 1st International AVACS Spring School 2010
- PC Chair of the 1st Workshop on Hybrid Autonomous Systems, 2011
- PC chair and organizing chair of the 5th Small Workshop on Interval Methods 2012
- Demo and exhibition chair of CPS Week 2014
- PC chair of HSCC 2014 (together with John Lygeros)
- Co-organizer of Dagstuhl Seminar 14441 “Modeling, Verification, and Control of Complex Systems for Energy Networks”, Oct. 26–31, 2014 (together with Alessandro Abate, Ian Hiskens, Martin Strelec)
- Publications chair of SETTA 2015; member of the SC of SETTA
- PC chair and organizing chair of the 2nd International AVACS School 2015

Reviews for journals

Reviews for numerous journals, among them

- Information and Computation
- Formal Methods in System Design
- Formal Aspects of Computing
- Automatica
- Information Processing Letters
- International Journal of Software and Informatics
- Theory of Computing Systems
- Theoretical Computer Science
- Information Sciences
- Journal of Computer and Systems Sciences
- IEEE Transactions on CAD

- Acta Informatica
- European Journal in Control
- International Journal of Applied Mathematics & Computer Science
- Science of Computer Programming
- Journal of Selected Topics in Signal Processing
- Artificial Intelligence Journal
- Nonlinear Analysis: Hybrid Systems
- Software Tools for Technology Transfer
- Transactions on Computer-Aided Design of Integrated Circuits and Systems

Member of editorial board of the Leibniz International Transactions on Embedded Systems.

Project reviews for national and European science foundations

- Deutsche Forschungsgemeinschaft (DFG), Germany
- Netherlands Organisation for Scientific Research (NWO), The Netherlands
- Agence Nationale Recherche (ANR), France
- EU FP 7
- European Research Council (ERC Starting Grants)
- Icelandic Research Fund
- Swiss National Science Foundation

plus participation in the formal evaluation of the Czech Academy of Sciences.

12 Publications

Chronological list

- [1] Martin Fränzle. Verification of compilers for recursive occam-like languages. ProCoS Technical Report Kiel MF 8/1, Christian-Albrechts-Universität Kiel, Germany, 1990.
- [2] Martin Fränzle. Operational failure approximation. In Dines Bjørner, Hans Langmaack, and C. A. R. Hoare, editors, *Monograph of the ESPRIT BRA 3104 ProCoS (Provably Correct Systems)*, pages 165–206. Technical Report, Dept. of Computer Science, Technical University of Denmark, 1992.
- [3] B. Buth, K.-H. Buth, M. Fränzle, B. von Karger, Y. Lakhneche, H. Langmaack, and M. Müller-Olm. Provably correct compiler development and implementation. In U. Kastens and P. Pfahler, editors, *Compiler Construction*, volume 641 of *Lecture Notes in Computer Science*, pages 141–155. Springer-Verlag, 1992.

- [4] Jonathan P. Bowen, Martin Fränzle, Ernst-Rüdiger Olderog, and Anders P. Ravn. Developing correct systems. In *Proc. 5th Euromicro Workshop on Real-Time Systems, Oulu, Finland*, pages 176–189. IEEE Computer Society Press, June 1993.
- [5] Martin Fränzle and Markus Müller-Olm. Drift and granularity of time in real-time system implementation. ProCoS Technical Report Kiel MF 10/2, Christian-Albrechts-Universität Kiel, Germany, August 1993.
- [6] Martin Fränzle and Burghard von Karger. Proposal for a programming language core for ProCoS II. ProCoS Technical Report Kiel MF 11/3, Christian-Albrechts-Universität Kiel, Germany, August 1993.
- [7] M. R. Hansen, E.-R. Olderog, M. Schenke, M. Fränzle, B. von Karger, M. Müller-Olm, and H. Rischel. A Duration Calculus semantics for real-time reactive systems. ProCoS II document [OLD MRH 1/1], Oldenburg Universität, Germany, September 1993.
- [8] Martin Fränzle and Markus Müller-Olm. Towards provably correct code generation for a hard real-time programming language. In Peter A. Fritzon, editor, *Compiler Construction (CC '94)*, volume 786 of *Lecture Notes in Computer Science*, pages 294–308. Springer Verlag, 1994.
- [9] He Jifeng, C. A. R. Hoare, Martin Fränzle, Markus Müller-Olm, Ernst-Rüdiger Olderog, Michael Schenke, Michael R. Hansen, Anders P. Ravn, and Hans Rischel. Provably correct systems. In H. Langmaack, W.-P. de Roever, and J. Vytupil, editors, *Formal Techniques in Real-Time and Fault-Tolerant Systems (FTRTFT '94)*, volume 863 of *Lecture Notes in Computer Science*, pages 288–335. Springer Verlag, 1994.
- [10] Jonathan Bowen, C. A. R. Hoare, Michael R. Hansen, Anders P. Ravn, Hans Rischel, Ernst-Rüdiger Olderog, Michael Schenke, Martin Fränzle, Markus Müller-Olm, He Jifeng, and Zheng Jianping. Provably correct systems. ProCoS Technical Report COORD JB 7/1, Oxford University Computing Laboratory, September 1994. Tutorial material for the 1994 Formal Techniques in Real-Time and Fault-Tolerant Systems conference (FTRTFT'94).
- [11] Martin Fränzle. Test preorder and refinement. ProCoS Technical Report Kiel MF 16/2, Christian-Albrechts-Universität Kiel, Germany, December 1994.
- [12] Martin Fränzle, Bernhard von Stengel, and Arne Wittmüss. A generalized notion of semantic independence. *Information Processing Letters*, 53:5–9, 1995.
- [13] Martin Fränzle. A discrete model of VLSI dynamics in hybrid control applications. ProCoS Technical Report Kiel MF 17/3, Christian-Albrechts-Universität Kiel, Germany, April 1995.
- [14] Martin Fränzle. From continuity to discreteness — five views of embedded control hardware. ProCoS Technical Report Kiel MF 18/1, Christian-Albrechts-Universität Kiel, Germany, August 1995.
- [15] Martin Fränzle. Duration calculus on time-wise discrete models. ProCoS Technical Report Kiel MF 19/1, Christian-Albrechts-Universität Kiel, Germany, March 1996.
- [16] Martin Fränzle. Decidability of duration calculi on restricted model classes. ProCoS Technical Report Kiel MF 21/1, Christian-Albrechts-Universität Kiel, Germany, July 1996.
- [17] Martin Fränzle. Hardware synthesis from temporal logic: Undecidability need not matter. Position paper, Hardware Synthesis and Verification Workshop, Cornell University, Ithaca, USA, August 1996.
- [18] Martin Fränzle. Synthesizing controllers from duration calculus. In Bengt Jonsson and Joachim Parrow, editors, *FTRTFT '96*, volume 1135 of *Lecture Notes in Computer Science*, pages 168–187. Springer Verlag, 1996.

