André Platzer @ KIT

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Contact Information

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DBLP

Research Interests

- Logic of dynamical systems || Logical foundations of cyber-physical systems
- Logic in computer science, theorem proving, programming languages & formal methods
- Logic of multi-dynamical systems: hybrid systems, distributed hybrid systems, hybrid games

Academic Appointments

Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany
Alexander von Humboldt Professor for Logic of Autonomous Dynamical Systems *7/2022-present*
Appointment: Informatics Department, courtesy appointment: Mathematics Department

Carnegie Mellon University, Pittsburgh, PA, USA
Full Professor of Computer Science *7/2020-8/2022*
Associate Professor of Computer Science *7/2014-6/2020*
Assistant Professor of Computer Science *10/2008-6/2014*
Courtesy appointments Robotics Institute, Electrical and Computer Engineering Department

Visiting Positions

Technical University Munich
Visiting Professor of Computer Science *1/2019-08/2019*
Cornell University, Ithaca, NY
Visiting Associate Professor of Computer Science *5/2015-08/2015*

Education

- **Ph.D. Computer Science, University of Oldenburg**, Germany, 12/2008
  Title: "Differential Dynamic Logics: Automated Theorem Proving for Hybrid Systems"
  Advisor: Professor Ernst-Rüdiger Olderog
  Referee: Professor George J. Pappas, University of Pennsylvania, Philadelphia, PA
  Referee: Professor Tobias Nipkow, Technical University of Munich, Germany
  Grade: *summa cum laude*
  Award: ACM Doctoral Dissertation Honorable Mention Award
- **M.Sc. Computer Science, University of Karlsruhe (TH)**, Germany, 09/2004
  Thesis: "An Object-oriented Dynamic Logic with Updates"
  Advisor: Professor Peter H. Schmitt
  Advisor: Professor Bernhard Beckert, University of Koblenz-Landau, Germany
  Grade: *summa cum laude, with distinction*
- Studied Mathematics at Fernuni Hagen, Germany, during social service, 1998-1999
- Abitur (Grade: 1.1, very good), Hamburg, Germany, 07/1998

Awards and Honours

1. *Alexander von Humboldt Professorship for AI*, 2023
2. *Humboldt Research Fellowship* for Experienced Researchers, 2019, Carl Friedrich von Siemens Research Fellowship, 2019, DFG Mercator Fellow 2019 TU Munich and 2022 KIT
3. *NSF CAREER* Award, 2011
4. IEEE Intelligent Systems' *AI's 10 to Watch* Award, 2010
5. *ACM Doctoral Dissertation Honorable Mention* Award, 2009
6. *Brilliant 10* Award of Popular Science Magazine, 2009
7. Best Paper Awards at TABLEAUX'07, FM'09, FM'19, HSCC'22
8. William-Stern-Gesellschaft Mathematical Talent Program for Gifted Pupils, Hamburg, 1991-98

Teaching Experience

- Programmierparadigmen (Undergraduate course in KIT Informatics Department with Ralf Reussner and Ina Schäfer, KIT Winter 2024)
- Logical Foundations of Cyber-Physical Systems (Undergraduate/masters/PhD course 15-424/15-624/15-824 in the Computer Science Department, Carnegie Mellon University, Fall 2013, ENS Lyon Spring 2014, MAP-i Braga Portugal Summer 2014, CMU Fall 2014, CMU Spring 2016, CMU Spring 2017, CMU Fall 2018, CMU Fall 2019, CMU Fall 2020, CMU Fall 2021, KIT Winter 2022, KIT Winter 2023, KIT Winter 2024, KIT Winter 2025)
- Constructive Logic (Undergraduate/masters course in the Computer Science Department 15-317/15-657, Carnegie Mellon University, CMU Fall 2015, CMU Fall 2016, CMU Spring 2020, CMU Spring 2021, KIT Summer 2023, KIT Summer 2024)
- Compiler Design (Undergraduate course 15-411 in the Computer Science Department, Carnegie Mellon University, Masters course at KIT, Fall 2010, Fall 2011, Fall 2012, KIT Summer 2025)
- 15-816D Dynamic Logic (Graduate course in the Computer Science Department, Carnegie Mellon University, Spring 2022)
- 15-414/15-614 Bug Catching: Automated Program Verification (Undergraduate course in the Computer Science Department, Fall 2017, co-developed with Matt Fredrikson)
- 15-824 Programming Language Semantics (Graduate course in the Computer Science Department, Carnegie Mellon University, Spring 2015, Spring 2018)
- 15-122 Principles of Imperative Computation (Introductory course in the Computer Science Department at Carnegie Mellon University, Spring 2012, Spring 2013, Spring 2014)
- 15-816 Modal Logic (Graduate course in the Computer Science Department, Carnegie Mellon University, co-taught with Frank Pfenning, Spring 2010)
- 15-819M Data, Code, Decisions (Graduate course in the Computer Science Department, Carnegie Mellon University, Fall 2009)
- 15-819N/18-879L Logical Analysis of Hybrid Systems (Graduate course in the Computer Science Department and the Electrical Engineering Department, Carnegie Mellon University, Spring 2009 and Spring 2011)

