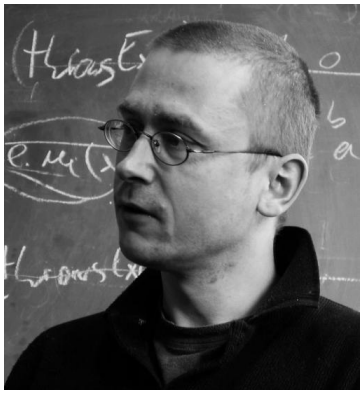

Dr.-Ing. habil. Martin Steffen
Martin Borrebekkensvei 9c
05784 Oslo, Norway

email: msteffen@ifi.uio.no
web: www.ifi.uio.no/~msteffen
mobile: +47 41174265
office: +47 22 85 0417
skype: martin.steffen@skype.com

15. December 2017

Curriculum vitae

Personal

birth	6. 6. 1965 in Bad Honnef, Germany
marital status	unmarried
nationality	German

Education and career

education

7. Feb. 07	Habilitation in Computer Science at the Faculty of Engineering, Christian-Albrechts-University, Kiel, Germany. Title of the habilitation thesis: *Object-connectivity and observability for class-based, object-oriented languages*. External reviewers Prof. Dr. Michael Mendler (University Bamberg) Prof. Dr. Gordon Plotkin (University Edinburgh), Prof. Dr. Frank de Boer (CWI Amsterdam, University Leiden), Prof. Dr. Davide Sangiorgi (University Bologna).
12. Nov. 98	Doctorate of Engineering (Dr.-Ing.) in Computer Science at the Technical Faculty, Friedrich-Alexander-University, Erlangen-Nürnberg, Germany. Title of the doctoral thesis: "*Polarized Higher-Order Subtyping*". Evaluation "very good". Date of submission: 8. Jan. 1998, defended: 12. Nov. 1998. Reviewers: Prof. Dr. Horst Müller (University Erlangen-Nürnberg), Prof. Dr. Giorgio Ghelli (University Pisa).
31. Mar. 92	Diploma in Computer Science (Dipl.-Inf. Univ.) at the Faculty of Engineering Sciences, Friedrich-Alexander-University, Erlangen-Nürnberg. Title of the diploma thesis: "*Completeness of a proof system for Hennessy-Milner logic with recursion*" (in German). Overall grade: 1.2 (very good "with distinction"), grade of the diploma thesis: 1.0 ("very good").
Nov. 86 – Mar. 92	Student of Computer Science (Diplomstudiengang Informatik) at the Friedrich-Alexander-University, Erlangen-Nürnberg. Minor subject: physics with specialization on solid state and quantum physics.
June 84	Abitur (German high school diploma)
Sept. 75 – July 77	Joseph-Hofmiller-Gymnasium in Freising
Sept. 77 – June 84	Rhön-Gymnasium Bad Neustadt a.d. Saale
Aug. 71 – July 75	Elementary schools in Lemgo, Suttrop, and Freising

Positions held

since Sept. 10	Full professor at the Department of Informatics of the University of Olso, in the group *"Precise Modelling and Analysis"*.
since Nov. 08 - Aug. 11	Associate professor ("førsteamanuensis" in Norwegian) at the Department of Informatics of the University of Olso, in the group *"Precise Modelling and Analysis"*.
Aug. 06 – Oct. 08	Senior researcher (4 years with 25% teaching obligations,in the group *"Precise Modelling and Analysis"*. Research (mainly within the EU project *Credo*), teaching, and supervision.
Feb. 97 – Feb. 06	Scientific assistant ("Habilitationsstelle") at the chair of Software Technology (Prof. Dr. de Roever) at the University Kiel. Various teaching obligations and collaboration in different international projects.

Education and career (continued)

April 94 – Jan. 97	Scientific assistant at the chair of Computer Networks and Communication Systems (Prof. Dr. Herzog) at the University Erlangen-Nürnberg. Employed at a project position, but with different teaching obligations, as well. Collaboration within different projects.
winter term 90 – winter term 92	student teaching assistant, different tasks within the SFB sub-project "Specification and verification of distributed systems" (teaching assistant, project work).
winter term 88 – winter term 89	student teaching assistant for the lectures *Logic and Recursion Theory I and II* at the chair of Theoretical Computer Science, University Erlangen-Nürnberg.

Additional jobs

May 86 – Oct. 86	Work as non-medical aide at the district hospital Mellrichstadt.

Military resp. community service

Aug. 84 – March 86	Community service at the district hospital Mellrichstadt.

National and international projects

I was involved in the following projects and (in many cases) in their application, i.e., proposal writing, often contributing organizationally, and of course, contributing scientifically.

Transport	(2018?–). *Railway Certification through Reliable Auotmated Techniques* The NFR project (as "forskerprosjekt"' = researchers' project) is under review. Project owner UiO, external project collaboration with TU Darmstadt, U. Oxford, U. Gothenburg, Chalmers as well as industrial collaborators Norconsult and Railcomplete.
DiverseIoT	(2017?–). *Diversification for Resilient and Trustworthy IoT-systems*. IKTPLUSS project (NFR funding scheme "ICT and digital innovation"), with partners SINTEF, University of Oslo, and TellU Cloud AS. Academic collaborator at UiO. Status of the project is the so-called "phase A", i.e., the project proposal is short-listed for the final evaluation round, end of 2017. Project writing.
IoTSec	(2015–) IoTSEC (Security in IoT for Smart Grids) is a NFR-funded national research project to promote the development of a safe and secure Internet-of-Things (IoT)-enabled smart power grid infrastructure. My role is academic collaborator.
RailCons	(2015–2018) Automated Methods and Tools for Ensuring Consistency of Railway Designs. NFR funded industrial PhD project. Main partners UiO and RailComplete AS. Collaboration with Chalmers, Sweden and Oxford, UK. Project leader.
DAAD-NFR exchange project	(2015/2016) GoRETech "*Go Runtime Enforcement Techniques*", 2-years bilateral collaboration between the University of Oslo and the University Darmstadt, Germany within the DAAD-NFR PPP programme of person exchange. Project leader at the Norwegian side.
DAAD-NFR exchange project	(2015/2016) SMT4ABS "*Combining SMT-Solving with Type Checking for Real-Time ABS Programs*", 2-years bilateral collaboration between the University of Oslo and the University RWTH Aachen, Germany within the DAAD-NFR PPP programme of person exchange. Project writing and member.
ConSeRNS	(2014 –) "Concurrent Security and Robustness for Networked Systems", member of the ConSeRNS Strategic Research Initiative for information security, University of Oslo. Project member.
COST IT 1492	(from 2014 on) "*ICT COST Action IC1402 Runtime Verification beyond Monitoring (ARVI)*". Norwegian representative in the Management Commitee & STSM commitee
EternalS	(2010/2011) FP7 EU Coordination Action "*Trustworthy Eternal Systems via Evolving Software, Data and Knowledge*" EternalS. External expert for task force 2 ("Time Awareness and Management").

(continued)

DAAD-NFR exchange project — (2010/2011) HySmart "*Hybrid Systems Modeling and Analysis with Rewriting Techniques*", 2-years bilateral collaboration between the University of Oslo and the University of Aachen, Germany within the DAAD-NFR PPP programme of person exchange. Partner at the Norwegian side.

COST IT 0701 — (2008–2012) "*Formal Verification of Object-Oriented Software*", European COST action. The project had approximately 35 partner sites.

HATS — (2009–2013) "*Highly Adaptable and Trustworthy Software using Formal Models*". European Union large-scale integrated project (IP) within the framework of FP7, in the work programme FET Proactive Initiative, ICT forever yours (ICT-FY), ojective ICT-2007.8.6. The project consisted of 9 (originally 8) academic and 3 industrial partners. Project memmber.

DAAD-NFR exchange project — (2008/2009) Avabi "*Automated validation for behavioral interfaces of asynchronous active objects*". 2-years bilateral collaboration between the University of Oslo and the University Kiel within the DAAD-NFR PPP programme of person exchange. Project leader at the Norwegian side.

Credo — (1. Sept. 06 – 31. Aug. 09) "*Modelling and analysis of evolutionary structures for distributed services*". European project within the framework of FP6, priority 2, "Information Society Technologies", call 5, activity IST-2005-2.5.5 Software and Services, project number IST-33826.
Academic partners: CWI, The Netherlands; University Oslo, Norway; CAU Kiel, Germany; TU Dresden, Germany; University Uppsala, Sweden; United Nations University, Macao, China. Industrial partners: Almende, The Netherlands; Rikshospitalet – Radiumhospitalet HF, Norway. Norsk Regnesentral, Norway.

Omega — (2002 – 2004) European IST-2001-33522 project: "*Correct Development of Real-Time Embedded Systems*". Project partners: Verimag, University Grenoble, France; Centrum voor Wiskunde en Informatica, The Netherlands; Christian-Albrechts-Universität, Germany; University Nijmegen, The Netherlands; Weizmann Institute, Israel; Office, Germany. Industrielle partners; EADS SPACE Transportation, France; France Telecom R & D, France; Israeli Aircraft Industries, Israel; National Aerospace Laboratory, The Netherlands. Project member

MobiJ-I: — (15. Sept. 01 – 14. Sept. 04) "*Assertional methods for mobile asynchronous channels in Java*". Bilateral German-Dutch (DFG-NWO) project RO 1122/9-1, RO 1122/9-2. Partners: University Kiel; CWI, Amsterdam; LIACS, Leiden. Project writing.

MobiJ-II: — (15. April 05 – 14. April 08) "*Formal Methods for Components and Objects*". Funded in the same way and with the same partners as MobiJ-I, RO 1122/9-4. Project writing.

VIRES — (1. May 97 – 30. Apr. 00) "*Verifying Industrial Reactive Systems*". European 4th Framework Esprit Project 23498 . Academic project partners: University Eindhoven, The Netherland; Verimag, University Grenoble, France; CAU Kiel, Germany; University Liège, Belgium, Weizmann-Institute, Israel. Industrial partners: Intracom, Greece. Project member

SFB 182 — (Jan. 89 – Dec. 98) DFG (German Research Council) Sonderforschungsbereich SFB 182 (Multi-processor- and network configurations), participant in sub-project C2: "*Specification and verification of distributed systems*". Project writing.

ARC project — (July 95 – June 98) ARC exchange project: "*Co-development of object-oriented programs in LEGO*" (ARC is the Academic Research Council, a joint organization of the German Academic Exchange Organization (DAAD) and the British Council (BC)). Project partners: University Erlangen and LFCS, University Edinburgh. Project leader.

ARC project — (Jan. 92 – Dec. 94) ARC exchange project: "*Mathematical foundations for the refinement of distributed systems*". Project partners: University Erlangen and LFCS, University Edinburgh. Project member.

Practical software and tool development

My research was and is mostly concerned with formal methods and theoretical computer science, often with an eye towards practical relevance. Besides working on the theoretical foundations, I was involved in a couple of projects also directly in the software development, the coding itself, and the application of different analysis and verification tools. Sometimes, the software development took place, resp. takes place together with industrial partners.
Links to the some of the software can be found via my home page, in particular via

`http://heim.ifi.uio.no/msteffen/software.html`

mostly pointing to git-respositories and/or online documentation, if still available. Many of the master theses I supervised, besides being based on formal semantic theories, included also developing a tool or prototype (especially in Oslo).