- [19] Martin Fränzle. *Controller Design from Temporal Logic: Undecidability need not matter*. Dissertation, Technische Fakultät der Christian-Albrechts-Universität Kiel, Germany, 1997.
- [20] Martin Fränzle. Model-checking dense-time duration calculus. In Michael R. Hansen, editor, *Duration Calculus: A Logical Approach to Real-Time Systems*, Workshop proceedings of the 10th European Summer School in Logic, Language and Information, pages 31–40. DFKI Saarbrücken, Germany, August 1998.
- [21] Martin Fränzle and Karsten Lüth. Compiling graphical real-time specifications into silicon. In A. P. Ravn and H. Rischel, editors, *FTRTFT'98*, volume 1486 of *Lecture Notes in Computer Science*, pages 272–281. Springer Verlag, 1998.
- [22] Martin Fränzle and Karsten Lüth. Visual temporal logic as a rapid prototyping tool. In D. Bosnacki, S. Mauw, and T. Willemse, editors, *Proceeding of the first international symposium on Visual Formal Methods VFM'99*, number 99-08 in Computing Science Reports, pages 1–15. Dpt. of Mathematics and Computing Science, Eindhoven University of Technology, 1999.
- [23] Martin Fränzle. Analysis of hybrid systems: An ounce of realism can save an infinity of states. In Jörg Flum and Mario Rodríguez-Artalejo, editors, *Computer Science Logic (CSL'99)*, volume 1683 of *Lecture Notes in Computer Science*, pages 126–140. Springer Verlag, 1999.
- [24] Martin Fränzle, Wolfgang Goerigk, Burghard von Karger, and Markus Müller-Olm. Beyond ProCoS at Kiel: A synopsis of recent research. In *ProCoS WG Workshop at FM'99*, pages 1–17. Springer electronic media, September 1999. Available from the FM'99 CD-Rom.
- [25] Martin Fränzle and Markus Müller-Olm. Compilation and synthesis for real-time embedded controllers. In Ernst-Rüdiger Olderog and Bernhard Steffen, editors, *Correct System Design — Recent Insights and Advances*, volume 1710 of *Lecture Notes in Computer Science*, pages 256–287. Springer Verlag, 1999.
- [26] Herman Ågren, Martin Fränzle, and Rainer Lochmann. Prover-based bounded model-checking and inductive verification of SMI models. Confidential technical report, Universität Oldenburg and Prover AB, 2000.
- [27] Martin Fränzle. What will be eventually true of polynomial hybrid automata. In Naoki Kobayashi and Benjamin C. Pierce, editors, *Theoretical Aspects of Computer Software (TACS 2001)*, volume 2215 of *Lecture Notes in Computer Science*, pages 340–359. Springer Verlag, 2001.
- [28] Martin Fränzle and Karsten Lüth. Visual temporal logic as a rapid prototyping tool. *Computer Languages*, 27(1–3):93–113, 2001.
- [29] Martin Fränzle. Take it NP-easy: Bounded model construction for duration calculus. In Ernst-Rüdiger Olderog and Werner Damm, editors, *International Symposium on Formal Techniques in Real-Time and Fault-Tolerant systems (FTRTFT 2002)*, volume 2469 of *Lecture Notes in Computer Science*, pages 245–264. Springer Verlag, 2002.
- [30] Martin Fränzle and Christian Herde. Efficient SAT engines for concise logics: Accelerating proof search for zero-one linear constraint systems. In M. Vardi and A. Voronkov, editors, *Logic for Programming, Artificial Intelligence, and Reasoning (LPAR 2003)*, volume 2850 of *Lecture Notes in Computer Science (subseries LNAI)*. Springer Verlag, 2003.
- [31] Martin Fränzle, Jürgen Niehaus, Alexander Metzner, and Werner Damm. A semantics for distributed execution of STATEMATE. *Formal Aspects of Computing*, 15(4):390–405, 2003.
- [32] Bernd Becker, Markus Behle, Fritz Eisenbrand, Martin Fränzle, Marc Herbstritt, Christian Herde, Jörg Hoffmann, Daniel Kröning, Bernhard Nebel, Ilia Polian, and Ralf Wimmer. Bounded model checking and inductive verification of hybrid discrete-continuous systems. In Dominik Stoffel and Wolfgang Kunz, editors, *GI/ITG/GMM Workshop "Methoden*

und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systeme”, pages 65–75. Universität Kaiserslautern, Shaker Verlag, February 2004.