Ph.D. Student & Postdoc Advising

- Max Nowak, Ph.D. KIT, since 4/26
- Vivien Ebert, Ph.D. KIT, since 2/26
- Adrian Kulmburg, postdoc KIT, since 1/26
- Promit Panja, Ph.D. KIT, since 12/24
- Riccardo Gozzi, postdoc KIT, 09/24-09/25
- Julia Butte, Ph.D. KIT, since 09/24
- Jonathan Hellwig, Ph.D. KIT, since 08/23
- Enguerrand Prebet, postdoc KIT, since 01/23
- Marvin Brieger, Ph.D. LMU, since S'22
- Long Qian, Ph.D., CMU Math, since S'22
- Noah Abou El Wafa, Ph.D. CMU Math, since F'21
- William Simmons, postdoc, S'21–8/2022, TwoSixTech
- Aditi Kabra, Ph.D., F'20-4/2026 "Verified Control Envelope Design: Scaling for Complexity and Automation"
- Jonathan Laurent, Ph.D., 11/2018–4/2026, "Oracular Programming: A Modular Foundation for Building LLM-Enabled Software"
- Fabian Immler, postdoc, SU'18–S'20, Formal Verification Engineer, Apple

- Katherine Kosaian (née Cordwell), Ph.D., F'17-06/23, "Formally Verifying Algorithms for Real Quantifier Elimination", NSF GRFP Fellowship, *Bill McCune PhD Award 2024 in Automated Reasoning*, Assistant Professor of Computer Science at University of Iowa
- Andrew Sogokon, postdoc, S'17–S'19 Assistant Professor at University of Southampton, now Senior Research Fellow at Lancaster University
- Yong Kiam Tan, Ph.D., F'16–05/2022, "Deductive Verification for Ordinary Differential Equations: Safety, Liveness, and Stability", A*STAR Fellowship, *CMU SCS Thesis Award* Research scientisti, Institute for Infocomm Research, A*STAR, Singapore
- Rose Bohrer, Ph.D., F'15–05/2021, "Practical End-to-End Verification of Cyber-Physical Systems", Alan J. Perlis Graduate Student Teaching Award, Siebel Scholar, NDSEG Fellowship, *CMU SCS Thesis Award Honorable Mention*, Assistant Professor of Computer Science, Worcester Polytechnic Institute
- Ran Ji, postdoc, F'14–S'16, Research associate CMU Robotics
- Nathan Fulton, Ph.D., F'13–11/2018, "Verifiably Safe Autonomy for Cyber-Physical Systems", Research staff at MIT-IBM AI Lab, Now: Senior Applied Scientist at Amazon Web Services
- Marcus Völp, postdoc F'13–S'14, Assistant Professor at University of Luxemburg
- Jean-Baptiste Jeannin, postdoc F'13–S'15, Assistant Professor in Aerospace Engineering, University of Michigan
- Jan-David Quesel, postdoc F'13–S'14, Google Research Switzerland
- Stefan Mitsch, postdoc F'12-S'15, Systems Faculty at CMU
- Khalil Ghorbal, postdoc F'12–S'15, Junior Researcher at Inria Rennes
- Grant Olney Passmore, visiting postdoc F'12, Co-Founder and Co-CEO of Imandra AI Inc.
- David Henriques, "Formal Reasoning About Temporal Properties in Dynamic Stochastic Systems", PhD. 10/2015, graduated at CMU|Portugal partner IST Superiore by co-advisor Paulo Mateus, CMU|Portugal fellowship, BNP Paribas
- João Guerra Martins, "Changing Beliefs in a Changing World", Ph.D., since F'10, co-advised with João Leite, U. Nova de Lisboa, CMU|Portugal fellowship, ABD
- Ping Hou, postdoc, S'11–S'12, Postdoc at University of South Florida
- Erik Peter Zawadzki, "Linear Approximations for Monotone Affine Variational Inequalities", Ph.D. candidate, since S'10, co-advised with Geoff Gordon, ABD, Research Scientist, Facebook
- Sarah Michelle Loos, Ph.D. S'10–11/2015, "Differential Refinement Logic", Teaching Award, *CMU SCS Thesis Award Honorable Mention*, NSF GRFP Fellowship, DOE CSGF Fellowship,