RailCons — In the project, we develop a validation software for a railway design framework (using among other technologies Datalog). The actual tool development, coding, and integration is done by a PhD student (I am his main supervisor).

GoRETech: — In the project, we developed a taint analyzer for the Go language, i.e., a static analysis tool doing data flow analysis concerning security-related problems (injections, information leakage). Together with the other project participants, I contributed to the design and implementation of the tool. Most of the actual coding was done by a Master student.

Vires: — The project developed a considerable amount of our own analysis tools (especially of model checkers resp., in connection with model checking) as well as modelling and validation of an industrial wireless ATM protocol.

- Amongst other tasks, I was responsible (together with 2 project partners) for the *specification* and the *modelling* of the case study, using commercial SDL modelling and analysis tools. Furthermore, I applied model checkers, in particular Spin, to the case study to validate and verify it (in cooperation mainly with the TU Eindhoven and the CWI, Amsterdam). The latter cooperation with these partners led to an analysis tool for ameliorating the state space explosion problem for such protocols.
- Within a further work package of the project, for which I was responsible (together with TU Eindhoven and Verimag, Grenoble), I developed and implemented a program for the automated, heuristic abstraction based on acceleration techniques for language transducers (in *ocaml*).

MobiJ I: — Part of the project was the development of a "verification condition generator", basically a kind of compiler translating annotated programs into lemmas of a theorem prover, in this case PVS. Within the project, I collaborated on the design and the theory of the tool. The verification tool itself was implemented (in Java) by E. Ábrahám within her doctoral thesis.

MobiJ II: — In cooperation with the University Kiel, we developed within MobiJ-II a black-box *test*-tool for Java-programs. The tool is based on observational semantics as developed in MobiJ, similar to the one I formalized in my habilitation thesis.

"programming-in-the-many" — The yearly course was designed as *collaborative* software project. It was an 8-hours per week course, which I designed and taught 5 times, for students in their final semesters. The software and tool development in the course was carried put by up-to 30 students, all collaborating on submodules of one *common* project.

Research

Research areas

static analysis
(of object-oriented and

Research (continued)

concurrent languages): Apart from the work on type systems in the narrower sense, I worked on static analysis and "non-standard" type/effect systems in the context of concurrent, multithreaded languages. That includes more recent work on type systems for safe use of *locks* and *transactions* as well as older works on synchronous closing of communicating systems (partly categorized below under "model checking"), which were based on data-flow analysis as well. More recently, I applied static analysis techniques in particular for security-related angles (information flow and taint analysis). ([12, 23, 18, 73, 28, 45, 48, 52, 56, 22, 74, 90, 7, 90, 68, 15, 69, 13, 16])

observable behavior and full abstraction of OO languages: During the mentioned activities concerning the proof-theoretical account of aspects of multithreaded Java, I became interested in the *observable,* behavior of class-based, object-oriented programs, i.e., the fundamental question of full abstraction for such programs. Observational equivalence equates two program phrases when no context exists able to differentiate between them and is a fundamental question in the semantics of programming languages. ([70, 36, 38, 40, 41, 44, 77, 79, 80, 96])

Hoare logics for (multi-threaded) OO languages: In contrast to the functional and type-theoretical semantical theories I dealt with in my PhD thesis, I became interested in other important aspects of object-oriented programs such as *state,* in particular in the form of the heap, and concurrency in the form of *multithreading*. Besides that, the emphasis shifted to methods for the *verification* of object-oriented programs. Inspired by language features as found in Java, I worked in the MobiJ-projects on the Hoare-style verification of multi-threaded Java-like programs. Also the works on *lazy behavioral subtyping* can be seen as falling under this rubric: The techniques give more flexible use of Hoare-logic like proof systems for programs organized in inheritance hierarchies. The focus there is to organize the proof structure in such a way that it allows modular, incremental proofs when new classes are added. ([29, 33, 39, 47, 49, 50, 76, 78, 81, 75, 30, 10])

model checking, runtime-verification testing: Inspired on the work on observability of object-oriented languages, I worked on synthesizing test drivers for such languages and furthermore to explore (by simulation and model-checking) models using rewriting. Mainly in the context of the Vires-project, I did research on the verification of communication protocols based on *model checking*. Motivated by a concrete case study given in SDL, a standardized protocol description language, the focus of that research had been to design theories, methods, and practical approaches to ameliorate the state explosion (using Spin). Other work was doing *bounded* model checking (for hybrid systems), approximative reachability analysis for hybrid systems, and making use of the symbolic model checker SMV for checking PLC programs. Also the rule-based validation of railway designs (using Datalog, a Prolog-variant) can be seen as a form of model checking. ([25, 32, 31, 26, 51, 55, 58, 59, 42, 37, 6, 4, 5, 8, 71])

type theoretical foundations of OO: My doctoral thesis was concerned with the type theoretic resp. proof theoretic foundations λ-calculi with higher-order type systems with subtyping, which have been investigated as functional core calculus for object-oriented concepts and powerful enough to represent subtyping, inheritance, encapsulation, and late-binding. Based on a related functional encoding on object-oriented features, I worked also on the the formal verification of such programs with the help of *theorem-provers*, in particular in the constructive proof assistant *Lego*. ([97, 60, 61, 64, 83, 84]). Note: Some of my work about data-flow and static analysis is phrased with type-theoretic terminology (using flow types, constraints, and effect systems), but that line of research is listed under the rubric "static analysis".

Research (continued)

process algebraic results: Different results dealt with process-algebraic formulations, like the π-calculus, and recently a timed variant of the ambient calculus. Some work involved also Petri-nets. Also the work in connection with observability and full abstraction had a process-algebraic flavor, working with concurrent object calculi. ([62, 63, 72, 17, 3, 2, 67, 89])

miscellaneous: Besides the mentioned topics, I worked also on automata-theoretic results for parameterized model checking of infinite state systems. A few papers are concerned with proof-systems for *hybrid systems,* a well-known formal model for systems combining discrete and continuous behavior, and furthermore efficient strategies for *bounded model checking* linear hybrid systems. Further papers deal with abstraction, composition, and model checking for parameterized systems, the semantics and expressivity of *modal transition systems,* and semantics of weak memory model, among other things. ([24, 34, 35, 37, 42, 43, 46, 53, 54, 57, 62, 65, 82, 66] . . .)

Conference organization

iFM'18,iFM'17, iFM10	integrated Formal Methods 2010, PC member
ESOCC'17	local organization member
SETTA 15, 16, 17	PC member
KSE 2012,13,14,15,16,17	PC member
Tests & Proofs (TAP) 2017	PC member
CyPhy 2017, 16, 15	PC member
FM'16 doctoral symposium	PC member
iFMCloud'16	PC member
SEFM 2015	PC member
FM'15	Formal Methods 2015, Oslo, publicity chair
SEFM'14	PC Member
ATVA 2013	11th International Symposium on Automated Technology for Verification and Analysis, PC member
ACM SAC-SVT'13	Track on Software Verification and Testing, PC member; ACM SAC-SVT'12, Track on Software Verification and Testing, PC member;
FCT'11	18th International Symposium on Fundamentals of Computer Theory August 22-25, 2011, Oslo, Norway, Co-Chair and Program committe Chair
Sumo'11	International Workshop on Scalable and Usable Model-Checking for Petri Nets and other Models of Concurrency. PC member
TASE'11	PC member
Fmoods/Forte'11 & DisCoTec'11	Program committee member and Poster chair
Fmoods/Forte'10	IFIP International Conference on Formal Techniques for Distributed Systems, formed jointly from the two conference series FMOODS and FORTE, and part of the federated conference event DisCoTec (Distributed Computing Techniques)
APNOC'10	International Workshop on Abstractions for Petri Nets and Other Models of Concurrency, June 2010, Braga, Portugal, program commitee member
VAMP'09	2nd Workshop on Verification and Analysis of Multi-threaded Java-like Programs (ETAPS-satellite). York, United Kingdom, March 28, 2009. PC member
Discotec'09	(Distributed Computing Techniques, Lisbon, Portugal, June 2009): publicity chair
Fmoods/Forte'09	Program commitee member
APNOC'09	International Workshop on Abstractions for Petri Nets and Other Models of Concurrency, June 2009, Paris, program commitee member
Discotec'08	(Distributed Computing Techniques, Oslo, June 2008): publicity chair and member of organizing commitee
Fmoods	IFIP WG 6.1 International Conference on *Formal Methods for Object-Based Distributed Systems*: *steering commitee member since 2007, for 3 years*
	– Fmoods'08: program commitee member
	– Fmoods'07: program commitee member and publicity chair
	– Fmoods'06: program commitee member and publicity chair
	– Fmoods'05: **program chair**
	– Fmoods'03: program commitee member
Tacas'06	12th International Conference on *Tools and Algorithms for the Construction and Analysis of Systems*: program commitee member

Research (continued)

ICCP — International Conference on *Intelligent Computer Communication and Processing*, track *static analysis and verification*

– ICCP'07: program commitee member

– ICCP'06: program commitee member

Lego summer school — summer school "Programs & Proofs: Working in Type Theory", 14. – 18. August 1995, Hetzelsdorf, Fränkische Schweiz, Germany. Organization committee member

Workshop — "2. Fränkische OOrientierungstage", September 1993, Rothenbühl, Germany. Organization committee member

Workshop — "1. Fränkische OOrientierungstage", October 1992, Erlangen, Germany. Organization committee member

Reviewing

Conferences — I have been acting as reviewer for (amongst others) the following *conferences*: FASE'18, NIK'17, SETTA'17, KSE'17, iFM'17, POPL'17, TAP'17 , WADT'17, FM'16 Doctoral Symposium, NIK'16, SETTA'16, CyPhy, FM'16, KSE'16, iFM'16, ATPS'16, SETTA'15, ICTAC'15, KSE'15, ATVA'15, SEFM15, ATPS'15, FASDS'14,15, SEFM'15, NIK'14, RP2014, TASE'14, SEFM'14, ATPS'14, TACAS'14, KSE'13, ATVA'13, Formats'12, CONCUR'12, KSE'12, ICTAC'11, FCT'11, TASE 11, 18th International Symposium on Fundamentals of Computer Theory, FACS'11, 20th European Symposium on Programming, ESOP 11, 38th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages (POPL'11), 8th International Conference on integrated Formal Methods (iFM 2010), International Conference on Verification of Object-Oriented Software FoVeOOS'10, International Colloquium on Theoretical Aspects of Computing (ICTAC 2010), 2nd International Workshop on Abstractions for Petri Nets and Other Models of Concurrency (APNOC'10), 6th International Workshop on Formal Aspects of Component Software FACS 2009, Forte/Fmoods 2009, Fundamentals of Software Engineering FSEN'09, Fundamental Approaches to Software Engineering FASE'09, 7th International Conference on Integrated Formal Methods iFM'09, IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science, FSTTCS'08 28th IFIP WG6.1 International Conference on Formal Techniques for Networked and Distributed Systems Forte'08, 15th International Symposium on Formal Methods, FM'08, International Conference on Intelligent Computer Communication and Processing (ICCP '07, '06), Formal Aspects of Component Software (FACS'07), International Conference on Concurrency Theory (Concur '07, '01), IFIP International Conference on Formal Methods for Object-Based Distributed Systems (Fmoods '08, '07, '06, '05, '03), 13th International Workshop on Expressiveness in Concurrency (Express'06), International Conference on Functional Programming (ICFP), International Workshop on Verification, Model Checking and Abstract Interpretation (VMCAI'02), Foundations of object-oriented languages/Workshop on Object-Oriented Development (Fool/Woods'06), Tools and Algorithms for the Construction and Analysis of Systems (TACAS'06), Formats-FTRTFT 2004, FSEN'07, Principles of programming languages (POPL'05), ATVA'07, Formal Methods (FM'06), FTRTFT, Programming Concepts and Methods (Procomet'98), Foundations of Software Technology and Theoretical Computer Science FSTTCS' 97, Logic in Computer Science (LICS '08, '06, '95, '98, '99), Computer Aided Verification (CAV'04), European Conference on Object-Oriented Programming (ECOOP'99), FMCO'04, Formal Methods for Networked and Distributed Systems (Forte'07), International Colloquium on Automata, Languages and Programming (ICALP'05), Theoretical Aspects of Computer Science (STACS'97), Tools for System Design and Verification (Tools'02) ...

