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# 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 Study of Computer Science (university diploma studies) at the Friedrich-Alexander-University, Erlangen-Nürnberg. Minor subject: physics with focus 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 Professor at the Department of Informatics of the University Oslo, 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 Oslo, in the group *"Precise Modelling and Analysis"*.
- Aug. 06 – Oct. 08 Senior researcher (4 years with 25% teaching obligation, financed by the Credo-project and partly by the department) at the Department of Informatics of the University Oslo, in the group *"Precise Modelling and Analysis"*. Research (mainly within the EU project *Credo*), teaching, and supervision.

## Education and career (continued)

Feb. 97 – Feb. 06	Scientific assistant (“Habilitation position”) at the chair of Software Technology (Prof. Dr. de Roever) at the University Kiel. Various teaching obligations and collaboration in different international projects.
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 assistant, different tasks within the SFB sub-project “Specification and verification of distributed systems” (student tutor, project work).
winter term 88 – winter term 89	student assistant for the lectures <i>Logic and Recursion Theory I and II</i> 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.
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## Military resp. community service

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

I was involved in the following projects and in their application. For the TRACES project (under review), I am the project leader. In HATS, Credo, the Mobi-J-projects, the DAAD-ARC projects and the SFB sub-project, I participated in writing the application and was/am responsible for different work packages. In one of the DAAD-ARC projects (“Co-development”) I was *project leader*. I was also *project leader* of the Norwegian side of the bilateral DAAD-NFR project Avabi. In the Vires-project, I was responsible for different work packages. In *Omega*, I participated in the project by providing various deliverables. In the Cost-action, which is a network of researchers sharing interests, I am one of three COST representatives of the UiO. For the EU Coordination Action “Trustworthy Eternal Systems via Evolving Software, Data and Knowledge” EternalS, I act as *external expert* for task force 2 “Time Awareness and Management” .

DAAD-NFR exchange project	(2015/2015) GoreTech “ <i>Go Runtime Enforcement Techniques</i> ”, 2-years bilateral collaboration between the University of Oslo and the University of Aachen, Germany within the DAAD-NFR PPP programme of person exchange. Project leader of the Norwegian side.
ConSeRNS	(2014 – ) “Concurrent Security and Robustness for Networked Systems”, member of the Conserns Strategic Research Initiative for information security
COST IT 1492	(from 2014 on) “ <i>ICT COST Action IC1402 Runtime Verification beyond Monitoring (ARVI)</i> ”.
EternalS	(2010/2011) “EternalS FP7 EU Coordination Action “ <i>Trustworthy Eternal Systems via Evolving Software, Data and Knowledge</i> ” EternalS. I am external expert for task force 2 (“Time Awareness and Management”).
DAAD-NFR exchange project	(2010/2011) HySmart “ <i>Hybrid Systems Modeling and Analysis with Rewriting Techniques</i> ”, 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– on) “ <i>Formal Verification of Object-Oriented Software</i> ”, European COST action. The project has currently 35 partner sites.
HATS	(from 2009 on) “ <i>Highly Adaptable and Trustworthy Software using Formal Models</i> ”. 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 consists of 9 (originally 8) academic and 3 industrial partners.

(continued)

- 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.
- Credo (1. Sept. 06 – 31. Aug. 09) “*Modeling 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.
- 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
- 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.
- VIRES (1. May 97 – 30. Apr. 00) “*Verifying Industrial Reactive Systems*”. European 4th Framework Esprit Project 23498 . Academic project partners: University Eindhoven, The Netherlands; Verimag, University Grenoble, France; CAU Kiel, Germany; University Liège, Belgium, Weizmann-Institute, Israel. Industrial partners: Intracom, Greece.
- SFB 182 (Jan. 89 – Dec. 98) DFG (German Research Council) Sonderforschungsbereich SFB 182 (Multi-processor- and network configurations), sub-project C2: “*Specification and verification of distributed systems*”.
- 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.
- 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.

## Practical software and tool development

In most cases my research was and is motivated by practical problems respectively by theoretical questions with practical relevance. In the context of the projects I participate(d) in, I was directly or indirectly involved in the practical development and application of tools as part of the project work program. In particular within the European projects, the software development took place, resp. takes place together with industrial partners. Besides the theoretical foundations, to which I contributed in the different projects, I participated in a couple of projects also directly to the software development, the programming, and the application of different analysis and verification tools.

Vires: The project contained considerable development of 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 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: One part of the project at the German side 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. Abraham within her doctoral thesis. In her doctoral work, defended at the University Leiden, I acted as “co-promotor”.