Undergraduate & Masters Advising

- Joscha Mennicken, KIT MSc. 07/25, "Hippolochos: A Memoized Bidirectional Tactic Framework and Interactive Language for KeYmaera X"
- Oliver Enes, KIT, BSc. F'24, "Building a Constructive Logic Proof Checker with Proofs as Programs"
- Julia Butte, KIT, MSc. F'23–05/24, "Developing a Logic for Sequential Three-Player Hybrid Games with Goals and Coalitions"
- Samuel Teuber, KIT, Germany, MSc. S'22–Su'22, "Transfer of Safety Guarantees from Differential Dynamic Logic Proofs to Neural Network based Controller Systems", Award for best master's thesis at KIT Informatics.
- Anita Li, MSc., Su'22, "Formal Verification of the Winning Strategies of Pursuit-Evasion Games"
- Yao Feng, S'22, Research class 15-689.

- Megan Strauss, independent study, F'21, "Verifying Responsibility-Sensitive Safety Model for Self Driving Cars"
- Marvin Brieger, M.Sc. S'21-F'21, "Communicating Hybrid Programs", University of Augsburg
- James Gallicchio, S'21, "Implicit definitions in KeYmaera X"
- Anita Li, independent study S'21, "Discrete Games on Graphs Modeled in Game Logic"
- Brian Wei, independent study S'21, "Analysis of Models in dL"
- Rachel Cleaveland, senior thesis F'20–S'21, "Formal Verification of Next-Generation Airborne Collision Avoidance System with Adversarial Intruder Behavior" CMU SCS Alumni Award for Undergraduate Excellence 2021 and CRA Outstanding Researcher Award Honorable Mention 2021
- Matias Scharager, independent study F'20, "Verified Executable Quadratic Virtual Substitution for Quantifier"
- Anita Li, independent study F'20, "Use game logic to model real life security-related problems"
- David Bayani, senior thesis F'15–S'16, "Implementing Invariant Generation in the KeYmaera X Prover for Hybrid Systems Verification"
- Catarina Lobo do Souto Ferreira, internship F'15, "Applying Dynamic Doxastic Differential Dynamic Logic to the AF-447 Incident", University of Porto, Portugal
- Annika Peterson, senior thesis S'15, "Formal Verification of a Controlled Flight Between Two Robots: A Case Study", Allen Newell Award for Excellence in Undergraduate Research 2015 and Second place in the Boeing Blue Skies Competition with special mention for "Most Creative" project.
- Annika Peterson, independent study S'14, "Formal Verification of a Controlled Flight Between Two Robots: A Case Study", Second place in the SRC-URO Poster Competition.
- Jordan Williams, independent study S'14, "Variable Dependence in Hybrid Programs"
- Bill Zorn, independent study S'14, "Execution-based Debugging for Hybrid Programs"
- David Vogelbacher, bachelor's thesis S'14, "Formal Verification of Collision Avoidance for Controllers of Robotic Ground Vehicles" Karlsruhe Institute of Technology, Germany
- Il Suk Lyu, undergraduate project S'13, "Simulating Hybrid Programs in Mathematica"
- Matt McKay, independent study S'13, "Static Verification of C0 Programs Using the Z3 Theorem Prover"
- Jean-Bastien Grill, internship thesis S'12, "Extending Logic for Stochastic Hybrid Programs" École Normale Supérieure, Paris, France
- Alex Crichton and Robbie McElrath, independent study S'12, "Joule – a JIT for Lua"
- Romuald Brillout, M.Sc. 04/2012, "Using Theorem Provers as Preprocessors for Hybrid Systems Model Checking" Karlsruhe Institute of Technology, Germany
- Jingyi Ni, undergraduate project S'10, "Search-based Bug Finding in Hybrid Programs"
- Lesley Linné, independent study S'10, co-advised with Edmund M. Clarke, "Logic and Model Checking"
- Jan-David Quesel, M.Sc. 04/2007, "A theorem prover for differential dynamic logic"
- Stephanie Kemper, M.Sc. 01/2006, "SAT-based verification for abstraction-refinement",

Longer-term Visitors

- Zili Wang, Iowa State University, SU'25
- Cláudio Gomes, University of Antwerp, F'19,
- Luis Garcia, Rutgers University, SU'17–F'17,
- Lorenz Sahlmann, École Polytechnique, Paris, France, S'16–SU'16
- David Vogelbacher, Karlsruhe Institute of Technology, Germany, S'14
- Andreas Müller, Johannes Kepler University, Linz, Austria, F'13, S'15,
- Yanni Kouskoulas, Johns Hopkins University Applied Physics Lab, S'12,F'12,S'14,F'16
- Stefan Mitsch, Johannes Kepler University, Linz, Austria,
- Romuald Brillout, Karlsruhe Institute of Technology, Germany, F'11–S'12