Research (continued)

Journals — In addition, I reviewed contributions to the following international journals (for some of the journals (esp. JLAP/JLAMP), I did several reviews): Formal Aspects of Computing, IEEE Transactions on Parallel and Distributed Systems, Transactions on Modularity and Composition (special issue of best papers from Modularity 2015),Software: Practice and Experience,Science of Computer Programming, Cambridge Journal of Mathematical Structures in Computer Science, Journal of Applied Logics (JAL), Journal of Software: Practice and Experience, Annals of Mathematics and Artificial Intelligence (AMAI), Formal aspects of computing (FAC), Journal of Logic and Algebraic [Methods in] Programming (JLA[M]P), Information and Computation (IC), Software and Systems Modelling (SoSym), Theoretical Computer Science (TCS), International Journal on Software Tools for Technology Transfer (STTT)

Teaching & supervision

For a semester-by-semester listing of my involvment in teaching, see the added more detailed list. For titles and topics of the theses I supervised, see the bibliographic data at the end of this document.

lectures

models of concurrency	master/Ph.D level lecture (2015, 2014, 2013, 2008, 2007)
model checking	master/Ph.D level lecture (2017, 2015)
compiler construction	master-level lecture (2016, 2017, 2018)
static analysis	master-level/Ph.D level lecture (2006, 2008, 2010, 2012, 2014, 2016, 2017)
algorithms & data structures	undergraduate lecture with programming exercises (4 times in Germany, 2 times in Oslo)
theorem proving	graduate level lecture with exercises (2+2h)
theoretical foundations of oo languages	graduate level lecture with exercises (2+2h)

supervision: I acted as copromotor resp. propotor in 3 the Ph.D theses defended at the University of Leiden (*E. Ábrahám*, *A. Grüner*, and *I. Grabe*). I was external examiner for the theses of *J. Klein* (University of Dresden), *R. Schlatte* (University of Graz). At UiO, I was supervising as main supervisor ("hovedveileder") *A. Torjusen*, *T. M. T. Tran*, and *V. Pun*, and as co-supervisor for *H. Hansen,* and *S. L. Tapia Tarifa*. Currently, I am main supervisor of 2 PhD students (*D. Fava, B. Luteberget*) and co-supervisor of further two students (*J. B. Stumpf, S. Tokas*). In the autumn semester 2017, 3 new students have been offered a position as Ph.D students in this group and in whose supervision I will be involved. I was in the adjudication committee (internal examinor at UiO) for *M. Zohaib Iqbal*, *A. Moen Hagalisletto*, *X. Liang*.
In Oslo I was involved (resp. are still involved) in the supervision of approximately 15 master theses. In Erlangen and in Kiel, I supervised in total *11 diploma theses* and *3 "Studienarbeiten"* (a pre-diploma thesis, with less scientific depth than the diploma thesis). The titles and topics of the theses can be found in the bibliographic references.

assistance: in addition to the above lectures, which I designed and carried out on my own, I assisted also in the following lectures (mostly organizing and giving the exercises, but partly also lecturing):

– operating systems (undergraduate level, 4 times)

– distributed algorithms (graduate level)

– software specification techniques for distributed systems Statemate/SDL

– hybrid systems (graduate level)

lab courses & software project courses

embedded systems	programming Lego mindstorms robots with Esterel, a synchronous language with formal semantics (2 times)
Java programming	an introductory course at graduate level
software project	undergraduate level software project using Java
software engineering	an introductory course at undergraduate level course for engineers (2 times)

Teaching & supervision (continued)

programming-in-the-many — an 8 hours graduate level software project of collaborative design and programming (8 hours per week, 5 times with varying topics)

seminars

– model checking (2 times)

– semantics and verification of object-oriented programs

– hardware verification

– compositional verification of distributed programs

– component-based software engineering

– distributed algorithms (4 times)

– the Universal Modelling Lanuage (UML)

– distributed and concurrent programming

– grid computing

misc

open door — I gave presentations and demos for the general public on the occasions of the University's "*open door days*" in Kiel: 2003 and 2002 at the open door day of the Technical Faculty, 2000 at the open door day of the University Kiel. Besides that I gave presentations advertizing the academic subject of computer science for high school students a couple of times.

CS prep course — When the University Kiel established an introductory week-long preparatory course as service for beginners of computer science or of other subjects with computer interest, I was active in working out part of the programme and I presented my part at the beginning of each winter semester (4 times).

mentor — Mentor for young researchers (Ph.D and master's level) on matters of research and career at my old Alma Mater, the University of Erlangen-Nünberg. The mentor programme is an initiative of the Technical Faculty with the Alumni federation of the university.

further duties — Apart from my more theoretical scientific inclinations, I was always involved in Erlangen as well as in Kiel and Oslo in (system-)administrative tasks. In Erlangen, I was responsible for installing and maintaining part the local software at the chair (LaTeX, emacs, the gnu-software in general, and managing, with others, the wired ethernet LAN). That was at a time when such packages were not bundled and shipped with ready-made distributions and I was tasked with maintaining this software at a heterogeneous pool of Sun Workstations, HPUX-systems and a few Silicon Graphic workstations. Similarly in Kiel, where, among other software, I helped maintaining Java, and also special-interest software like theorem provers, ML, ocaml, and similar software for the overall computer science department. Also I was responsible for the web-pages of the chair of Software Engineering in Kiel as well as for the PMA group in Oslo.

Miscellaneous

hobbies — sailing, guitar, gardening

languages — I am fluent in German, my mother tongue, and English. In addition, I speak —in varying degrees of imperfection— Norwegian, French, Spanish, and Italian. Concerning Norwegian, I passed the equivalent of the standardized, national language proficiency test (known as *Bergenstest*).

My publications are categorized mainly in (refereed) conference contributions and journal articles. Per category, the articles are roughly ordered chronologically, with the newest ones first. For completeness sake, I also added references to *technical reports* and *workshop contributions* (listed as "Others" towards the end). The workshop contributions are mosty unrefereed (or refereed in a very lightweight manner). Often they are early, or at least shorter versions of longer papers. Like many of my colleagues, I used especially the *Nordic Workshop of Programming Theory* (NWPT) as a platform where I in particular encouraged all our PhD students to submit and participate as a matter of good habit and to show presence in this kind of community (especially in the nordic countries). In quite some cases, we were invited to submit to corresponding special issues of the *Journal of Logic and Algebraic Methods in Programming* (JLAMP, formerly JLAP). Also, quite some papers are accompagnied by a technical report (often with the same title as the submission but more material, such a missing proofs), which later then was the starting point for a journal version, and which explains the large number of technical reports. Therefore, some "material" is mentioned here in more than one incarnation (extended abstract, technical report, conference proceeding and —finally— journal version, and I included them all for completeness sake. For getting an impression, one can safely focus on the conference contributions and journal articles.

Publications

[1] Anastasia Gkolfi, Crystal Chang Din, Einar Broch Johnsen, Martin Steffen, and Ingrid Chieh Yu.
Translating active objects into colored Petri nets for communication analysis.
To be submitted to a special issue of Science of Computer Programming for FSEN'2017, 2017.

[2] Einar Broch Johnsen, Martin Steffen, and Johanna Beate Stumpf.
A calculus of virtually timed ambients.
In Phillip James and Markus Roggenbach, editors, *Recent Trends in Algebraic Development Techniques. Proceedings of the 23rd International Workshop, WADT 2016, Gregynog, UK, September 21 - 24, 2016, Revised Selected Papers*, volume 10644 of *Lecture Notes in Computer Science*. Springer Verlag, 2017.
to appear.

[3] Anastasia Gkolfi, Crystal Chang Din, Einar Broch Johnsen, Martin Steffen, and Ingrid Chieh Yu.
Translating active objects into colored Petri nets for communication analysis.
In *Accepted for publication in the LNCS post-proceedings of "Fundamentals of Software Engineering", FSEN'2017*, 2017.

[4] Jingyue Li, Altin Qeriqi, and Martin Steffen Ingrid Chieh Yu.
Automatic translation of FBD-PLC-programs to NuSMV for model checking safety-critical control systems.
In *Proceedings of the Norsk Informatikkonferanse NIK'16*, 2016.

[5] Bjørnar Luteberget, Christian Johansen, Claus Feyling, and Martin Steffen.
Rule-based incremental verification tools applied to railway designs and regulations.
In J. Fitzgerald, C. Heitmeyer C, S. Gnesi, A. Philippou, Michael Butler, and Wolfram Schulte, editors, *Proceedings of the International Symposium on Formal Methods (FM 2016)*, volume 9995 of *Lecture Notes in Computer Science*, pages 772–778. Springer Verlag, November 2016.

[6] Carl Martin Rosenberg, Martin Steffen, and Volker Stolz.
Leveraging DTrace for runtime verification.
In César Sánchez, editor, *Proceedings of the 16th International Conference on Runtime Verification, RV 2016, Madrid, Spain, September 23-30, 2016*, volume 10012 of *Lecture Notes in Computer Science*, pages 318–332. Springer Verlag, September 2016.

[7] Eric Bodden, Ka I Pun, Martin Steffen, Volker Stolz, and Anna-Katharina Wickert.
Information flow analysis for Go.
In Tiziana Margaria and Bernhard Steffen, editors, *7th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation (ISOLA'16)*, volume 9952 of *Lecture Notes in Computer Science*, pages 431–445. Springer Verlag, October 2016.

[8] Bjørnar Luteberget, Christian Johansen, and Martin Steffen.
Rule-based consistency checking of railway infrastructure designs.
In Erika Ábrahám and Marieke Huisman, editors, *Proc. of the 12th International Conference on integrated Formal Methods (iFM 2010)*, volume 9681 of *Lecture Notes in Computer Science*, pages 491–507. Springer Verlag, 2016.
Best Paper Award for iFM 2016. See also the UiO IFI research report Nr. 450 with the same title.