MobiJ II: In cooperation with the University Kiel, we develop within MobiJ-II a black-box *test*-tool for Java-programs. The tool will be based on observational semantics as developed in MobiJ and as I formalized in my habilitation thesis. In a recently submitted project proposal (15. Sept. 2007, as a DAAD-NFR German-Norwegian bilateral collaboration), we plan to extend the research from Java to the concurrent object-oriented language.

Credo: Also the work programme of the project I am currently involved in most, contains considerable software development. The tasks I am currently involved in contain the development of type systems and algorithms for static analysis of concurrent programs. The implementation work has partly begun and is partly in the design phase as part of the scientific program.

“programming-in-the-many”

Even if no software project in an industrial setting or as part of a research project, the course was designed as *collaborative* software project. It was a 8-hours per week course, which I designed and carried through 5 times for students in their final semesters. The software development in the course were carried through by up-to 30 students, all collaborating on a common task.

## Research

### Research areas

observable behavior  
of OO languages:

During the mentioned activities concerning the proof-theoretical account of aspects of multithreaded Java, I became interested in the *observable*, fully abstract behavior of class-based, object-oriented 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. ([24, 26, 28, 29, 32, 63, 65, 66, 79])

static analysis  
(of object-oriented and  
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, multi-threaded 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. *Transactions* and their analysis are also the main focus of the VERDIKT-project, currently under review. ([12, 17, 33, 36, 40, 44, 11])

Hoare logics

## Research (continued)

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-project 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. ([18, 21, 27, 35, 37, 38, 62, 64, 67, 61, 74])

model checking,  
model exploration  
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*, i.e., the automatic state-exploration of the (model of the) protocol at hand. 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 when modelling such protocols. In particular, as inspired by the case study, to get a grip on the state explosion entailed by the *asynchronous*, buffered nature of such protocols. The work was in the context of the enumerative model checker Spin. ([14, 20, 19, 15, 39, 43, 46, 47])

type theoretical  
foundations of OO:

My doctoral thesis was concerned with the type theoretic resp. proof theoretic foundations  $\lambda$ -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 formal verification of such programs with the help of *theorem-provers*, in particular in the constructive proof assistant *Lego*. ([80, 48, 49, 52, 69, 70])

miscellaneous:

Besides the mentioned topics, I worked also on automata-theoretic results usable for parameterized model checking. 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 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 type systems to ensure certain communication patterns in the  $\pi$ -calculus, the calculus of mobile channels. ([13, 22, 23, 25, 30, 31, 34, 41, 42, 45, 50, 51, 53, 68, 54])

## Conference organization

SEFM 2015	PC member
FM'15	Formal Methods 2015, Oslo, publicity chair
SETTA'15	PC Member;
KSE'14	PC Member
SEFM'14	PC Member
KSE 2013	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;
KSE' 12	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 committee Chair
Sumo'11	International Workshop on Scalable and Usable Model-Checking for Petri Nets and other Models of Concurrency. PC member

## Research (continued)

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) integrated Formal Methods 2010, Nancy, France. Program committee member
iFM'10	International Workshop on Abstractions for Petri Nets and Other Models of Concurrency, June 2010, Braga, Portugal, program committee member
APNOC'10	2nd Workshop on Verification and Analysis of Multi-threaded Java-like Programs (ETAPS-satellite). York, United Kingdom, March 28, 2009 program committee member
VAMP'09	(Distributed Computing Techniques, Lisbon, Portugal, June 2009): publicity chair
Discotec'09	Program committee member
Fmoods/Forte'09	International Workshop on Abstractions for Petri Nets and Other Models of Concurrency, June 2009, Paris, program committee member
APNOC'09	(Distributed Computing Techniques, Oslo, June 2008): publicity chair and member of organizing committee
Discotec'08	IFIP WG 6.1 International Conference on <i>Formal Methods for Object-Based Distributed Systems</i> : <b>steering committee member since 2007</b>
Fmoods	– Fmoods'08: program committee member
	– Fmoods'07: program committee member and publicity chair
	– Fmoods'06: program committee member and publicity chair
	– Fmoods'05: <b>program chair</b>
	– Fmoods'03: program committee member
Tacas'06	12th International Conference on <i>Tools and Algorithms for the Construction and Analysis of Systems</i> : program committee member
ICCP	International Conference on <i>Intelligent Computer Communication and Processing</i> , track <i>static analysis and verification</i>
	– ICCP'07: program committee member
	– ICCP'06: program committee 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

