

DOMINIK KLUMPP

PERSONAL INFORMATION

Born in São Paulo, Brazil, 1994

nationality German, Brazilian
email klumpp@informatik.uni-freiburg.de
dominik.klumpp@inria.fr
website dominik-klumpp.net

EDUCATION

*PhD candidate
Computer Science*

since 2019 University of Freiburg
PhD studies at the chair for Software Engineering, centered around automatic program verification, in particular for concurrent programs. I am extending Partial Order Reduction techniques, often used in finite-state model checking, to the verification of infinite-state programs.
Advisor: Prof. Andreas Podelski

*M.Sc. Software
Engineering*

2016–2018 University of Augsburg, TU Munich, LMU Munich
Elite Graduate Program *Software Engineering* by the University of Augsburg, the Technical University of Munich and the Ludwig-Maximilians-University Munich. The program is centered around the five subject areas *Software Engineering, Formal Methods, Distributed Systems, Databases* and *Human-Computer Interaction*. My personal focus was on the first two of these topics, especially on *Formal Methods*.
Thesis: *Automated Control Flow Reconstruction from Assembler Programs*
The research for my master thesis was conducted at and in cooperation with Macquarie University, Sydney. I adapted the automated verification technique *trace abstraction refinement* in order to build provably sound and precise control flow graphs for assembler programs with indirect branches.
Final grade: 1.0 [grading scheme: 1.0 (best) – 5.0 (failed)]
Advisor: Prof. Wolfgang Reif
Supervisors: Prof. Franck Cassez (Macquarie University), Dr. Gerhard Schellhorn

*B.Sc. Computer
Science*

2013–2016 University of Augsburg
Thesis: *Optimising Runtime Safety Analysis Efficiency for Self-Organising Systems*
I wrote my bachelor thesis at the *Institute for Software and Systems Engineering* at the University of Augsburg. A short version of the thesis was published at the QA4SASO workshop on the FAS* 2016 conference in Augsburg.
Final grade: 1.3 [grading scheme: 1.0 (best) – 5.0 (failed)]
Advisors: Prof. Wolfgang Reif
Supervisors: Dr. Axel Habermeier, Dr. Benedikt Eberhardinger, Dr. Hella Seebach

ACADEMIC SERVICE

Reviewer

SPIN'25 Program Committee member
OOPSLA External Reviewer ('22 & '23)
SV-COMP Program Committee member ('21-'25)
Jury member for Ultimate Kojak ('21)
Jury member for Ultimate GemCutter ('22 - '25)

Organiser

AVM'24 Co-organised the 16th Alpine Verification Meeting (AVM'24), 4th - 6th September 2024 in Freiburg; a workshop with 67 participants.
avm2024.informatik.uni-freiburg.de

WORK EXPERIENCE

PostDoc	since 06/2025	PostDoc Researcher at Laboratoire d'Informatique (LIX), ÉCOLE POLYTECHNIQUE, France
		Research on automated and deductive verification of concurrent programs.
Researcher / PhD candidate	2019 - 2025	Researcher & PhD candidate at the Chair for Software Engineering, UNIVERSITY OF FREIBURG
		Research on automatic verification with a focus on concurrent programs. Lecturer for the lecture <i>Program Verification</i> in the summer semester 2024.
		Co-organised several lectures offered by the Software Engineering group, in particular <i>Program Verification</i> , <i>Cyber-Physical Systems: Discrete Models</i> and <i>Theoretical Computer Science</i> . This involved designing weekly exercise sheets, coordinating student tutors, marking students' submissions, teaching a weekly exercise session, occasionally substituting for the lecturer, as well as designing, administering and marking the final exam.
		Supervised students in several seminars offered by the Software Engineering group, in particular <i>Automata Theory</i> and <i>Program Analysis</i> . Supervised 20 B.Sc. and M.Sc. theses and projects.
Student Research Assistant	2016–2018	Student Research Assistant at the Institute for Software and Systems Engineering, UNIVERSITY OF AUGSBURG
		Research on safety analysis and on quality assurance for self-organizing systems. Contributed to the development of the S# modeling, safety analysis and simulation framework. Modeled and analyzed multiple case studies of self-organizing systems. Co-authored 3 scientific publications.
Zuehlke	Summer 2017	Internship, ZUEHLKE ENGINEERING AG — Munich
		Developed an Angular web application with a dockerized microservice backend based on Java and Spring Boot. Interfaced with several project and development management tools to display project status information.
Tutor: Theoretical Computer Science	2015–2017	Tutor at the Chair for Theoretical Computer Science, UNIVERSITY OF AUGSBURG
		Worked on the lecture <i>Introduction to Theoretical Computer Science</i> in the summer semesters 2015, 2016 and 2017. This involved teaching a weekly exercise class, marking students' homework and assisting in supervision and marking of the exam.
Tutor: Discrete Structures	2015–2016	Tutor at the Chair for Programming Methodology and Multimedia Information Systems, UNIVERSITY OF AUGSBURG
		Worked on the lecture <i>Discrete Structures for Computer Scientists</i> in the winter semesters 2015 and 2016. This involved teaching a weekly exercise class, marking students' homework and assisting in supervision and marking of the exam.
itestra	Summer 2015	itestra CodingCamp internship, ITESTR — Munich
		Developed a prototype for a Windows mobile app with a Java backend.