[9] Martin Steffen.
A small-step semantics of a concurrent calculus with goroutines and deferred functions.
In Erika Ábrahám, Marieke Huisman, and Einar Broch Johnsen, editors, *Theory and Practice of Formal Methods. Essays Dedicated to Frank de Boer on the Occasion of His 60th Birthday (Festschrift)*, volume 9660 of *Lecture Notes in Computer Science*, pages 393–406. Springer Verlag, October 2016.

[10] Einar Broch Johnsen, Ka I Pun, Martin Steffen, Silvia Lizeth, Martin Steffen, and Ingrid Chieh Yu.
Meeting deadlines, elastically.
In Luigia Petre and Emil Sekerinski, editors, *From Action Systems to Distributed System: The Refinement Approach*, pages 99–111. CRC press, 2016.

[11] Ka I Pun, Martin Steffen, and Volker Stolz.
Behaviour inference for deadlock checking.
Technical report 416, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, July 2012.

[12] Ka I Pun, Martin Steffen, and Volker Stolz.
Behaviour inference for deadlock checking.
In *Proceeding of the 8th International Symposium on Theoretical Aspects of Software Engineering (TASE'14)*, pages 106–113. IEEE, 2014.

Publications (continued)

[13] Ka I Pun, Martin Steffen, and Volker Stolz.
Effect-polymorphic behaviour inference for deadlock checking.
In Dimitra Giannakopoulou and Gwen Salaün, editors, *Proceedings of SEFM'14*, volume 8702 of *Lecture Notes in Computer Science*, pages 50–64. Springer Verlag, September 2014.
A longer version is available (under the title "Lock-Polymorphic Behaviour Inference for Deadlock Checking") as UiO, Dept. of Informatics Technical Report 436, Sep. 2013.

[14] Ka I Pun, Martin Steffen, and Volker Stolz.
Deadlock checking by data race detection.
Journal of Logic and Algebraic Methods in Programming, March 2014.
Available online 13 August 2014, http://dx.doi.org/10.1016/j.jlamp.2014.07.003. A preliminary version was published as University of Oslo, Dept. of Computer Science Technical Report 421, October 2012, and a shorter version in the proceedings of FSEN'13.

[15] Ka I Pun, Martin Steffen, and Volker Stolz.
Deadlock checking by data race detection.
In *Proceedings of the 5th IPM International Conference on Fundamentals of Software Engineering (FSEN'13)*, volume 8161 of *Lecture Notes in Computer Science*, pages 34–50. Springer Verlag, 2013.

[16] Thi Mai Thuong Tran, Martin Steffen, and Hoang Truong.
Compositional static analysis for implicit join synchronization in a transactional setting.
In George Eleftherakis, Mike Hinchey, and Mike Holcombe, editors, *Proceedings of SEFM'13*, volume 8137 of *Lecture Notes in Computer Science*, pages 212–228. Springer Verlag, September 2013.

[17] Frank S. de Boer, Mario Bravetti, Immo Grabe, Matias Lee, Martin Steffen, and Gianluigi Zavattaro.
A Petri net based analysis of deadlock for active objects and futures.
In Corina S. Pasareanu and Gwen Salaün, editors, *Revised Selected Papers of the 9th International Workshop on Formal Aspects of Component Software (FACS 2012)*, volume 7684 of *Lecture Notes in Computer Science*, pages 110–127. Springer Verlag, 2013.

[18] Tung Vu Xuan, Hoang Truong Anh, Thi Mai Thuong Tran, and Martin Steffen.
A type system for finding upper resource bounds of multi-threaded programs with nested transactions.
In *ACM Proceedings of the 3rd ACM International Symposium on Information and Communication Technology SoICT*, pages 20–31. ACM, August 2012.

[19] Hallstein A. Hansen, Gerardo Schneider, and Martin Steffen.
Reachability analysis of planar autonomous systems.
In *Proceedings of the International Conference on Foundations of Software Engineering (Theory and Practice) (FSEN'11)*, volume 7141 of *Lecture Notes in Computer Science*, pages 206–220. Springer Verlag, 2012.

[20] Thi Mai Thuong Tran and Martin Steffen.
Design issues in concurrent object-oriented languages and observability.
In *Proceedings of the Third International Conference on Knowledge and Systems Engineering (KSE 2011), Hanoi 14th-17th Oct, 2011*, pages 135–142. IEEE Computer Society CPS, June 2011.

[21] Einar Broch Johnsen, Reiner Hähnle, Jan Schäfer, Rudi Schlatte, and Martin Steffen.
ABS: A core language for abstract behavioral specification.
In B.K. Aichernig, F.S. de Boer, and M.M. Bonsangue, editors, *Proceedings of the 9th International Symposium on Formal Methods for Components and Objects, FMCO 2010, Selected Papers*, volume 6957 of *Lecture Notes in Computer Science*, pages 142–164. Springer Verlag, 2011.

[22] Einar Broch Johnsen, Thi Mai Thuong Tran, Olaf Owe, and Martin Steffen.
Safe locking for multi-threaded Java.
In *Proceedings of the International Conference on Foundations of Software Engineering (Theory and Practice) (FSEN'11)*, volume 7141 of *Lecture Notes in Computer Science*, pages 158–173. Springer Verlag, 2012.

[23] Thi Mai Thuong Tran, Olaf Owe, and Martin Steffen.
Safe typing for transactional vs. lock-based concurrency in multi-threaded Java.
In Son Bao Pham, Tuan-Hao Hoang, Bob McKay, and Kaoru Hirota, editors, *Proceedings of the Second International Conference on Knowledge and Systems Engineering, KSE 2010*, pages 188 – 193. IEEE Computer Society, October 2010.

[24] Immo Grabe, Mohammad Mahdi Jaghoori, Bernhard Aichernig, Tobias Blechmann, Frank de Boer, Andreas Griesmayer, Einar Broch Johnsen, Joachim Klein, Sascha Küppelholz, Marcel Kyas, Wolfgang Leister, Rudolf Schlatte, Andries Stam, Martin Steffen, Simon Tschirner, Lian Xuedong, and Wang Yi.
Credo methodology. Modeling and analyzing a peer-to-peer system in Credo.
In Volker Stolz and Einar Broch Johnsen, editors, *Special Issue for the proceedings of the 3rd International Workshop on Harnessing Theories for Tool Support in Software, 2009, Malaysia*. Elsevier Science Publishers, 2010.
ENTCS Volume 266. 15 pages.

[25] Olaf Owe, Martin Steffen, and Arild Torjusen.
Model testing asynchronously communicating objects using modulo AC rewriting.
In *Proceedings of the 6th Workshop on Model-Based Testing MBT'10 (ETAPS Satellite Workshop)*, pages 68–84. Elsevier Science Publishers, March 2010.
Electronic Notes in Theoretical Computer Science ENTCS, Volume 264, Issue 3.

[26] Immo Grabe, Marcel Kyas, Martin Steffen, and Arild B. Torjusen.
Executable interface specifications for testing asynchronous Creol components.
In Farhad Arbab and Marjan Sirjani, editors, *FSEN*, volume 5961 of *Lecture Notes in Computer Science*, pages 324–339 (15 pages). Springer Verlag, 2010.

Publications (continued)

[27] Immo Grabe, Mohammad Mahdi Jaghoori, Bernhard Aichernig, Tobias Blechmann, Frank de Boer, Andreas Griesmayer, Einar Broch Johnsen, Joachim Klein, Sascha Küppelholz, Marcel Kyas, Wolfgang Leister, Rudolf Schlatte, Andries Stam, Martin Steffen, Simon Tschirner, Lian Xuedong, and Wang Yi.
Credo methodology (extended version).
In Marcello M. Bonsangue, Frank S. de Boer, Stefan Hallerstede, and Michael Leuschel, editors, *Proceedings of the 8th International Symposium on Formal Methods for Components and Objects, FMCO 2009, Selected Papers*, volume 6286 of *Lecture Notes in Computer Science*, pages 41–69. Springer Verlag, 2009.
29 pages.

[28] Thi Mai Thuong Tran and Martin Steffen.
Safe commits for Transactional Featherweight Java.
In Dominique Méry and Stephan Merz, editors, *Proceedings of the 8th International Conference on Integrated Formal Methods (iFM 2010)*, volume 6396 of *Lecture Notes in Computer Science*, pages 290–304. Springer Verlag, October 2010.
An earlier and longer version has appeared as UiO, Dept. of Informatics Technical Report 392, Oct. 2009.

[29] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Incremental reasoning for multiple inheritance.
In *Proceedings of the 7th International Conference on integrated Formal Methods (iFM'09), Düsseldorf, Germany, 16 – 19 February, 2009*, volume 5423 of *Lecture Notes in Computer Science*, pages 215–230. Springer Verlag, February 2009.

[30] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Encapsulating lazy behavioral subtyping.
In *Specification, Transformation, Navigation. Festschrift dedicated to Bernd Krieg-Brückner on the Occasion of his 60th Birthday*, pages 52–67 (16 pages). University Bremen, 2009.

[31] Frank S. de Boer, Marcello M. Bonsangue, Andreas Grüner, and Martin Steffen.
Java test driver generation from object-oriented interaction traces.
Electronic Notes in Theoretical Computer Science, 243:33–47 (15 pages), July 2009.
Special issue for the Proceedings of the 2nd International Workshop on Harnessing Theories for Tool Support in Software TTSS'08, ICTAC 2008 satellite workshop, 30. August 2008, Istambul, Turkey.

[32] Frank S. de Boer, Marcello M. Bonsangue, Andreas Grüner, and Martin Steffen.
Automated test driver generation for Java components.
In *Netherland's Testing Day "TestDag'08", Delft*, November 2008.
White Paper.

[33] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Lazy behavioral subtyping.
In Jorge Cuellar, Tom Maibaum, and Kaisa Sere, editors, *Proceedings of the 15th International Symposium on Formal Methods (FM'08)*, volume 5014 of *Lecture Notes in Computer Science*, pages 52–67 (16 pages). Springer Verlag, 2008.

[34] Olaf Owe, Gerardo Schneider, and Martin Steffen.
Components, objects, and contracts.
In *Sixth International Workshop on Specification and Verification of Component-Based Systems, Sept. 3–4, 2007, Cavtat, Croatia*, pages 95–98, August 2007.

[35] Erika Ábrahám, Marc Herbstritt, Bernd Becker, and Martin Steffen.
Bounded model checking with parametric data structures.
Electronic Notes in Theoretical Computer Science, 174(3):3–16 (14 pages), May 2007.
Special Issue for the Proceedings of the Fourth International Workshop on Bounded Model Checking (BMC06).

[36] Erika Ábrahám, Andreas Grüner, and Martin Steffen.
Abstract interface behavior of object-oriented languages with monitors.
In Roberto Gorrieri and Heike Wehrheim, editors, *FMOODS '06*, volume 4037 of *Lecture Notes in Computer Science*, pages 218–232 (15 pages). Springer Verlag, 2006.

[37] Erika Ábrahám, Marc Herbstritt, Bernd Becker, and Martin Steffen.
Memory-aware bounded model checking for linear hybrid systems.
In *Proceedings of the 9th. Workshop for "Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen" (MBMV06)*, January 2006.
10 pages.