Ph.D. Committees

- Julius Adelt, Ph.D., "Reusable Abstractions for Deductive Verification of Autonomous Hybrid Systems", University of Münster, 1/26
- Toghrul Karimov, Ph.D., "Algorithmic Verification of Linear Dynamical Systems", MPI-SWS via University of Saarbrücken, S'24.
- Boson Stefan Liu, Ph.D., "Modeling and Identification for Formally Safe Human-Robot Interaction", TU Munich, S'24.
- Steffen Schotthöffer, Ph.D., "Synergies between Numerical Methods for Kinetic Equations and Neural Networks", KIT Mathematics, S'23.
- Cláudio Gomes, Ph.D., "Property Preservation in Co-simulation", University of Antwerp, Belgium, S'19.
- Sarah Grebing, Ph.D., "User Interaction in Deductive Interactive Program Verification", Karlsruhe Institute of Technology, S'19.
- Ivan Ruchkin, Ph.D., "Integration of Modeling Methods for Cyber-Physical Systems", F'18
- Andreas Müller, Ph.D., "Component-based Deductive Verification of Cyber-physical Systems", Johannes Kepler University, Linz, F'17
- Xian Li, Ph.D., "Induction-based Verification of Synchronous and Hybrid Programs", Technical University of Kaiserslautern, F'17
- Richard Bubel, Habilitation, "Deductive Verification: From Theory to Practice", Technical University of Darmstadt, S'17
- Jiaqi Tan, Ph.D., "Provable, Preventative Control-Flow Integrity for Open and Connected Embedded Software", F'16
- Henry DeYoung, Ph.D., "Session-Typed Ordered Logical Specifications", F'20
- Chris Martens, Ph.D., "Programming Interactive Worlds with Linear Logic", S'15
- Nikos Aréchiga, Ph.D., "Controller Verification and Design with Logical Analysis Support", S'15
- Aaron Kane, Ph.D., "Runtime Monitoring for Safety-Critical Embedded Systems", S'15
- Thanassis Avgerinos, Ph.D., "Exploiting Trade-offs in Symbolic Execution for Identifying Security Bugs", S'14
- Akshay Rajhans, Ph.D., "Multi-model heterogeneous verification of cyber-physical systems", S'13
- Pongsin Poosankam, Ph.D., "Scaling Concolic Execution of Binary Programs for Security Applications", F'13
- Robert Simmons, Ph.D., "Substructural logical specifications", F'12

Undergraduate & Masters Committee

- Elena Häußler, "Evaluation of Strategies with Reachability Winning Condition", BSc 09/24, KIT.
- Tobias Brohl, "Entwicklung einer anwendungsspezifischen Sprache zur Darstellung und Validierung von Regeln der Leit- und Sicherungstechnik", BSc 04/24, KIT.
- Seulkee Baek, "Reflected Decision Procedures in Lean", Masters, 12/2018, CMU.
- Jason Koenig, "Program Analysis for Introductory Education: Leveraging Programmer Specifications", Masters, 08/2014, CMU.
- Sicun Gao, "Counting zeros over finite fields with Gröbner Bases", Masters, 05/2009, CMU.
- Johannes Rieken, "Design by contract for Java - revised", M.Sc., 04/2007, U Oldenburg.
- Martin Schnaidt, "Runtime-checking of JML-specifications with Jass", M.Sc., 02/2006, U Oldenburg.