- [33] Martin Fränzle. Model-checking dense-time duration calculus. *Formal Aspects of Computing*, 16(2):121–139, 2004.
- [34] Martin Fränzle. Towards a model for project area H — a blend of minutes from various discussions. AVACS technical report, Informatics and Mathematical Modelling, Technical University of Denmark, February 2004.
- [35] Martin Fränzle. A draft model for project area H. AVACS technical report, Informatics and Mathematical Modelling, Technical University of Denmark, March 2004.
- [36] Martin Fränzle and Christian Herde. Efficient proof engines for bounded model checking of hybrid systems. In *Proceedings of the Ninth International Workshop on Formal Methods for Industrial Critical Systems (FMICS 04)*, Electronic Notes in Theoretical Computer Science (ENTCS). Elsevier, 2004.
- [37] Martin Fränzle and Michael R. Hansen. A robust interpretation of duration calculus. In Paul Pettersson and Wang Yi, editors, *Proceedings of the 16th Nordic Workshop on Programming Theory (NWPT 04)*, pages 83–85. Dept. of Information Technology, Uppsala University, 2004.
- [38] Jacob Enslev, Anne-Sofie Nielsen, Martin Fränzle, and Michael R. Hansen. Bounded model construction for duration calculus. In Neil Jones et al., editors, *Proceedings of the 17th Nordic Workshop on Programming Theory (NWPT 05)*. Københavns Universitet, October 2005.
- [39] Mani Swaminathan and Martin Fränzle. Automatic and scalable verification of robust real-time systems. In Neil Jones et al., editors, *Proceedings of the 17th Nordic Workshop on Programming Theory (NWPT 05)*. Københavns Universitet, October 2005.
- [40] A. Metzner, M. Fränzle, C. Herde, and I. Stierand. Scheduling Distributed Real-Time Systems by Satisfiability Checking. In *Proceedings of the IEEE Conference on Embedded and Real-Time Computing Systems and Applications*, pages 409–415. IEEE, 2005.
- [41] Martin Fränzle and Michael R. Hansen. A robust interpretation of duration calculus. In *Proceedings of the International Colloquium on Theoretical Aspects of Computing (ICTAC 05)*, volume 3722 of *LNCS*, pages 257–271. Springer Verlag, 2005.
- [42] A. Metzner, M. Fränzle, C. Herde, and I. Stierand. An Optimal Approach to the Task Allocation Problem on Hierarchical Architectures. In *Proceedings of the 20th IEEE International Parallel and Distributed Processing Symposium*. IEEE, 2006.
- [43] Martin Fränzle, Christian Herde, Stefan Ratschan, Tobias Schubert, and Tino Teige. Interval constraint solving using propositional SAT solving techniques. In *Proceedings of the CP 2006 First International Workshop on the Integration of SAT and CP Techniques*, pages 81–95. Microsoft Research, 2006.
- [44] Bahareh Badban, Martin Fränzle, Jan Peleska, and Tino Teige. Test automation for hybrid systems. In *Proceedings of the Third International Workshop on SOFTWARE QUALITY ASSURANCE (SOQUA 2006)*, pages 14–21. ACM, 2006.
- [45] Martin Fränzle and Christian Herde. HySAT: An efficient proof engine for bounded model checking of hybrid systems. *Formal Methods in System Design*, 30:179–198, 2007.
- [46] Erika Ábrahám, Tobias Schubert, Bernd Becker, Martin Fränzle, and Christian Herde. Parallel SAT solving in bounded model checking. In *Formal Methods: Applications and Technology, Proceedings of the 5th international workshop on Parallel and Distributed Methods in verification (PDMC)*, volume 4346 of *Lecture Notes in Computer Science*, pages 301–315. Springer Verlag, 2007.