[38] Erika Ábrahám, Andreas Grüner, and Martin Steffen.
Dynamic heap-abstraction for open, object-oriented systems with thread classes (extended abstract).
In Arnold Beckmann, Ulrich Berger, Benedikt Löwe, and John V. Tucker, editors, *Logical Approaches to Computational Barriers: CiE 2006*, volume 3988 of *Lecture Notes in Computer Science*, pages 1–10 (10 pages). Springer Verlag, July 2006.
A preliminary version has been included in the informal workshop proceedings of Cosmicah'05, as Queen Mary Technical Report RR-05-04, a longer version has been published as Technical Report 0601 of the Institute of Computer Science of the University Kiel, January 2006.

[39] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
Inductive proof outlines for exceptions in multithreaded Java.
In Farhad Arbab and Marjan Sirjani, editors, *FSEN '05: IPM International Conference on Foundations of Software Engineering (Theory and Practice). Oct. 1 – 3, 2005)*, volume 159 of *Electronic Notes in Theoretical Computer Science*, pages 281–297 (17 pages). Elsevier Science Publishers, May 2005.
An extended version appeared in Fundamentae Informaticae.

Publications (continued)

[40] Frank S. de Boer, Marcello M. Bonsangue, Martin Steffen, and Erika Ábrahám.
A fully abstract trace semantics for UML components.
In Marcello Bonsangue, Frank S. de Boer, Willem-Paul de Roever, and Susanne Graf, editors, *Proceedings of the Third International Symposium on Formal Methods for Components and Objects (FMCO 2004)*, volume 3657 of *Lecture Notes in Computer Science*, pages 49–69 (21 pages). Springer Verlag, 2005.

[41] 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 Marcello Bonsangue, Frank S. de Boer, Willem-Paul de Roever, and Susanne Graf, editors, *Proceedings of the Third International Symposium on Formal Methods for Components and Objects (FMCO 2004)*, volume 3657 of *Lecture Notes in Computer Science*, pages 296–316 (21 pages). Springer Verlag, 2005.

[42] Erika Ábrahám, Bernd Becker, Felix Klaedke, and Martin Steffen.
Optimizing bounded model checking for linear hybrid systems.
In Radhia Cousot, editor, *Proceedings of the 6th International Workshop on Verification, Model Checking, and Abstract Interpretation (VMCAI 2005)*, volume 3385 of *Lecture Notes in Computer Science*, pages 396–412 (17 pages). Springer Verlag, 2005.

[43] Harald Fecher and Martin Steffen.
Characteristic μ-calculus formulas for underspecified transition systems.
volume 128. Elsevier Science Publishers, April 2005.
Proceedings of the 11th International Workshop on Expressiveness in Concurrency (Express 04), 30 August, 2004, London, Great Britain. 13 pages.

[44] Erika Ábrahám, Marcello M. Bonsangue, Frank S. de Boer, and Martin Steffen.
Object connectivity and full abstraction for a concurrent calculus of classes.
In *ICTAC'04*, volume 3407 of *Lecture Notes in Computer Science*, pages 37–51 (15 pages). Springer Verlag, July 2004.

[45] Natalia Ioustinova, Natalia Sidorova, and Martin Steffen.
Synchronous closing and flow analysis for model checking timed systems.
In Marcello Bonsangue, Frank S. de Boer, Willem-Paul de Roever, and Susanne Graf, editors, *Proceedings of the Second International Symposium on Formal Methods for Components and Objects (FMCO 2003)*, volume 3188 of *Lecture Notes in Computer Science*, pages 292–313 (22 pages). Springer Verlag, 2004.

[46] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
A compositional operational semantics for Java$_{MT}$.
In Nachum Derschowitz, editor, *International Symposium on Verification (Theory and Practice), July 2003*, volume 2772 of *Lecture Notes in Computer Science*, pages 290–303 (14 pages). Springer Verlag, 2004.
A preliminary version appeared as Technical Report TR-ST-02-2, May 2002.

[47] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
Inductive proof-outlines for monitors in Java.
In Elie Najm, Uwe Nestmann, and Perdita Stevens, editors, *FMOODS '03*, volume 2884 of *Lecture Notes in Computer Science*, pages 155–169 (15 pages). Springer Verlag, November 2003.
A longer version appeared as technical report TR-ST-03-1, April 2003.

[48] Natalia Ioustinova, Natalia Sidorova, and Martin Steffen.
Abstraction and flow analysis for model checking open asynchronous systems.
In *Proceedings of the 9th Asia-Pacific Software Engineering Conference (APSEC 2002, 4.–6. December 2002, Gold Coast, Queensland, Australia*, pages 227–235 (9 pages). IEEE Computer Society, December 2002.

[49] Erika Ábrahám-Mumm, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
Verification for Java's reentrant multithreading concept.
In Mogens Nielsen and Uffe H. Engberg, editors, *Proceedings of FoSSaCS 2002*, volume 2303 of *Lecture Notes in Computer Science*, pages 4–20 (17 pages). Springer Verlag, April 2002.
A longer version, including the proofs for soundness and completeness, appeared as Technical Report TR-ST-02-1, March 2002.

[50] Erika Ábrahám-Mumm, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
A tool-supported proof system for monitors in Java.
In Marcello M. Bonsangue, Frank S. de Boer, Willem-Paul de Roever, and Susanne Graf, editors, *FMCO 2002*, volume 2852 of *Lecture Notes in Computer Science*, pages 1–32 (33 pages). Springer Verlag, 2002.

[51] Natalia Ioustinova, Natalia Sidorova, and Martin Steffen.
Closing open SDL-systems for model checking with DT Spin.
In Lars-Henrik Eriksson and Peter A. Lindsay, editors, *Proceedings of Formal Methods Europe (FME'02)*, volume 2391 of *Lecture Notes in Computer Science*, pages 531–548 (18 pages). Springer Verlag, 2002.

[52] Natalia Sidorova and Martin Steffen.
Synchronous closing of timed SDL systems for model checking.
In Agostino Cortesi, editor, *Proceedings of the 3rd International Workshop on Verification, Model Checking, and Abstract Interpretation (VMCAI) 2002*, volume 2294 of *Lecture Notes in Computer Science*, pages 79–93 (15 pages). Springer Verlag, 2002.

[53] Erika Ábrahám-Mumm, Ulrich Hannemann, and Martin Steffen.
Assertion-based analysis of hybrid systems with PVS.
In Roberto Moreno-Díaz and Bruno Buchberger, editors, *Computer Aided Systems Theory (EUROCAST 2001), Selected and revised papers*, volume 2178 of *Lecture Notes in Computer Science*, pages 94–109 (16 pages). Springer Verlag, 2001.

Publications (continued)

[54] Erika Ábrahám-Mumm, Ulrich Hannemann, and Martin Steffen.
Verification of hybrid systems: Formalization and proof rules in PVS.
In *Proceedings of the Seventh IEEE International Conference on Engineering of Complex Computer Systems (ICECCS 2001)*, 2001.
10 pages. A preliminary and longer version appeared as technical report TR-ST-01-1.

[55] Natalia Sidorova and Martin Steffen.
Verifying large SDL-specifications using model checking.
In Rick Reed and Jeanne Reed, editors, *Proceedings of the 10th International SDL Forum SDL 2001: Meeting UML*, volume 2078 of *Lecture Notes in Computer Science*, pages 403–416 (14 pages). Springer Verlag, February 2001.

[56] Natalia Sidorova and Martin Steffen.
Embedding chaos.
In Patrick Cousot, editor, *Proceedings of the 8th International Static Analysis Symposium, SAS '01*, volume 2126 of *Lecture Notes in Computer Science*, pages 319–334 (15 pages). Springer Verlag, 2001.

[57] Dennis Dams, Yassine Lakhnech, and Martin Steffen.
Iterating transducers.
In Gérard Berry, Hubert Comon, and Alain Finkel, editors, *Proceedings of the 13th International Conference on Computer-Aided Verification, CAV '01*, volume 2102 of *Lecture Notes in Computer Science*, pages 286–297 (12 pages). Springer Verlag, 2001.

[58] Natalia Sidorova and Martin Steffen.
Verification of a wireless ATM medium-access protocol.
In *Proceedings of the 7th Asia-Pacific Software Engineering Conference (APSEC 2000), 5.–8. December 2000, Singapore*, pages 84–91 (8 pages). IEEE Computer Society, 2000.
A preliminary and longer version appeared as Universität Kiel technical report TR-ST-00-3.

[59] Karsten Stahl, Kai Baukus, Yassine Lakhnech, and Martin Steffen.
Divide, abstract, and model-check.
In Dennis Dams, Rob Gerth, Stefan Leue, and Mieke Massink, editors, *Theoretical and Practical Aspects of SPIN Model Checking, Proceedings of 5th and 6th International SPIN Workshops, Trento/Toulouse*, volume 1680 of *Lecture Notes in Computer Science*, pages 57–76 (20 pages). Springer Verlag, 1999.

[60] Martin Steffen and Benjamin C. Pierce.
Higher-order subtyping.
In Ernst-Rüdiger Olderog, editor, *Proceedings of PROCOMET '94*, pages 511–530 (20 pages). IFIP, North-Holland, June 1994.
Full version in *Theoretical Computer Science*, vol. 176, no. 1–2, pp. 235–282, 1997.

[61] Martin Steffen.
Polarized higher-order subtyping (extended abstract).
In Zhaohui Luo and Sergei Soloviev, editors, *Electronic Proceedings of the Types working group Workshop on Subtyping, inheritance and modular development of proofs*, August 1997.
12 pages.

[62] Uwe Nestmann and Martin Steffen.
Typing confluence.
In Stefania Gnesi and Diego Latella, editors, *Proceedings of the Second International Workshop on Formal Methods for Industrial Critical Systems, FMICS '97*, pages 77–101 (25 pages). Consiglio Nazionale Ricerche di Pisa, 1997.
Also available as report ERCIM-10/97-R052, European Research Consortium for Informatics and Mathematics, 1997.

[63] Uwe Nestmann and Martin Steffen.
Correct transformational design of concurrent search structures.
In Burkhard Freitag, Clifford Jones, Christian Lengauer, and Hans-Jörg Schek, editors, *Object-Orientation with Parallelism and Persistence*, Now: The Springer International Series in Engineering and Computer Science (Hardcover), pages 23–42 (20 pages). Kluwer Academic Publishers, 1996.

[64] Martin Hofmann, Wolfgang Naraschewski, Martin Steffen, and Terry Stroup.
Inheritance of proofs.
In *Electronic proceedings of the Third Workshop on Foundations of Object-Oriented Languages (FOOL 3)*, July 1996.
An extended version appeared as Interner Bericht, Universität Erlangen-Nürnberg, IMMDVII-5/96, which was published in the special issue of Theory and Practice of Object-Oriented Systems (TAPOS), January 1998.

[65] Uwe Nestmann, Martin Steffen, and Terry Stroup.
Formale Semantik für asynchronen Methodenaufruf.
In Reinhard Gotzhein and Jan Bredereke, editors, *Formale Beschreibungstechniken für verteilte Systeme*, pages 169–178 (10 pages). Universität Kaiserslautern, Fachbereich Informatik, 22./23. Juni 1995.
Available as Universität-Nürnberg Erlangen, IMMD7, Interner Bericht TR-I7-95-11.