Professional Service

Editorial Board: Acta Informatica since 2014, Journal of Automated Reasoning since 2020, ACM Formal Aspects of Computing since 2022
Board: KiKIT Kerninformatik at KIT director and speaker 2023-2025, MathSEE MA1 Mathematical Structures: shapes, geometry, number theory and algebra area cochair
Steering Committee: CADE-28 co-chair, CADE Trustee 2022-2025.
Grant proposal reviewing: National Science Foundation NSF CPS CNS CCF CAREER SHF, Natural Sciences and Engineering Research Council of Canada (NSERC), Advanced Research Projects Agency - Energy (ARPA-E), German Research Council (DFG), Exzellenzcluster
PC chair: LfSA 2010, LfSA 2012, CADE 2021, FM 2024
PC member: CADE/IJCAR 2010, 2015, 2019, 2022, 2024, 2025, 2026, LICS 2020, 2023, 2025, FM 2012, 2014, 2019, 2023, 2024, PLDI 2025, TACAS 2025, HSCC/ICCPS 2026, ICCPS 2020, 2021, 2022, 2024, HSCC 2010, 2011, 2012, 2013, 2015, 2017, 2018, 2024, CAV 2015, TABLEAUX 2011, ITP 2018, CPP 2019, NFM 2014, iFM 2022, FTP 2011, FASE 2019, ICALP 2013, IJCAI 2017, EMSOFT 2022, MEMOCODE 2017, FORMATS 2010, FMOODS/FORTE 2011, CICM 2018, JELIA 2014, ARCH 2014, 2015, 2016, 2018,
Journal referee: Journal of Automated Reasoning, Formal Methods in System Design, Discrete Event Dynamic Systems, ACM Transactions on Embedded Computing Systems, Journal of Symbolic Computation, ACM Transactions on Software Engineering and Methodology, IEEE Transactions on Software Engineering, Autonomous Robots, Theoretical Computer Science, Journal of the ACM, ACM Transactions on Computational Logic, Communications of the ACM
Book referee: Springer
Community service: NSF Young Professional Workshop on Exploring New Frontiers in Cyber-physical Systems 2014, NSF Workshop for Aspiring PIs in Cyber-Physical Systems 2014, IEEE CSS Technical Committee on Hybrid Systems 2014–
Reviewing service: ACM Reviewer for Computing Reviews, Reviewer for AMS Mathematical Reviews
Advisory boards: advisory committee Cambridge University Press Research Directions: Cyber-Physical Systems since 2022, LNCS Formal Methods subline since 2022
Organizational service IFIP WG 1.3
Educational service: Education Co-director for the NSF EXPEDITION CMACS
University service: Committee for restructuring undergraduate education at CMU, CMU Speakers Club, CMU Ph.D. Admissions Committee, CMU Faculty Search Committee, Microsoft Fellowship Nomination Committee, Sandia Fellowship Nomination Committee, IBM Fellowship Nomination Committee, CMU Open House 2014 & 2015, CMU Reappointment Promotion Tenure Committee Chair , KIT interACT 2022, BWInformatik am KIT 2023, KiKIT Kerninformatik Sprecher 2023–2025, KIT mathSEE Lenkungsausschuss since 2022, KIT Berufungskommissionen 7 , KIT Fakultätsrat since 2025

Memberships

ACM'05 SM'17 SIGLOG & SIGPLAN, IEEE'06 SM'17 Computer Systems Society & Control Society, Association for Symbolic Logic'06, DAAD Alumni Association of the USA

Languages

English, German, basics in French

Textbook Publications

1. **André Platzer**. *Logical Foundations of Cyber-Physical Systems*. Springer, Cham, 2018. 659 pages.
   Lecture Videos: `http://video.lfcps.org/`

Book Publications

1. **André Platzer**. *Logical Analysis of Hybrid Systems: Proving Theorems for Complex Dynamics*. Springer, Heidelberg, 2010. 426 pages.

Book Chapters

1. Stefan Mitsch and **André Platzer**. A Retrospective on Developing Hybrid System Provers in the KeYmaera Family: A Tale of Three Provers. In Wolfgang Ahrendt, Bernhard Beckert, Richard Bubel, Reiner Hähnle, and Mattias Ulbrich, editors, *Deductive Software Verification: Future Perspectives*, volume 12345 of *LNCS*, pp. 21-64. Springer, 2020.
2. **André Platzer**. Overview of Logical Foundations of Cyber-Physical Systems. In Helmut Seidl, editor, *Post-proceedings of the Summer School Marktoberdorf: Safety and Security of Software Systems - Logics, Proofs, Applications*. TUM University Press, 2020.
3. Laurent Doyen, Goran Frehse, George J. Pappas and **André Platzer**. Verification of Hybrid Systems. In Edmund M. Clarke, Thomas A. Henzinger, Helmut Veith and Roderick Bloem, editors, *Handbook of Model Checking*. Springer, 2018.