- [47] Mani Swaminathan and Martin Fränzle. A symbolic decision procedure for robust safety of timed systems. In *Proceedings of the 14th International Symposium on Temporal Representation and Reasoning (TIME 2007)*, page 192. IEEE, 2007.
- [48] Martin Fränzle and Michael R. Hansen. Deciding an interval logic with accumulated durations. In Orna Grumberg and Michael Huth, editors, *Proceedings of the Thirteenth International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 07)*, volume 4424 of *Lecture Notes in Computer Science*, pages 201–215. Springer Verlag, 2007.
- [49] Martin Fränzle, Hardi Hungar, Christian Schmitt, and Boris Wirtz. Hlang: Compositional representation of hybrid systems via predicates. Reports of SFB/TR 14 AVACS 20, SFB/TR 14 AVACS, July 2007. ISSN: 1860-9821, <http://www.avacs.org>.
- [50] Martin Fränzle. Verification of hybrid systems. In Werner Damm and Holger Hermanns, editors, *Computer Aided Verification (CAV 07)*, volume 4590 of *Lecture Notes in Computer Science*, page 38. Springer Verlag, 2007. Abstract for invited tutorial.
- [51] Joost-Pieter Katoen, Mani Swaminathan, and Martin Fränzle. Symbolic robustness analysis for probabilistic timed automata. In Einar Broch Johnsen, Olaf Owe, and Gerardo Schneider, editors, *Proceedings of the 19th Nordic Workshop on Programming Theory*, pages 38–39, Oslo, Norway, October 2007. Oslo University Press.
- [52] Bernd Becker, Werner Damm, Martin Fränzle, Ernst-Rüdiger Olderog, Andreas Podelski, and Reinhard Wilhelm. SFB/TR 14 AVACS – automatic verification and analysis of complex systems. *it – Information Technology*, 49(2):118–126, 2007.
- [53] Martin Fränzle, Christian Herde, Stefan Ratschan, Tobias Schubert, and Tino Teige. Efficient solving of large non-linear arithmetic constraint systems with complex Boolean structure. *Journal on Satisfiability, Boolean Modeling and Computation*, 1:209–236, 2007.
- [54] T. Teige, C. Herde, M. Fränzle, N. Kalinnik, and A. Eggers. A Generalized Two-watched-literal Scheme in a mixed Boolean and Non-linear Arithmetic Constraint Solver. In José Neves, Manuel Filipe Santos, and José Manuel Machado, editors, *Proceedings of the 13th Portuguese Conference on Artificial Intelligence (EPIA 2007)*, New Trends in Artificial Intelligence, pages 729–741. APPIA, December 2007.
- [55] Tino Teige, Christian Herde, Martin Fränzle, and Erika Ábrahám. Conflict analysis and restarts in a mixed boolean and non-linear arithmetic constraint solver. Reports of SFB/TR 14 AVACS 34, SFB/TR 14 AVACS, January 2008. ISSN: 1860-9821, <http://www.avacs.org>.
- [56] M. Fränzle, H. Hermanns, and T. Teige. Stochastic Satisfiability Modulo Theory: A Novel Technique for the Analysis of Probabilistic Hybrid Systems. In Alessandro Aldini and Christel Baier, editors, *Pre-Proceedings of the ETAPS 2008 Sixth Workshop on Quantitative Aspects of Programming Languages (QAPL 2008)*, 2008.
- [57] Andreas Eggers, Martin Fränzle, and Christian Herde. SAT modulo ODE: A direct SAT approach to hybrid systems. Reports of SFB/TR 14 AVACS 37, SFB/TR 14 AVACS, April 2008. ISSN: 1860-9821, <http://www.avacs.org>.
- [58] Christian Herde, Andreas Eggers, Martin Fränzle, and Tino Teige. Analysis of hybrid systems using HySAT. In *Proceedings of the Third International Conference on Systems (ICONS 2008)*, pages 196–201. IEEE Computer Society, 2008.
- [59] Martin Fränzle, Holger Hermanns, and Tino Teige. Stochastic satisfiability modulo theory: A novel technique for the analysis of probabilistic hybrid systems. In Magnus Egerstedt and Bud Mishra, editors, *Proceedings of Hybrid Systems: Computation and Control (HSCC'08)*, volume 4981 of *Lecture Notes in Computer Science*, pages 172–186. Springer Verlag, 2008.