[66] Martin Steffen and Michael Siegel.
Validity in the propositional μ-calculus.
In U. Goltz and W. Reisig, editors, *Workshop: Logics for Distributed Systems, GMD-Studien Nr. 214*. GMD, Gesellschaft für Mathematik und Datenverarbeitung, 1992.

Journal publications

[67] Einar Broch Johnsen, Martin Steffen, and Johanna Beate Stumpf.
Virtually timed ambients: A calculus of nested virtualization.
Journal of Logic and Algebraic Methods in Programming, 2017.
Accepted for Publication in the Journal of Logic and Algebraic Methods in Programming (JLAMP). Special Issue on Selected Contributions of NWPT'16.

[68] Ka I Pun, Martin Steffen, and Volker Stolz.
Deadlock checking by data race detection.
Journal of Logic and Algebraic Methods in Programming, March 2014.
Available online 13 August 2014, http://dx.doi.org/10.1016/j.jlamp.2014.07.003. A preliminary version was published as University of Oslo, Dept. of Computer Science Technical Report 421, October 2012, and a shorter version in the proceedings of FSEN'13.

[69] Ka I Pun, Martin Steffen, and Volker Stolz.
Effect-polymorphic behaviour inference for deadlock checking.
Journal of Logic and Algebraic Methods in Programming, 85(6), October 2016.
A longer version is available (under the title "Lock-Polymorphic Behaviour Inference for Deadlock Checking") as UiO, Dept. of Informatics Technical Report 436, Sep. 2013.

[70] Erika Ábrahám, Thi Mai Thuong Tran, and Martin Steffen.
Observable interface behavior and inheritance.
Mathematical Structures in Computer Science (Special Issue on Behavioral Types), 26:561–605, November 2014.
Published online 13 November 2014. The paper is a reworked version of the earlier UiO IFI technical report 409.

[71] Hallstein A. Hansen, Gerardo Schneider, and Martin Steffen.
Reachability analysis of complex planar hybrid systems.
Science of Computer Programming, 78(12):2511–2536, December 2013.
The work has been published as University of Oslo, Dept. of Computer Science Technical report 412, November 2011. It is also an extended version of a paper published in the LNCS proceedigs of FSEN 2011.

[72] Frank de Boer, Immo Grabe, and Martin Steffen.
Termination detection for active objects.
Journal of Logic and Algebraic Programming, 81(4):541–557, May 2012.

[73] Ka I Pun, Martin Steffen, and Volker Stolz.
Deadlock checking by a behavioral effect system for lock handling.
Journal of Logic and Algebraic Programming, 81(3):331–354, March 2012.
A preliminary version was published as University of Oslo, Dept. of Computer Science Technical Report 404, March 2011.

[74] Einar Broch Johnsen, Thi Mai Thuong Tran, Olaf Owe, and Martin Steffen.
Safe locking for multi-threaded Java with exceptions.
Journal of Logic and Algebraic Programming, special issue of selected contributions to NWPT'10, March 2012.
Available online 3. March 2012.

[75] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Incremental reasoning with lazy behavioral subtyping for multiple inheritance.
Science of Computer Programming, 76:915–941, 2011.

[76] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Lazy behavioral subtyping.
Journal of Logic and Algebraic Programming, 79(7):578–607, April 2010.
30 pages. Article in Press, Preprint available at `doi:10.1016/j.jlap.2010.07.008`. Presented at the 20th Nordic Workshop on Programming Theory, NWPT '08, Tallinn. A shorter conference version appeared in the Proceedings of the 15th International Symposium on Formal Methods (FM'08), LNCS 5014.

[77] Erika Ábrahám, Immo Grabe, Andreas Grüner, and Martin Steffen.
Behavioral interface description of an object-oriented language with futures and promises.
Journal of Logic and Algebraic Programming, 78(7):491–518 (28 pages), 2009.
Special issue with selected contributions of NWPT'07. The paper is a reworked version of an earlier UiO Technical Report TR-364, Oct. 2007.

[78] 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 (73 pages), 2008.
An extended version of the 2005 conference contribution to FSEN'05 and a reworked and shortened version of the University of Kiel, Dept. of Computer Science technical report 0303.

[79] Erika Ábrahám, Andreas Grüner, and Martin Steffen.
Heap-abstraction for an object-oriented calculus with thread classes.
Journal of Software and Systems Modelling (SoSyM), 7(2):177–208 (32 pages), May 2008.

[80] Erika Ábrahám, Andreas Grüner, and Martin Steffen.
Abstract interface behavior of object-oriented languages with monitors.
Theory of Computing Systems, 43(3-4):322–361 (40 pages), December 2008.

[81] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
An assertion-based proof system for multithreaded Java.
Theoretical Computer Science, 331:251–290 (40 pages), 2005.

Journal publications (continued)

[82] Dennis Dams, Yassine Lakhnech, and Martin Steffen.
Iterating transducers.
Journal of Logic and Algebraic Programming, special issue on Model Checking, 52–53:109–127 (19 pages), July 2002.
This is an extended version of the conference version under the same title, Computer Aided Verification (CAV'01), LNCS 2102.

[83] Martin Hofmann, Wolfgang Naraschewski, Martin Steffen, and Terry Stroup.
Inheritance of proofs.
Theory and Practice of Object Systems (Tapos), Special Issue on the Third Workshop on Foundations of Object-Oriented Languages (FOOL 3, LICS and Federated Logic Conferences Workshop), July 1996, 4(1):51–69 (19 pages), January 1998.
An extended version appeared as Interner Bericht, Universität Erlangen-Nürnberg, IMMDVII-5/96.

[84] Benjamin C. Pierce and Martin Steffen.
Higher-order subtyping.
Theoretical Computer Science, 176(1,2):235–282 (48 pages), 1997.
A shorter version appeared in the Proceedings IFIP Working Conference on Programming Concepts, Methods and Calculi (p. 511–530), 1994.
Also as LFCS technical report ECS-LFCS-94-280 and as Interner Bericht IMMD7-01/94, Universität Erlangen.

Submitted for publication/In preparation

[85] Einar Broch Johnsen, Martin Steffen, Johanna Beate Stumpf, and Lars Tveito.
Resource-aware virtually timed ambients.
In *Under preparation*, 2017.

[86] Einar Broch Johnsen, Martin Steffen, Johanna Beate Stumpf, and Lars Tveito.
Checking modal contracts for virtually timed ambients.
In *Under preparation*, 2017.

[87] Daniel Fava, Martin Steffen, Volker Stolz, and Stian Valle.
An operational semantics for a weak memory model with channel synchronization.
In *Submitted for publication*, October 2017.

[88] Martin Steffen.
Formal verification and analysis for IoT: A survey.
In preparation, November 2017.

[89] Einar Broch Johnsen, Martin Steffen, and Johanna Beate Stumpf.
Assumption-commitment type system for resource managment in virtually timed ambients.
In *Submitted for publication*, October 2017.

[90] Ka I Pun, Martin Steffen, Volker Stolz, Anna-Katharina Wickert, Eric Bodden, and Michael Eichberg.
Gotcha: Static taint analysis for Go.
Journal of Logic and Algebraic Methods in Programming, 2017.
Under Review for a special issue with selected papers from NWPT'16.

[91] Thi Mai Thuong Tran, Martin Steffen, and Hoang Truong.
Compositional static analysis for implicit join synchronization in a transactional setting.
September 2014.
Submitted for journal publication, as extended version of the accepted SEFM conference contribution.

Edited books and proceedings

[92] Olaf Owe, Martin Steffen, and Jan Arne Telle, editors.
Information and Computation: Special issue with selected publications of "Fundamentals of Computation Theory", FCT '11, volume 231. Elsevier, October 2013.

[93] Olaf Owe, Martin Steffen, and Jan Arne Telle, editors.
Proceedings of FCT '11: Fundamentals of Computation Theory, 18th International Symposium (Oslo, Norway, August 25 – 28, 2011), volume 6914 of *Lecture Notes in Computer Science*. Springer Verlag, 2011.

[94] Dennis Dams, Ulrich Hannemann, and Martin Steffen, editors.
Concurrency, Compositionality, and Correctness: Essays in Honor of Willem-Paul de Roever, number 5930 in Lecture Notes in Computer Science. Springer Verlag, 2010.
377 pages.

[95] Martin Steffen and Gianluigi Zavattaro, editors.
Proceedings of the 7th IFIP International Conference on Formal Methods for Open Object-Based Distributed Systems (FMOODS '05), Athens, Greece, volume 3535 of *Lecture Notes in Computer Science*. Springer Verlag, 2005.

Theses

[96] Martin Steffen.
Object-Connectivity and Observability for Class-Based, Object-Oriented Languages.
Habilitation thesis, Technische Faktultät der Christian-Albrechts-Universität zu Kiel, July 2006.
281 pages.

[97] Martin Steffen.
Polarized Higher-Order Subtyping.
PhD thesis, Technische Fakultät, Friedrich-Alexander-Universität Erlangen-Nürnberg, 1998.
260 pages.

[98] Michael Siegel and Martin Steffen.
Vollständigkeit eines Beweissystems für Hennessy-Milner-Logik mit Rekursion.
Diplomarbeit, Friedrich-Alexander-Universität, Erlangen-Nürnberg, 1992.
71 pages.

[99] Michael Siegel and Martin Steffen.
Ein Beweissystem für Hennessy-Milner-Logik mit Rekursion.
Studienarbeit, Friedrich-Alexander-Universität, Erlangen-Nürnberg, 1991.
61 pages.

Technical reports

[100] Daniel Fava, Martin Steffen, Volker Stolz, and Stian Valle.
An operational semantics for a weak memory model with buffered writes, message passing, and goroutines.
Technical Report 466, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, April 2017.

[101] Bjørnar Luteberget, Christian Johansen, and Martin Steffen.
Rule-based consistency checking of railway infrastructure designs.
Technical report 450, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, January 2016.
A shorter version has been submitted for inclusion in conference proceedings.

[102] Ka I Pun, Martin Steffen, and Volker Stolz.
Lock-polymorphic behaviour inference for deadlock checking.
Technical report 436, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, September 2013.
Available electronically at `http://www.ifi.uio.no/~msteffen/download/13/lockpolymorphic-rep.pdf`. Submitted to journal publication.

[103] Ka I Pun, Martin Steffen, and Volker Stolz.
Deadlock checking by data race detection.
Technical report 421, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, October 2012.

[104] Ka I Pun, Martin Steffen, and Volker Stolz.
Behaviour inference for deadlock checking.
Technical report 416, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, July 2012.

[105] Thi Mai Thuong Tran, Martin Steffen, and Hoang Truong.
Estimating resource bounds for software transactions.
Technical report 414, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, December 2011.

[106] Hallstein A. Hansen, Gerardo Schneider, and Martin Steffen.
Reachability analysis of complex planar autonomous systems.
Technical report 412, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, November 2011.

[107] Erika Ábrahám, Thi Mai Thuong Tran, and Martin Steffen.
Observable interface behavior and inheritance.
Technical Report 409, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, April 2011.
`www.ifi.uio.no/~msteffen/publications.html#techreports`.

[108] Ka I Pun, Martin Steffen, and Volker Stolz.
Deadlock checking by a behavioral effect system for lock handling.
Technical report 404, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, March 2011.