Refereed Journal Publications

1. William Simmons and **André Platzer**. Differential elimination and algebraic invariants of polynomial dynamical systems. *Theoretical Computer Science*, **1047**, 2026.
2. **André Platzer** and Long Qian. Axiomatization of compact initial value problems: Open properties. *J.ACM*, **72**(6), 41:1–41:51, 2025.
3. Manfred Broy, Achim Brucker, Alessandro Fantechi, Mario Gleirscher, Klaus Havelund, Markus Alexander Kuppe, Alexandra Mendes, **André Platzer**, Jan Ringert and Allison Sullivan. Does every computer scientist need to know formal methods? *Form. Asp. Comput.* **37**(1), 6:1–6:17, 2024.
4. **André Platzer**. Hybrid dynamical systems logic and its refinements. *Sci. Comput. Program.* **239**, pp. 103179, 2025.
5. Aditi Kabra, Stefan Mitsch and **André Platzer**. Verified train controllers for the Federal Railroad Administration train kinematics model: Balancing competing brake and track forces. *IEEE Trans. Comput. Aided Des. Integr. Circuits Syst.* **41**(11), pp. 4409–4420. 2022. Special issue for EMSOFT 2022.
6. Rachel Cleaveland, Stefan Mitsch and **André Platzer**. Formally verified next-generation airborne collision avoidance games in ACAS X. *ACM Trans. Embed. Comput. Syst.* **22**(1), pp. 10:1–10:30, 2023.
7. Qin Lin, Stefan Mitsch, **André Platzer** and John M. Dolan. Safe and resilient practical waypoint-following for autonomous vehicles. *IEEE Control Syst. Lett.* (**6**), pp. 1574-1579.
8. Brandon Bohrer and **André Platzer**. Structured proofs for adversarial cyber-physical systems. *ACM Trans. Embed. Comput. Syst.* **20**(5s), pp. 93:1-93:26, 2021. Special issue on EMSOFT 2021.
9. Yong Kiam Tan and **André Platzer**. An axiomatic approach to existence and liveness for differential equations. *Formal Aspects of Computing* **33**(4), pp. 461–518, 2021. Special issue for selected papers from FM'19.

10. Andrew Sogokon, Stefan Mitsch, Yong Kiam Tan, Katherine Cordwell and **André Platzer**. Pegasus: Sound continuous invariant generation. *Formal Methods in System Design* **58**(1), pp. 5–41, 2022 Special issue for selected papers from FM'19.
11. **André Platzer** and Yong Kiam Tan. Differential equation invariance axiomatization. *J.ACM*, **67**(1), pp. 6:1–6:66, 2020.
12. Brandon Bohrer, Yong Kiam Tan, Stefan Mitsch, Andrew Sogokon and **André Platzer**. A formal safety net for waypoint following in ground robots. *IEEE Robotics and Automation Letters*, **4**(3), pp. 2910–2917, 2019.
13. Andreas Müller, Stefan Mitsch, Werner Retschitzegger, Wieland Schwinger and **André Platzer**. Tactical contract composition for hybrid system component verification. *Software Tools for Technology Transfer*, **20**(6), pp. 615–643, 2018. Special issue for selected papers from FASE'17.
14. Stefan Mitsch, Khalil Ghorbal, David Vogelbacher and **André Platzer**. Formal verification of obstacle avoidance and navigation of ground robots. *International Journal of Robotics Research*, **36**(12), pp. 1312-1340, 2017.
15. **André Platzer**. Differential hybrid games. *ACM Trans. Comput. Log.*, **18**(3), pp. 19:1–19:44, 2017.
16. Jean-Baptiste Jeannin, Khalil Ghorbal, Yanni Kouskoulas, Aurora Schmidt, Ryan Gardner, Stefan Mitsch and **André Platzer**. A formally verified hybrid system for safe advisories in the next-generation airborne collision avoidance system. *Software Tools for Technology Transfer*, **19**(6), pp. 717-741, 2017. Special issue for selected papers from TACAS'15.
17. **André Platzer**. A complete uniform substitution calculus for differential dynamic logic. *Journal of Automated Reasoning*, **59**(2), pp. 219-265, 2017.
18. Stefan Mitsch and **André Platzer**. ModelPlex: Verified runtime validation of verified cyber-physical system models. *Formal Methods in System Design*, **49**(1), pp. 33-74, 2016. Special issue for selected papers from RV'14.
19. Khalil Ghorbal, Andrew Sogokon and **André Platzer**. A hierarchy of proof rules for checking positive invariance of algebraic and semi-algebraic sets. *Computer Languages, Systems & Structures*, **47**(1), pp. 19-43, 2017. Special issue for selected papers from VMCAI'15.
20. Jan-David Quesel, Stefan Mitsch, Sarah Loos, Nikos Aréchiga, and **André Platzer**. How to model and prove hybrid systems with KeYmaera: A tutorial on safety. *Software Tools for Technology Transfer*, **18**(1), pp. 67–91, 2016.
21. **André Platzer**. Differential game logic. *ACM Trans. Comput. Log.*, **17**(1), pp. 1:1–1:52, 2015.
22. Stefan Mitsch, **André Platzer**, Werner Retschitzegger and Wieland Schwinger. Logic-based modeling approaches for qualitative and hybrid reasoning in dynamic spatial systems. *ACM Computing Surveys*, **48**(1), pp. 3:1–3:40, 2015.
23. Khalil Ghorbal, Jean-Baptiste Jeannin, Erik P. Zawadzki, **André Platzer**, Geoffrey J. Gordon, and Peter Capell. Hybrid theorem proving of aerospace systems: Applications and challenges. *Journal of Aerospace Information Systems*, **11**(10), pp. 702–713, 2014. Special issue on Software Challenges in Aerospace.
24. Akshay Rajhans, Ajinkya Bhave, Ivan Ruchkin, Bruce H. Krogh, David Garlan, **André Platzer** and Bradley Schmerl. Supporting heterogeneity in cyber-physical systems architectures. *IEEE Transactions on Automatic Control*. **59**(12), pp. 3178–3193, 2014. Special issue on Control of Cyber-Physical Systems.
25. Stefan Mitsch, Grant Olney Passmore and **André Platzer**. Collaborative verification-driven engineering of hybrid systems. *Mathematics in Computer Science*, **8**(1), pp. 71–97, 2014. Special issue on Enabling Domain Experts to use Formalized Reasoning.