- [60] T. Teige and M. Fränzle. Stochastic Satisfiability modulo Theories for Non-linear Arithmetic. In L. Perron and M. A. Trick, editors, *Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems, 5th International Conference, CPAIOR 2008*, volume 5015 of *Lecture Notes in Computer Science*, pages 248–262. Springer, 2008.
- [61] Stefan Kupferschmid, Tino Teige, Bernd Becker, and Martin Fränzle. Proofs of unsatisfiability for mixed boolean and non-linear arithmetic constraint formulae. Reports of SFB/TR 14 AVACS 40, SFB/TR 14 AVACS, June 2008. ISSN: 1860-9821, <http://www.avacs.org>.
- [62] Mani Swaminathan, Martin Fränzle, and Joost-Pieter Katoen. The surprising robustness of (closed) timed automata against clock-drift. In Giorgio Ausiello, Juhani Karhumäki, Giancarlo Mauri, and C.-H. Luke Ong, editors, *Fifth IFIP International Conference on Theoretical Computer Science*, volume 273 of *IFIP International Federation for Information Processing*, pages 537–553. Springer, 2008. ISBN: 978-0-387-09679-7.
- [63] Andreas Eggers, Martin Fränzle, and Christian Herde. SAT modulo ODE: A direct SAT approach to hybrid systems. In Sungdeok (Steve) Cha, Jin-Young Choi, Moonzoo Kim, Insup Lee, and Mahesh Viswanathan, editors, *Proceedings of the 6th International Symposium on Automated Technology for Verification and Analysis (ATVA'08)*, volume 5311 of *Lecture Notes in Computer Science*, pages 171–185. Springer, 2008. ISBN: 978-3-540-88386-9.
- [64] Martin Fränzle and Michael R. Hansen. Efficient model checking for duration calculus based on branching-time approximations. In Antonio Cerone and Stefan Gruner, editors, *Proceedings of the 6th IEEE International Conferences on Software Engineering and Formal Methods (SEFM 08)*, pages 63–72. IEEE Computer Society Press, 2008.
- [65] Martin Fränzle. Engineering constraint solvers for the analysis of hybrid systems. In *20th Nordic Workshop on Programming Theory, NWPT '08*, page 9. Institute of Cybernetics, Tallinn Technical University, 2008.
- [66] Stefan Kupferschmid, Tino Teige, Bernd Becker, and Martin Fränzle. Proofs of unsatisfiability for mixed boolean and non-linear arithmetic constraint formulae. In Carsten Gremzow and Nico Moser, editors, *Proceedings of the 12th Workshop "Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen" (MBMV 2009)*, pages 27–36. Universitätsverlag TU Berlin, 2009.
- [67] Martin Fränzle, Andreas Eggers, Christian Herde, and Tino Teige. Hybrid discrete-continuous systems. In *Modern Computational Science 09*, pages 363–378. BIS-Verlag der Carl von Ossietzky Universität Oldenburg, 2009.
- [68] Martin Fränzle and Mani Swaminathan. Revisiting decidability and optimum reachability for multi-priced timed automata. In J. Ouaknine and F. Vaandrager, editors, *The 7th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS 2009)*. Springer Verlag, September 2009.
- [69] Tino Teige and Martin Fränzle. Constraint-based analysis of probabilistic hybrid systems. In A. Giua, C. Mahulea, M. Silva, and J. Zaytoon, editors, *Proceedings of the 3rd IFAC Conference on Analysis and Design of Hybrid Systems (ADHS 2009)*, pages 162–167. IFAC, 2009.
- [70] Andreas Eggers, Martin Fränzle, and Christian Herde. Application of constraint solving and ode-enclosure methods to the analysis of hybrid systems. In Theodore E. Simos, George Psihoyios, and Ch. Tsitouras, editors, *NUMERICAL ANALYSIS AND APPLIED MATHEMATICS: International Conference on Numerical Analysis and Applied Mathematics 2009*, volume 1168 of *AIP Conference Proceedings*, pages 1326–1330, Melville, New York, 2009. American Institute of Physics. ©American Institute of Physics.
- [71] Gerald Sauter, Henning Dierks, Martin Fränzle, and Michael R. Hansen. Light-weight hybrid model checking facilitating online prediction of temporal properties. In *Proceedings of the 21st*

- [72] Gerald Sauter, Henning Dierks, Martin Fränzle, and Michael R. Hansen. Light-weight hybrid model checking facilitating online prediction of temporal properties. Imost technical report, Carl von Ossietzky Universität Oldenburg, 2009. <http://imost.informatik.uni-oldenburg.de>.
- [73] William Pihl Heise, Michael R. Hansen, and Martin Fränzle. A prototype of a model checker for duration calculus. In *Proceedings of the 21st Nordic Workshop on Programming Theory, NWPT '09*, pages 26–28, Kgs. Lyngby, Denmark, 2009. DTU Informatics, Danmarks Tekniske Universitet.
- [74] Martin Fränzle and Michael R. Hansen. Efficient model checking for duration calculus. *International Journal of Software and Informatics*, 3(2–3):171–196, 2009.
- [75] Jan Gacnic, Henning Jost, Frank Köster, Jürgen Rataj, Karsten Lemmer, Werner Damm, Martin Fränzle, and Eckehard Schnieder. DeSCAS – formale ontologien zur verwebung von interdisziplinären entwicklungsprozessen. In *AUTOMATION 2009 – Der Automatisierungskongress in Deutschland*, number 2067 in VDI-Berichte/VDI-Tagungsbände, pages 449–453, Düsseldorf, 6 2009. VDI Verlag. Umfang der beigef. CD-ROM Version: 12 Seiten.
- [76] Tino Teige and Martin Fränzle. Resolution for stochastic Boolean satisfiability. In Christian Fermüller and Andrei Voronkov, editors, *Logic for Programming, Artificial Intelligence, and Reasoning, 17th International Conference (LPAR-17)*, volume 6397 of *Lecture Notes in Computer Science*, pages 625–639. Springer, 2010.
- [77] Martin Fränzle, Tino Teige, and Andreas Eggers. Satisfaction meets expectations: Computing expected values of probabilistic hybrid systems with smt. In Dominique Méry and Stephan Merz, editors, *Integrated Formal Methods 2010*, volume 6396 of *Lecture Notes in Computer Science*, pages 168–182. Springer, 2010.
- [78] Martin Fränzle, Tino Teige, and Andreas Eggers. Engineering constraint solvers for automatic analysis of probabilistic hybrid automata. *Journal of Logic and Algebraic Programming*, 79:436–466, 2010.
- [79] Stefan Puch, Gerald Sauter, and Martin Fränzle. HLA-basierte Kosimulation domänentypischer Simulatoren. Technical report, Carl von Ossietzky Universität Oldenburg, 2010.
- [80] Jan Gacnik, Henning Jost, Frank Köster, and Martin Fränzle. The DeSCAS Methodology and Lessons Learned on Applying Formal Reasoning to Safety Domain Knowledge. In Eckehard Schnieder and Géza Tarnai, editors, *Proceedings of the 8th Symposium on Formal Methods for Automation and Safety in Railway and Automotive Systems (FORMS/FORMAT 2010)*, 2010.
- [81] Martin Fränzle, Tayfun Gezgin, Hardi Hungar, Stefan Puch, and Gerald Sauter. Using guided simulation to assess driver assistance systems. In E. Schnieder and G. Tarnai, editors, *Proc. FORMS/FORMAT 2010*, 2010.
- [82] Tino Teige and Martin Fränzle. Generalized Craig interpolation for stochastic Boolean satisfiability problems. Reports of SFB/TR 14 AVACS 67, SFB/TR 14 AVACS, March 2011. ISSN: 1860-9821, <http://www.avacs.org>.
- [83] Erika Ábrahám, Tobias Schubert, Bernd Becker, Martin Fränzle, and Christian Herde. Parallel SAT solving in bounded model checking. *Journal of Logic and Computation*, 21:5–21, 2011.
- [84] Stefan Kupferschmid, Bernd Becker, Tino Teige, and Martin Fränzle. Proof certificates and non-linear arithmetic constraints. In *Proceedings of the 14th IEEE Symposium on Design and Diagnostics of Electronic Circuits and Systems (DDECS 2011)*. IEEE, 2011.