[109] Einar Broch Johnsen, Thi Mai Thuong Tran, Olaf Owe, and Martin Steffen.
Safe locking for multi-threaded Java.
Technical Report (revised version) 402, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, January 2011.
`www.ifi.uio.no/~msteffen/publications.html#techreports`.

[110] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Lazy behavioral subtyping: Single inheritance and interfaces.
Research Report 384, Department of Informatics, University of Oslo, May 2009.
38 pages. Submitted for journal publication. Available at `http://einarj.at.ifi.uio.no/rr384.pdf`.

[111] Martin Steffen and Thi Mai Thuong Tran.
Safe commits for Transactional Featherweight Java.
Technical Report 392, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, October 2009.
23 pages.

Technical reports (continued)

[112] Immo Grabe, Martin Steffen, and Arild Braathen Torjusen.
Executable interface specifications for testing asynchronous Creol components.
Technical Report 375, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, July 2008.
26 pages.

[113] Martin Steffen and Thi Mai Thuong Tran.
The stock quoter case study.
Internal Document, March 2009.

[114] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Incremental reasoning for multiple inheritance.
Research Report 373, Department of Informatics, University of Oslo, April 2008.
21 pages.

[115] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Lazy behavioral subtyping (revised version).
Technical Report 368, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, March 2008.
21 pages.

[116] Erika Ábrahám, Immo Grabe, Andreas Grüner, and Martin Steffen.
Behavioral interface description of an object-oriented language with futures and promises.
Technical Report 364, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, October 2007.
38 pages.

[117] Olaf Owe, Gerardo Schneider, and Martin Steffen.
Components, objects, and contracts.
Research Report 363, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, August 2007.
18 pages. A short version appeared in the proceedings of SAVCBS'07.

[118] Erika Ábrahám, Andreas Grüner, and Martin Steffen.
Abstract interface behavior of object-oriented languages with monitors.
Technical Report 0612, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, October 2006.
43 pages.

[119] Erika Ábrahám, Andreas Grüner, and Martin Steffen.
Dynamic heap-abstraction for open, object-oriented systems with thread classes.
Technical Report 0601, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, January 2006.
40 pages. A slightly shorter version is accepted for inclusion into the Journal of Software and Systems Modeling (SoSym).

[120] Erika Ábrahám, Andreas Grüner, and Martin Steffen.
An open structural operational semantics for an object-oriented calculus with thread classes.
Technical Report 0505, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, May 2005.

[121] Erika Ábrahám, Bernd Becker, Felix Klaedke, and Martin Steffen.
Optimizing bounded model checking for linear hybrid systems.
Technical report TR214, Albert-Ludwigs-Universität Freiburg, Fakultät für Angewandte Wissenschaften, Institut für Informatik, November 2004.

[122] Erika Ábrahám, Marcello M. Bonsangue, Frank S. de Boer, and Martin Steffen.
Object connectivity and full abstraction for a concurrent calculus of classes.
Preliminary technical report, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, January 2005.

[123] Erika Ábrahám, Marcello M. Bonsangue, Frank S. de Boer, and Martin Steffen.
A structural operational semantics for a concurrent class calculus.
Technical Report 0307, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, August 2003.

[124] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
Inductive proof outlines for multithreaded Java with exceptions.
Technical Report 0313, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, December 2003.

[125] Erika Ábrahám, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
A Hoare logic for monitors in Java.
Techical report TR-ST-03-1, Lehrstuhl für Software-Technologie, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, April 2003.
80 pages.

[126] Erika Ábrahám-Mumm, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
A compositional operational semantics for Java$_{MT}$.
Technical Report TR-ST-02-2, Lehrstuhl für Software-Technologie, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, May 2002.
15 pages.

[127] Erika Ábrahám-Mumm, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
Verification for Java's reentrant multithreading concept: Soundness and completeness.
Technical Report TR-ST-02-1, Lehrstuhl für Software-Technologie, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, 2002.
95 pages.

Technical reports (continued)

[128] Erika Ábrahám-Mumm, Ulrich Hannemann, and Martin Steffen.
Verification of hybrid systems: Formalization and proof rules in PVS.
Technical Report TR-ST-01-1, Lehrstuhl für Software-Technologie, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, January 2001.

[129] Dennis Dams, Yassine Lakhnech, and Martin Steffen.
Iterating transducers for safety of abstraction.
Internal Report TR-ST-00-2, Christian-Albrechts-Universität, Lehrstuhl Softwaretechnologie, May 2000.

[130] Natalia Sidorova and Martin Steffen.
Verification of a wireless ATM medium-access protocol.
Technical Report TR-ST-00-3, Lehrstuhl für Software-Technologie, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, May 2000.
22 pages.

[131] Natalia Sidorova and Martin Steffen.
Verifying Mascara Control.
Technical Report TR-ST-00-1, Lehrstuhl für Software-Technologie, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, May 2000.
40 pages.

[132] Martin Hofmann, Wolfgang Naraschewski, Martin Steffen, and Terry Stroup.
Inheritance of proofs.
Interner Bericht 5/96, Universität Erlangen-Nürnberg, Informatik, IMMDVII, June 1996.
presented at the Third FOOL Workshop, 96, also as contribution in a special issue of Theory and Practice of Object-Oriented Systems (TAPOS), January 1998.

[133] Uwe Nestmann, Martin Steffen, and Terry Stroup.
Formale Semantik für asynchronen Methodenaufruf.
Interner Bericht TR-I7-95-11, Universität Erlangen–Nürnberg, IMMD VII, May 1995.

[134] Michael Egner, Uwe Nestmann, and Martin Steffen.
Confluent Processes for Transformation Correctness (preliminary version).
Interner Bericht IMMD7-1/95, Informatik VII, Universität Erlangen-Nürnberg, January 1995.

[135] Martin Steffen and Benjamin C. Pierce.
Higher-order subtyping.
Interner Bericht IMMD7-01/94, Informatik VII, Universität Erlangen-Nürnberg, January 1994.
Also as Edinburgh LFCS technical report ECS-LFCS-94-280.

[136] Uwe Nestmann and Martin Steffen.
Kalkübasierte OO-Sprachen.
Technical Report IMMD7-02/94, Universität Erlangen-Nürnberg, Informatik, IMMDVII, 1994.

Other papers (workshop contributions . . .)

[137] Daniel Fava, Martin Steffen, Volker Stolz, and Stian Valle.
An operational semantics for a weak memory model with buffered writes, message passing, and goroutines.
In *Informal proceedings of the PhD Symposium at iFM'17 (integrated Formal Methods)*, 2017.
Submitted for publication.

[138] Johanna Beate Stumpf, Einar Broch Johnsen, and Martin Steffen.
Virtually timed ambients: Formalization and analysis (extended abstract).
In *Informal proceedings of the PhD Symposium at iFM'17 (integrated Formal Methods)*, June 2017.
Submitted for presentation.

[139] Ka I Pun, Martin Steffen, Volker Stolz, Anna-Katharina Wickert, Eric Bodden, and Michael Eichberg.
Don't let data Go astray: A context-sensitive taint analysis for concurrent programs in Go (extended abstract).
In *Proceedings of the 24nd Nordic Workshop on Programming Theory (NWPT'16)*, 2016.

[140] Einar Broch Johnsen, Martin Steffen, and Johanna Beate Stumpf.
A calculus of virtually timed ambients (extended abstract).
In *Informal Proceedings of the 23rd International Workshop on Algebraic Development Techniques (WADT 2016)*, September 2016.

[141] Einar Broch Johnsen, Martin Steffen, and Johanna Beate Stumpf.
A calculus of virtually timed ambients (extended abstract).
In *Proceedings of the 24nd Nordic Workshop on Programming Theory (NWPT'16)*, October 2016.

[142] Ka I Pun, Martin Steffen, and Volker Stolz.
Lock-polymorphic behaviour inference for deadlock checking (extended abstract).
In *Proceedings of NWPT'13*, November 2013.
A longer version is available as UiO, Dept. of Informatics Technical Report 436, Sep. 2013.

Other papers (workshop contributions . . .) (continued)

[143] Ka I Pun, Martin Steffen, and Volker Stolz.
Deadlock checking by data race detection.
In *Proceedings of the 24nd Nordic Workshop on Programming Theory (NWPT'12)*. Dept. of Informatics, University of Bergen, Report Nr. 403, October 2012.

[144] Thi Mai Thuong Tran, Martin Steffen, and Hoang Truong.
Compositional analysis of resource bounds for software transactions.
In *Proceedings of the 24nd Nordic Workshop on Programming Theory (NWPT'12)*. Dept. of Informatics, University of Bergen, Report Nr. 403, October 2012.

[145] Ka I Pun, Martin Steffen, and Volker Stolz.
Polymorphic behavioural lock effects for deadlock checking (extended abstract).
In *Proceedings of the 23nd Nordic Workshop on Programming Theory (NWPT'11)*, volume 254/2011, pages 48–50. Mälardalen Real-time Research Centre, Mälardalen University, October 2011.

[146] Thi Mai Thuong Tran, Martin Steffen, and Hoang Truong.
Estimating resource bounds for software transactions (extended abstract).
In *Proceedings of the 23nd Nordic Workshop on Programming Theory (NWPT'11)*, volume 254/2011, pages 77–79. Mälardalen Real-time Research Centre, Mälardalen University, October 2011.

[147] Erika Ábrahám, Thi Mai Thuong Tran, and Martin Steffen.
Observable interface behavior and inheritance (extended abstract).
In *Proceedings of the 23nd Nordic Workshop on Programming Theory (NWPT'11)*, volume 254/2011. Mälardalen Real-time Research Centre, Mälardalen University, October 2011.

[148] Thi Mai Thuong Tran and Martin Steffen.
Specification and verification.
In *Eternal Task Force 2: Time Awareness and Management. State-of-the-Art Report*, January 2011.

[149] Ka I Pun and Martin Steffen.
Deadlock checking by behavior inference for lock handling (extended abstract).
In *Proceedings of the 22nd Nordic Workshop on Programming Theory (NWPT'10)*, volume 57 of *TUCS General Publication*, pages 8–9. Turku Centre for Comuter Science, November 2010.

[150] Martin Steffen and Thi Mai Thuong Tran.
Safe commits for Transactional Featherweight Java (extended abstract).
In *Proceedings of the Nordic Workshop on Programming Theory, NWPT'09*, October 2009.

[151] Frank S. de Boer, Immo Grabe, and Martin Steffen.
Static deadlock detection for active objects (extended abstract).
In *ENTCS Proceedings of NWPT'09*, September 2009.

[152] Olaf Owe, Martin Steffen, and Arild Torjusen.
Model testing asynchronously communicating objects using modulo AC rewriting (extended abstract).
In *Proceedings of NWPT'09*, September 2009.

[153] Marcel Kyas, Andries Stam, Martin Steffen, and Arild Braathen Torjusen.
A specification-driven interpreter for testing asynchronous Creol components (extended abstract).
In Tarmu Uustalu, Jüri Vain, and Juhan Ernits, editors, *Proceedings of the Nordic Workshop of Programming Theory '08 (Abstracts), Tallinn*, November 2008.
Presented at the 20th Nordic Workshop on Programming Theory, NWPT'08, Tallinn.