26. Paolo Zuliani, **André Platzer** and Edmund M. Clarke. Bayesian statistical model checking with application to Stateflow/Simulink verification. *Formal Methods in System Design*, **43**(2), pp. 338-367, 2013. Special issue on Probabilistic Model Checking.
27. **André Platzer**. A complete axiomatization of quantified differential dynamic logic for distributed hybrid systems. *Logical Methods in Computer Science*, **8**(4), pp. 1-44, 2012. Special issue for selected papers from CSL'10.
28. **André Platzer**. The structure of differential cuts and differential cut elimination. *Logical Methods in Computer Science*, **8**(4), pp. 1-38, 2012.
29. **André Platzer** and Edmund M. Clarke. Computing differential invariants of hybrid systems as fixedpoints. *Formal Methods in System Design*, **35**(1), pp. 98-120, 2009. Special issue for selected papers from CAV'08.
30. **André Platzer**. Differential-algebraic dynamic logic for differential-algebraic programs. *Journal of Logic and Computation*, **20**(1), pp. 309-352, 2010. Advance Access published on November 18, 2008.
31. **André Platzer**. Differential dynamic logic for hybrid systems. *Journal of Automated Reasoning*, **41**(2), pp. 143–189, 2008.

Refereed Conference Publications

1. Jonathan Hellwig, Long Qian and **André Platzer**. A deductive refinement-calculus for differential-algebraic programs. In Armin Biere, Carsten Lutz and Sara Negri, editors, *Automated Reasoning, 13th International Joint Conference, **IJCAR 2026**, Proceedings*, *LNCS*. Springer, 2026.
2. Enguerrand Prebet and **André Platzer**. Refactoring-as-propositions: Proved refactoring of hybrid systems via proved refinements. In Armin Biere, Carsten Lutz and Sara Negri, editors, *Automated Reasoning, 13th International Joint Conference, **IJCAR 2026**, Proceedings*, *LNCS*. Springer, 2026.
3. Noah Abou El Wafa and **André Platzer**. Complete robust hybrid systems. In Armin Biere, Carsten Lutz and Sara Negri, editors, *Automated Reasoning, 13th International Joint Conference, **IJCAR 2026**, Proceedings*, *LNCS*. Springer, 2026.
4. Samuel Teuber, Mattias Ulbrich, **André Platzer** and Bernhard Beckert. Heterogeneous dynamic logic: provability modulo program theories. *Proceedings of the 47th ACM SIGPLAN Conference on Programming Language Design and Implementation, **PLDI'26*** 2026.
5. Aditi Kabra, Jonathan Laurent, Stefan Mitsch and **André Platzer**. Hybrid game control envelope synthesis. *Proc. ACM Program. Lang. 10 **OOPSLA'26***, Article 122, 2026.
6. Jonathan Hellwig, Lukas Schäfer, Long Qian, **André Platzer** and Matthias Althoff. From zonotopes to proof certificates: A formal pipeline for safe control envelopes. In Ferruccio Damiani and Marie Farrell, editors, *Integrated Formal Methods - 20h International Conference, **iFM 2025**, Proceedings*, volume 16194 of *LNCS*, pp. 248–267. Springer, 2025.
7. Carlos Isasa, Noah Abou El Wafa, Claudio Gomes, Peter Gorm Larsen and **André Platzer**. Safe temperature regulation: Formally verified and real-world validated. In Ferruccio Damiani and Marie Farrell, editors, *Integrated Formal Methods - 20h International Conference, **iFM 2025**, Proceedings*, volume 16194 of *LNCS*, pp. 143–161. Springer, 2025.
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1. **André Platzer**. Intersymbolic AI: Interlinking symbolic AI and subsymbolic AI. In Tiziana Margaria and Bernhard Steffen, editors, ***ISoLA**, Proceedings*, volume 15222 of *LNCS*, pp. 162–180. Springer, 2024.
2. **André Platzer**. The significance of symbolic logic for scientific education. In Emil Sekerinski and Leila Ribeiro, editors, ***FMTea 2024**, Proceedings*, volume 14939 of *LNCS*, pp. 3-22. Springer, 2024.