- [85] Tino Teige and Martin Fränzle. Generalized Craig interpolation for stochastic Boolean satisfiability problems. In Parosh Aziz Abdulla and K. Rustan M. Leino, editors, *Proceedings of the Seventeenth International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, volume 6605 of *Lecture Notes in Computer Science*, pages 158–172. Springer, 2011.
- [86] Tino Teige, Andreas Eggers, and Martin Fränzle. Constraint-based analysis of concurrent probabilistic hybrid systems: An application to networked automation systems. *Nonlinear Analysis: Hybrid Systems*, 5(2):343–366, May 2011.
- [87] Martin Fränzle, Tayfun Gezgin, Hardi Hungar, Stefan Puch, and Gerald Sauter. Predicting the effect of driver assistance via simulation. In P.C. Cacciabue, M. Hjalmdahl, A. Lüdtke, and C. Riccioli, editors, *Human Modelling in Assisted Transportation*, pages 299–306. Springer, 2011.
- [88] Nam Thang Dinh, Martin Fränzle, and Andreas Eggers. AVACS H1/2 8-year benchmark: Analyzing traffic models with iSAT. Reports of SFB/TR 14 AVACS 81, SFB/TR 14 AVACS, July 2011. ISSN: 1860-9821, <http://www.avacs.org>.
- [89] Andreas Eggers, Nacim Ramdani, Nediialko S. Nediialkov, and Martin Fränzle. Improving SAT modulo ODE for hybrid systems analysis by combining different enclosure methods. In *Proceedings of the Ninth International Conference on Software Engineering and Formal Methods (SEFM)*, volume 7041 of *Lecture Notes in Computer Science*, pages 172–187. Springer, 2011.
- [90] J.-D. Quesel, M. Fränzle, and W. Damm. Crossing the bridge between similar games. In Stavros Tripakis and Uli Fahrenberg, editors, *Formal Modeling and Analysis of Timed Systems - 9th International Conference (FORMATS)*, Aalborg, Denmark, 21-23 September, 2011. *Proceedings*, volume 6919 of *LNCS*, pages 160–176. Springer, Sep. 2011.
- [91] Martin Fränzle and Christian Lengauer. Semantic independence. In David Padua et al., editors, *Encyclopedia of Parallel Computing*, pages 1803–1810. Springer-Verlag, sep 2011.
- [92] Martin Fränzle, Ernst Moritz Hahn, Holger Hermanns, Nicolás Wolovick, and Lijun Zhang. Measurability and safety verification for stochastic hybrid systems. In *Proceedings of the 14th international conference on Hybrid systems: computation and control*, HSCC '11, pages 43–52, New York, NY, USA, 2011. ACM.
- [93] Tino Teige and Martin Fränzle. Generalized Craig interpolation for stochastic Boolean satisfiability problems with applications to probabilistic state reachability and region stability. *Logical Methods in Computer Science*, 8(2):1–32, 2012.
- [94] Andreas Eggers, Nacim Ramdani, Nediialko S. Nediialkov, and Martin Fränzle. Set-membership estimation of hybrid systems via SAT modulo ODE. In Michel Kinnaert, editor, *Proceedings of the 16th IFAC Symposium on System Identification*, pages 440–445. The International Federation of Automatic Control (IFAC), 2012.
- [95] Stefan Puch, Martin Fränzle, Jan-Patrick Osterloh, and Christoph Läsche. Rapid virtual-human-in-the-loop simulation with the high level architecture. In A. Bruzzone, editor, *Proceedings of Summer Computer Simulation Conference 2012 (SCSC 2012)*, volume 44, pages 44–50, Genua, 07 2012. The Society for Modeling & Simulation International (SCS), Curran Associates, Inc.
- [96] Christian Ellen, Martin Fränzle, Sebastian Gerwinn, and Nils Müllner. Modeling TCL via DTMC. In *Joint Workshop on Compositional Modelling and Analysis of Quantitative Systems*. Scottish Informatics & Computer Science Alliance, 09 2012.
- [97] Christian Ellen, Sebastian Gerwinn, and Martin Fränzle. Confidence bounds for statistical model checking of probabilistic hybrid systems. In Marcin Jurdziński and Dejan Nickovic,

editors, *Proceedings of the 10th International Conference on Formal Modeling and Analysis of Timed Systems (FORMATS)*, volume 7595 of *LNCS*, pages 123–138. Springer, 2012.