INVITED TALKS & RESEARCH VISITS

Rabat, Morocco	May 2025	Workshop on Verification of Distributed Systems (VDS 2025)
		3-day invitation-only workshop, colocated with the NETYS conference.
		Talk: Finding Commutativity for Algorithmic Verification of Concurrent Programs

Kaiserslautern, Germany	Mar 2025	Visit at Max-Planck-Institute for Software Systems
		Seminar talk and discussions about possible collaborations. Talk: How Commutativity Simplifies Proofs of Concurrent Programs
Paris, France	Feb 2025	Visit at Université Paris Cité (IRIF) and École Polytechnique (LIX)
		Seminar talk and discussions about possible collaborations. Talk: How Commutativity Simplifies Proofs of Concurrent Programs
Vienna, Austria	May 2024	Visit at IST Austria
		Seminar talk and discussions about possible collaborations. Talk: How Commutativity Simplifies Proofs of Concurrent Programs
Uppsala, Sweden	Feb 2024	Visit at Uppsala Universitet
		Collaboration on a joint project.
Toronto, Canada	Jun 2022	Visit at University of Toronto
		Seminar talk and collaboration on a joint paper. Talk: Sound Sequentialization for Concurrent Program Verification
Sydney, Australia	Apr-Oct 2018	Visiting researcher at Macquarie University
		6-month research stay for Master thesis research.

AWARDS

University of Freiburg	SUMMER SEMESTER 2024	Teaching Award of the Faculty of Engineering for the best lecture in Computer Science (<i>Cyber-Physical Systems II: Program Verification</i>)
SV-COMP 2025	ULTIMATE GEMCUTTER	3rd place in <i>ConcurrencySafety</i> category (lead developer)
	ULTIMATE AUTOMIZER	1st place in <i>Overall</i> ranking (co-developer)
SV-COMP 2024	ULTIMATE GEMCUTTER	2nd place in <i>ConcurrencySafety</i> category (lead developer)
	ULTIMATE AUTOMIZER	1st place in <i>Overall</i> ranking (co-developer)
SV-COMP 2023	ULTIMATE GEMCUTTER	3rd place in <i>ConcurrencySafety</i> category (lead developer)
	ULTIMATE AUTOMIZER	1st place in <i>Overall</i> ranking (co-developer)
SV-COMP 2022	ULTIMATE GEMCUTTER	1st place in <i>NoDataRace</i> demo category 3rd place in <i>ConcurrencySafety</i> category (lead developer)

OTHER INFORMATION

Languages	GERMAN	First language
	ENGLISH	Fluent, written and spoken
	FRENCH	DELFI B1
	CHINESE	YCT I, HSK II

Summer Schools

- 2023 41st Summer School Marktoberdorf on Safety and Security through Formal Verification, Marktoberdorf, Germany
events.model.in.tum.de/mod23/
- 2020 14th Summer School on Modelling and Verification of Parallel Processes (MOVEP), virtual
projects-verimag.imag.fr/movep2020/
- 2019 VMCAI Winter School, Lisbon, Portugal
vmcaischool19.tecnico.ulisboa.pt

Exchange Programs

- CHINA 2013 Chinese Bridge summer camp Confucius Institute
- CHINA 2010 Student Exchange High School of Beijing University
- FRANCE Student Exchanges 2007/2008, 2009/2010 and 2010/2011

23rd August 2025