## Research (continued)

## Reviewing

Conferences	I have been acting as reviewer for (amongst others) the following <i>conferences</i> : 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)
Journals	In addition, I reviewed contributions to the following international journals (for some of the journals (esp. JLAP), I did several reviews): Science of Computer Programming, Cambridge Journal of Mathematical Structures in Computer Science, Journal of Applied Logics (JAL), Annals of Mathematics and Artificial Intelligence (AMAI), Formal aspects of computing (FAC), Journal of Logic and Algebraic Programming (JLAP), Information and Computation (IC), Software and Systems Modelling (SoSym), Theoretical Computer Science (TCS), International Journal on Software Tools for Technology Transfer (STTT)

## Teaching &amp; supervision

## lectures

static analysis	master-level/Ph.D level lecture (2006, 2008, 2010)
algorithms & data structures	undergraduate lecture for engineers with programming exercises (4 times in Germany, once in Oslo)
theorem proving	graduate level lecture with exercises (2+2h)
semantics of oo languages	graduate level lecture with exercises (2+2h)

## Teaching &amp; supervision (continued)

supervision: I acted as co-promotor in the Ph.D thesis of *E. Ábrahám* (defended at the University Leiden) and as external examiner for the theses of *J. Klein* (University of Dresden), *R. Schlatte* (University of Graz). I am currently involved as co-promotor in 2 theses under work (*A. Grüner* and *I. Grabe*), I was in the adjudication committee for *M. Zohaib Iqbal*, *A. Moen Hagalisletto*, *Xuedong Liang*, and *Muhammad Zohaib Iqbal*. Furthermore and am currently supervising as main supervisor (“hovedveileder”) *A. Torjusen* (thesis submitted), *T. M. T. Tran*, and *V. Pun*, and as secondary veileder *H. Hansen*, and *S. L. Tapia Tarifa* at the PMA group, IFI, UiO. 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).

assistance: in addition to the above lectures, which I designed and carried out on my own, I assisted also in the following lectures:

- operating systems (undergraduate level, 4 times)
- distributed algorithms (graduate level)
- Software specification techniques for distributed systems Statemate/SDL
- hybrid systems (graduate level)

## lab courses

embedded systems programming Lego mindstorms robots with Esterel, a synchronous language (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)

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

- the Universal Modelling Language (UML)
- 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)
- 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 it 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-Nürnberg. The mentor programme is an initiative of the Technical Faculty with the Alumni federation of the university.

commissions Representative of the scientific employees in the committee for the appointment of professorship in the Faculty of Engineering in Kiel for Prof. F. Foders. Commission of assoc professor, october 2010



## Teaching & supervision (continued)

further duties      Apart from my more theoretical scientific inclinations, I was always involved in Erlangen as well as in Kiel in administrative tasks. In Erlangen, I was responsible for installing and maintaining part of the local software at the chair. Similarly in Kiel, where, among other software, I helped maintaining Java and related software for the computer science department. Also I was responsible for the web-pages of the chair of Software Engineering as well as for the PMA group in Oslo.

## Miscellaneous

hobbies      sailing  
languages      I am fluent in German and English. In addition, I speak—in varying degrees of imperfection—Norwegian, French, Spanish, and Italian. Concerning the Norwegian language, I successfully completed three semesters of the University courses (level 1, 2, and 3). The exam at the end of the level 3 corresponds to the standardized, national *Bergen's test*. Additionally, I participated in a conversation course accompanying levels 2 and 3 at the University and in an advanced level summer course “Norskkurs for viderekomende” for University employees.

## Publications

- [1] Ka I Pun, Martin Steffen, and Volker Stolz.  
Behaviour inference for deadlock checking.  
Technical report 416, University of Oslo, Dept. of Informatics, July 2012.
- [2] 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.
- [3] 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.
- [4] Ka I Pun, Martin Steffen, and Volker Stolz.  
Deadlock checking by data race detection.  
In *Proc. of the 5th IPM International Conference on Fundamentals of Software Engineering (FSEN'13)*, volume 8161 of *Lecture Notes in Computer Science*. Springer-Verlag, 2013.
- [5] 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*. Springer-Verlag, September 2013.
- [6] 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 *FACS 2012*, Lecture Notes in Computer Science. Springer-Verlag, 2012.
- [7] 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.
- [8] 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*. Springer-Verlag, 2012.  
15 pages.
- [9] 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.
- [10] 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.
- [11] 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*. Springer-Verlag, 2012.  
16 pages.
- [12] Thi Mai Thuong Tran, Olaf Owe, and Martin Steffen.  
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