- [98] Sönke Eilers, Sebastian Gerwinn, Martin Fränzle, Christian Kuka, Sören Schweiger, and Tobe Toben. An autonomous vehicle design for safe operation in heterogeneous environments. In John Fitzgerald, Terrence Mak, Alexander Romanovsky, and Alex Yakovlev, editors, *Proceedings of The CONCUR '12 Workshop on Trustworthy Cyber-Physical Systems*, Technical Report Series, pages 31 – 37, 2012.
- [99] Stefan Puch, Bertram Wortelen, Martin Fränzle, and Thomas Peikenkamp. Using guided simulation to improve a model-based design process of complex human machine systems. In M. Klumpp, editor, *ESM'2012 - The 2012 European Simulation And Modelling Conference*, pages 159–164, Essen, 10 2012. EUROSIS-ETI.
- [100] Martin Fränzle. An introduction to interval methods. In Reinhard Leidl and Alexander Hartmann, editors, *Modern Computational Science*. Oldenburger Universitätsverlag, 2012.
- [101] Andreas Eggers, Nacim Ramdani, Nediialko S. Nediialkov, and Martin Fränzle. Improving the SAT modulo ODE approach to hybrid systems analysis by combining different enclosure methods. *Software and Systems Modeling*, 2012.
- [102] Nils Müllner, Oliver Theel, and Martin Fränzle. Combining decomposition and reduction for state space analysis of a self-stabilizing system. In *Proceedings of the 2012 IEEE 26th International Conference on Advanced Information Networking and Applications*, pages 936 – 943. IEEE Computer Society, March 2012.
- [103] Stefan Puch, Bertram Wortelen, Martin Fränzle, and Thomas Peikenkamp. Evaluation of drivers interaction with assistant systems using criticality driven guided simulation. In *HCI International 2013 Conference Proceedings*, 2013.
- [104] Sönke Eilers, Jürgen Boger, and Martin Fränzle. A path planning framework for autonomous vehicles. In *9th International Workshop on Robot Motion and Control*. IEEE, 2013.
- [105] Maher Fakh, Kim Grüttner, Martin Fränzle, and Achim Rettberg. Exploiting segregation in bus-based MPSoCs to improve scalability of model-checking-based performance analysis for SDFAs. In *International Embedded Systems Symposium (IESS)*, 2013.
- [106] Maher Fakh, Kim Grüttner, Martin Fränzle, and Achim Rettberg. Towards performance analysis of sdfgs mapped to shared-bus architectures using model-checking. In *Proceedings of the Conference on Design, Automation and Test in Europe (DATE) 2013*, Leuven, Belgium, 2013. European Design and Automation Association.
- [107] Nils Müllner, Oliver Theel, and Martin Fränzle. Combining decomposition and reduction for the state space analysis of self-stabilizing systems. *Journal of Computer and System Sciences (JCSS)*, 79:1113–1125, 2013.
- [108] Martin Fränzle and Antonios Tsourdos, editors. *Proceedings of the first workshop on Hybrid Autonomous Systems*, volume 297 of *Electronic Notes in Theoretical Computer Science*. Elsevier Science B.V., 2013.
- [109] Martin Fränzle and Antonios Tsourdos. Preface. In *Proceedings of the first workshop on Hybrid Autonomous Systems* [108], pages 1–2.
- [110] Maryam Kamgarpour, Christian Ellen, Sadegh Esmaeil Zadeh Soudjani, Sebastian Gerwinn, Johanna L. Mathieu, Nils Müllner, Alessandro Abate, Duncan S. Callaway, Martin Fränzle, and John Lygeros. Modeling options for demand side participation of thermostatically controlled loads. In *2013 IREP Symposium-Bulk Power System Dynamics and Control — IX*, Rethymnon, Greece, 2013. IEEE.