[154] Johan Dovland, Einar Broch Johnsen, Olaf Owe, and Martin Steffen.
Lazy behavioral subtyping (extended abstract).
In Tarmu Uustalu, Jüri Vain, and Juhan Ernits, editors, *Proceedings of the Nordic Workshop of Programming Theory '08 (Abstracts), Tallinn*, November 2008.
Presented at the 20th Nordic Workshop on Programming Theory, NWPT '08, Tallinn.

[155] Erika Ábrahám, Immo Grabe, Andreas Grüner, and Martin Steffen.
Abstract interface behavior of an object-oriented language with futures and promises (extended abstract).
In Einar B. Johnsen, Olaf Owe, and Gerardo Schneider, editors, *Proceedings of the 19th Nordic Workshop on Programming Theory (NWPT'07). Extended Abstracts. University of Oslo, Dept. of Computer Science, Technical Report 366*, October 2007.

[156] Frank S. de Boer, Marcello M. Bonsangue, Andreas Grüner, and Martin Steffen.
Test driver generation from object-oriented interaction traces (extended abstract).
In Einar B. Johnsen, Olaf Owe, and Gerardo Schneider, editors, *Proceedings of the 19th Nordic Workshop on Programming Theory (NWPT'07). Extended Abstracts. University of Oslo, Dept. of Computer Science, Technical Report 366*, pages 52–54, October 2007.

[157] Claus Traulsen and Martin Steffen.
Using constraints for model checking buffered systems (extended abstract).
In *Informal Proceeding of the 17th Nordic Workshop on Programming Theory*, September 2005.

[158] Erika Ábrahám, Andreas Grüner, and Martin Steffen.
Dynamic heap-abstraction for open, object-oriented systems with thread classes.
In Radu Iosif and Dino Distefano, editors, *Proceedings of the First International Workshop on the Verification of COncurrent Systems with dynaMIC Allocated Heaps, Cosmicah'05, Queen Mary Technical Report RR-05-04*, pages 47–61 (14 pages), July 2005.

Other papers (workshop contributions . . .) (continued)

[159] Erika Ábrahám, Marcello M. Bonsangue, Frank S. de Boer, and Martin Steffen.
Classes, object connectivity, and observability (extended abstract).
In *Informal Electronic Proceedings of the "12. Kolloquium Programmiersprachen und Grundlagen der Programmierung"*. University Freiburg, April 2004.

[160] Erika Ábrahám-Mumm, Frank S. de Boer, Willem-Paul de Roever, and Martin Steffen.
Deductive verification for multithreaded Java (extended abstract).
In *Proceedings of the "11. Kolloquium Programmiersprachen und Grundlagen der Programmierung", 2001, Rurberg*, pages 121–126, 2001.

[161] Erich Mikk and Martin Steffen.
Javaprojekt: "Programming environment for Statecharts".
Included in the proceedings of the "7. Deutschen Anwenderforum für Statemate MAGNUM", 26.–27. April, 1999, 1999.

Supervised theses (Ph.D/master/diploma/study-theses)

[162] Farzane Karami.
Language based security (working title).
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2021.

[163] Daniel Fava.
Synthesis for Concurrent Programs with Weak Memory Models (working title).
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2019.

[164] Shukun Tokas.
Formal Security Analysis for Communicating Object Systems (working title).
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2019.

[165] Bjørnar Luteberget.
Correct Railway Design: Formal Verification and Tools (working title).
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2018.

[166] Johanna Beate Stumpf.
Virtually Timed Ambients: Semantics and Analysis (working title).
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2018.

[167] Ka I Pun.
Behavioural Static Analysis for Deadlock Checking.
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2014.
Defended June, 26, 2014.

[168] Silvia Lizeth Tapia Tarifa.
Executable Modeling of Deployment Decisions for Resource-Aware Distributed Applications.
PhD thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, May 2014.

[169] Arild Braathen Torjusen.
Specification-Based Verification and Testing of Open Distributed Systems.
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2010.

[170] Thi Mai Thuong Tran.
Compositional Formal Analysis for Concurrent Object-Oriented Languages.
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, June 2012.
Defended 11. June 2013.

[171] Hallstein Hansen.
Automatic Analysis of Discretized Hybrid Systems.
PhD thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, 2011.

[172] Erika Ábrahám.
An Assertional Proof System for Multithreaded Java — Theory and Tool Support.
PhD thesis, University of Leiden, 2004.
IPA dissertation series 2005-01, Defended 20.1.2005.

[173] Andreas Grüner.
Testing Concurrent Objects.
PhD thesis, University Leiden, 2010.

[174] Immo Grabe.
Static Analysis of Unbounded Structures in Object-Oriented Programs.
PhD thesis, University Leiden, 2012.
Defended 19. December 2012.

[175] Morten Aske Kolstad.
Program verification with Liquid Haskell.
Master's thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, 2018.

Supervised theses (Ph.D/master/diploma/study-theses) (continued)

[176] Håkon Smørvik.
Comparative study of modern programming languages and frameworks for web services (working title).
Master's thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, 2019.

[177] Yrjan Skrimstad.
Discovering the trusting trust attack (working title).
Master's thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, 2018.

[178] Christopher Trotter.
Combinatorial algebraic topology and concurrency (working title).
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2018.
Under work.

[179] Andreas Fladstad.
Scalable and concurrent flow analysis for Go (working title).
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2018.
Under work.

[180] Tor Husaboe.
A comparative evaluation of the new C^{++} standard (working title).
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2018.
Under work.

[181] Morten Fliflet Johannessen.
Automatic parallelization of Go programs (working title).
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2018.
Under work.

[182] Pavel Jurasek.
Static taint analysis for PHP (working title).
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2018.
Under work.

[183] Araz Abishov.
Reactive extensions for Rust (working title).
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2018.
Under work.

[184] Eric Vesteraas.
Rust types from JSON samples.
Master's thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, July 2017.
Under work.

[185] Olaf Aarseth Berge.
A survey of JavaScript features.
Master's thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, December 2016.

[186] Stian Valle.
Shared variables in Go. A semantic analysis of the Go memory model.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, November 2016.

[187] Lars Tveito.
Developing real-time collaborative editing using formal methods.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2016.

[188] Carl Martin Rosenberg.
Leveraging DTrace for runtime verification.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, May 2016.

[189] Christian Bergum Bergersen.
Detection of bugs and code smells for the Go programming language.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2016.

[190] Altin Qeriqi.
A PLC-NuSMV compiler for model checking safety critical control systems.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, May 2016.

[191] Joakim Kristiansen.
Safer refactorings.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2016.

[192] Peter Brottveit Bock.
Formalization of a type and effect system using Coq and OTT.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, November 2013.

[193] Immo Grabe.
Cloning and Processes.
Diplomarbeit, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, January 2006.

Supervised theses (Ph.D/master/diploma/study-theses) (continued)

[194] Immo Grabe.
Konzept und Implementierung einer Datenbankanwendung für einen medizinischen Diagnosekatalog.
Studienarbeit im Fach Informatik, December 2005.

[195] Claus Traulsen.
Enumerative model checking using constraints for asynchronous systems with queues.
Diplomarbeit, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, January 2005.

[196] Andreas Grüner.
Cliques and components: Implementing traces and object-connectivity for a concurrent language.
Diplomarbeit, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, July 2004.

[197] Thomas Richter.
Komponentenbasierter Entwurf und Spezifikation eines Softwareprojektes mittels UML und Java 2 Enterprise Edition.
Diplomarbeit, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, November 2002.

[198] Mike Scheske.
Software Engineering im SAP R/3.
Diplomarbeit, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, September 2002.

[199] Tim D'Avis.
Verification of dynamically changing asynchronous networks.
Diplomarbeit, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, April 2005.

[200] Tim D'Avis.
Verifikationsfallstudie für nebenläufiges Java.
Studienarbeit, Institut für Informatik und Praktische Mathematik, Christian-Albrechts-Universität zu Kiel, July 2003.

[201] Henrik Bohnenkamp.
CLOWN: Concurrent Language with Objects and Wait-by-Necessity.
Studienarbeit, Friedrich-Alexander-Universität Erlangen-Nürnberg, 1994.

[202] Magnus Binder.
Modellierung von *guarded choice* in Pict.
Diplomarbeit, Friedrich-Alexander-Universität Erlangen-Nürnberg, 1995.

[203] Christoph Wedler.
Verifikation objektorientierter verteilter Systeme.
Diplomarbeit, Friedrich-Alexander-Universität Erlangen-Nürnberg, 1993.

[204] Michael Egner.
Korrekter Entwurf objektbasierter verteilter Programme durch Programmtransformation.
Diplomarbeit, Friedrich-Alexander-Universität Erlangen-Nürnberg, 1994.

[205] Thomas Schreiber.
Verifikation von imperativen Programmen mit dem Beweisprüfer Lego.
Diplomarbeit, Friedrich-Alexander-Universität Erlangen-Nürnberg, 1993.

[206] Wolfgang Naraschewski.
Object-oriented proof principles using the proof-assistant Lego.
Diplomarbeit, Friedrich-Alexander-Universität Erlangen-Nürnberg, June 1996.

Opponent in a PhD committee/External evaluator of Master defense

[207] Manoj Upadhaya.
Xxx.
Master's thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, 2017.

[208] Subhash Neupane.
Modeling smart home processes unsing the event-based modelling language tools of DCR graph.
Master's thesis, University of Oslo, Faculty of Mathematics and Natural Sciences, Dept. of Informatics, November 2017.

[209] Muhammad Zohaib Zafar Iqbal.
Environment Model-Based System Testing of Real-Time Systems.
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, September 2012.
Defended 18. September 2012.

[210] Joachim Klein.
Compositional Synthesis and Most General Controllers.
PhD thesis, TU Dresden, January 2013.

[211] Anders Moen Hagalisletto.
Automated support for the design and analysis of security protocols.
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, December 2007.
Defended 14. December 2007.

Opponent in a PhD committee/External evaluator of Master defense (continued)

[212] Xuedong Liang.
QoS Provisioning for Wireless Sensor Networks: Algorithms, Protocols and Modeling.
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, December 2009.
Defended 21. December.

[213] Ingrid Chieh Yu de Vibe.
Type Safety for Distributed, Concurrent Programs with Class Upgrades.
PhD thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2010.
Submitted December 2009.

[214] Rudolf Schlatte.
Passive Testing with Parallel Object-Oriented Software Models.
PhD thesis, University Graz, March 2010.

[215] Sigurd Kittilsen.
Partitioning $\{0, 1, \ldots, r\}$ into m subsets of equal sum.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, May 2017.

[216] Aulon Mujaj.
A comparison of secure messaging protocols and implementations.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, June 2017.

[217] Lars Kristian Maron Telle.
An exploration into Goodstein sequences and Hydra games.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, 2015.

[218] Andreas R. Askeland.
Investigations in complexity theory related to the space hierarchy theorem.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, May 2015.

[219] Simen Heggestøl.
Visual query formulation and subclass reasoning for linked open data.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, June 2014.

[220] Marius Strandhaug.
An R2RML mapping management API in Java.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, June 2014.

[221] Wenlu Zhang.
Formal modeling and analysis of the CANOpen protocol in full Maude.
Master's thesis, Faculty of Mathematics and Natural Sciences, University of Oslo, June 2014.