- [111] Liang Zou, Naijun Zhan, Shuling Wang, Martin Fränzle, and Shengchao Qin. Verifying Simulink diagrams via a hybrid Hoare logic prover. In Rolf Ernst and Oleg Sokolsky, editors, *Proceedings of the 13th International Conference on Embedded Software (EMSOFT)*. ACM, 2013.
- [112] Maher Fakhri, Kim Grüttner, Martin Fränzle, and Achim Rettberg. Multicore performance analysis of a multi-phase electrical motor controller. In *Proceedings of the Embedded Real Time Software and Systems Congress (ERTS²)*, 2014.
- [113] Mohamed Abdelaal, Yang Gao, Martin Fränzle, and Oliver Theel. Eavs: Energy aware virtual sensing for wireless sensor networks. In *ISSNIP 2014 - Symposium on Sensor Networks*, pages 1–6. IEEE, 2014.
- [114] Martin Fränzle and John Lygeros, editors. *Proceedings of the 17th International Conference on Hybrid Systems: Computation and Control*. ACM, April 2014.
- [115] Ahmed Mahdi, Bernd Westphal, and Martin Fränzle. Transformations for compositional verification of assumption-commitment properties. In Joel Ouaknine and James Worrell, editors, *Proceedings of the 8th International Workshop on Reachability Problems, RP 2014*, volume 8762 of *Lecture Notes in Computer Science*. Springer-Verlag, 2014.
- [116] Ahmed Mahdi and Martin Fränzle. Generalized Craig interpolation for stochastic satisfiability modulo theory problems. In Joel Ouaknine and James Worrell, editors, *Proceedings of the 8th International Workshop on Reachability Problems, RP 2014*, volume 8762 of *Lecture Notes in Computer Science*, pages 203–215. Springer-Verlag, 2014.
- [117] Nils Müllner, Oliver Theel, and Martin Fränzle. Composing thermostatically controlled loads to determine the reliability against blackouts. In *Proceedings of the 10th International Symposium on Frontiers of Information Systems and Network Applications (FINA2014)*, pages 334–341, May 2014.
- [118] Nils Müllner, Oliver Theel, and Martin Fränzle. Combining decomposition and lumping to evaluate semi-hierarchical systems. In *Proceedings of the 28th IEEE International Conference on Advanced Information Networking and Applications (AINA2014)*, pages 1049–1056, May 2014.
- [119] Christian Ellen, Sebastian Gerwin, and Martin Fränzle. Statistical model checking for stochastic hybrid systems involving nondeterminism over continuous domains. *International Journal on Software Tools for Technology Transfer*, pages 1–20, 2014.
- [120] Maher Fakhri, Kim Grüttner, Martin Fränzle, and Achim Rettberg. State-based real-time analysis of SDF applications on multi-cores. In *1st International Workshop on Investigating Dataflow in Embedded computing Architecture (IDEA)*, January 2015.
- [121] Nils Müllner, Martin Fränzle, and Sibylle Fröschle. Estimating the probability of a timely traffic-hazard warning via simulation. In *Proceedings of the 48th Annual Symposium on Simulation (AnSS2015)*, Washington DC, USA, April 2015. IEEE Computer Society Press.
- [122] Alessandro Abate, Martin Fränzle, Ian Hiskens, and Martin Strelec, editors. *Report from Dagstuhl Seminar 14441 Modeling, Verification, and Control of Complex Systems for Energy Networks*, Dagstuhl Reports. Dagstuhl Research Online Publication Server, February 2015.
- [123] Yves Page, Felix Fahrenkrog, Anita Fiorentino, Martin Fränzle, Johann Gwehenberger, Thomas Helmer, Magdalena Lindman, Olaf op den Camp, Stefan Puch, Lex van Rooi, Ulrich Sander, and Peter Wimmer. A Comprehensive and Harmonized Method for Assessing the Effectiveness of Advanced Driver Assistance Systems by Virtual Simulation: The P.E.A.R.S. Initiative. In *The 24th International Technical Conference on the Enhanced Safety of Vehicles (ESV)*, Gothenburg, Sweden, to appear June 2015. National Highway Traffic Safety Administration. Paper No. 15-0370.

- [124] Liang Zou, Martin Fränzle, Najun Zhan, and Peter Nazier Mosaad. Automatic stability and safety verification for delay differential equations. In Daniel Kroening and Corina Pasareanu, editors, *Proc. of the 27th International Conference on Computer Aided Verification (CAV 2015)*, LNCS. Springer Verlag, to appear July 2015.
- [125] Yang Gao and Martin Fränzle. Verification of stochastic systems by stochastic satisfiability modulo theories with continuous domain. In Sergiy Bogomolov and Ashish Tiwari, editors, *International Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR 2015)*, CEUR Proceedings. CEUR-WS.org, to appear July 2015.
- [126] Saifullah Khan and Martin Fränzle. Robust mid-range communication in urban VANETs. In *Proc. of the International Conference on Advanced Communication Technology*, Seoul, Korea, to appear July 2015.
- [127] Mohamed-Hédi Amri, Yasmina Becis, Didier Aubry, Nacim Ramdani, and Martin Fränzle. Robust indoor location tracking of multiple inhabitants using only binary sensors. In *Proc. of the IEEE International Conference on Automation Science and Engineering (IEEE CASE 2015)*, Gothenburg, Sweden, to appear August 2015. IEEE.
- [128] Martin Fränzle, Michael R. Hansen, and Heinrich Ody. No need knowing numerous neighbours — towards a realizable interpretation of MLSL. In Roland Meyer, André Platzer, and Heike Wehrheim, editors, *Correct System Design*, Lecture Notes in Computer Science. Springer-Verlag, to appear September 2015.
- [129] Yang Gao and Martin Fränzle. A solving procedure for stochastic satisfiability modulo theories with continuous domain. In Javier Campos and Boudewijn Haverkort, editors, *Proc. of the 12th International Conference on Quantitative Evaluation of SysTems*, Lecture Notes in Computer Science. Springer-Verlag, to appear September 2015.

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Technical reports:

[1, 2, 5, 6, 7, 10, 11, 13, 14, 15, 16, 26, 34, 35, 49, 55, 57, 61, 72, 79, 82, 88]

Peer-reviewed contributions to the proceedings of international conferences and symposia:

[3, 4, 8, 9, 17, 18, 20, 21, 22, 23, 24, 27, 29, 30, 32, 36, 37, 38, 39, 40, 41, 42, 43, 44, 46, 47, 48, 50, 51, 54, 56, 58, 59, 60, 62, 63, 64, 65, 66, 68, 69, 70, 71, 73, 75, 76, 77, 80, 81, 84, 85, 87, 89, 90, 92, 94, 95, 98, 99, 96, 97, 102, 103, 104, 105, 106, 110, 111, 112, 113, 115, 116, 117, 118, 120, 121, 123, 124, 125, 126, 127, 128, 129]

Articles in peer-reviewed international journals:

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Ph.D. thesis:

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Editorship for conference/workshop proceedings and special issues of journals:

[108, 114, 122]

Book chapters:

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