3. **André Platzer**. Refinements of hybrid dynamical systems logic. In Uwe Glässer, José Creissac Campos, Dominique Méry, and Philippe Palanque, editors, *Rigorous State-Based Methods - 9th International Conference, **ABZ**, Proceedings*, volume 14010 of *LNCS*, pp. 3–14. Springer, 2023.
4. **André Platzer**. The logical path to autonomous cyber-physical systems. In David Parker and Verena Wolf, editors, *International Conference on Quantitative Evaluation of SysTems, **QEST**, Proceedings*, volume 11785 of *LNCS*, pp. 25–33. Springer, 2019.
5. Nathan Fulton and **André Platzer**. Safe AI for CPS. *International Testing Conference (**ITC 2018**)*, IEEE, 2018.
6. Franz Franchetti, Tze Meng Low, Stefan Mitsch, Juan Paolo Mendoza, Liangyan Gui, Amarin Phaosawasdi, David Padua, Soummya Kar, José M. F. Moura, Mike Franusich, Jeremy Johnson, **André Platzer** and Manuela Veloso. High-assurance SPIRAL: End-to-end guarantees for robot and car control. *IEEE Control Systems*, **37**(2), pp. 82–103. 2017.
7. **André Platzer**. Logic & proofs for cyber-physical systems. In Nicola Olivetti and Ashish Tiwari, editors, *8th International Joint Conference on Automated Reasoning (**IJCAR 2016**)*, volume 9706 of *LNCS*, pp. 15–21. Springer, 2016.
8. Jean-Baptiste Jeannin, Khalil Ghorbal, Yanni Kouskoulas, Ryan Gardner, Aurora Schmidt, Erik Zawadzki and **André Platzer**. Formal verification of ACAS X, an industrial airborne collision avoidance system. In Alain Girault and Nan Guan, editors, *International Conference on Embedded Software, **EMSOFT'15**, Proceedings*, pp. 127–136. ACM, 2015.
9. **André Platzer**. Analog and hybrid computation: Dynamical systems and programming languages. *Bulletin of the EATCS*, **114**, 2014. Invited paper in *The Logic in Computer Science Column* by Yuri Gurevich.
10. **André Platzer**. Logical analysis of hybrid systems: A complete answer to a complexity challenge. *Journal of Automata, Languages and Combinatorics*, **17**(2–4), pp. 265–275. 2012.
11. **André Platzer**. Logical analysis of hybrid systems: A complete answer to a complexity challenge. In Martin Kutrib, Nelma Moreira, and Rogério Reis, editors, *Descriptional Complexity of Formal Systems - 14th International Workshop, **DCFS 2012***. volume 7386 of *LNCS*, pp. 43–49. Springer, 2012.
12. **André Platzer**. A differential operator approach to equational differential invariants. In Lennart Beringer and Amy Felty, editors, *Interactive Theorem Proving, International Conference, **ITP 2012***. volume 2406 of *LNCS*, pp. 28–48. Springer, 2012.
13. Nikos Aréchiga, Sarah M. Loos, **André Platzer** and Bruce H. Krogh. Using theorem provers to guarantee closed-loop system properties. In Dawn Tilbury, editor, *American Control Conference, **ACC***, pp. 3573-3580. IEEE, 2012. *(Accepted into invited session)*.
14. **André Platzer**. Logics of dynamical systems (*Invited Tutorial*). *ACM/IEEE Symposium on Logic in Computer Science, **LICS 2012***, pp. 13-24. IEEE, 2012.
15. **André Platzer**. Logic and Compositional Verification of Hybrid Systems (*Invited Tutorial*). In Ganesh Gopalakrishnan and Shaz Qadeer, editors, *International Conference on Computer Aided Verification, **CAV'11**, Proceedings*, volume 6806 of *LNCS*, pp. 28–43. Springer, 2011.

16. AI's 10 to Watch, *IEEE Intelligent Systems*, **26**(1), pp. 5–15, Jan./Feb. 2011.
17. **André Platzer**. Differential dynamic logics: Automated theorem proving for hybrid systems. *Künstliche Intelligenz*, **24**(1), pp. 75–77, 2010.
18. **André Platzer**. Verification of cyberphysical transportation systems. *IEEE Intelligent Systems*, **24**(4), pp. 10–13, Jul/Aug, 2009.
19. Werner Damm, Alfred Mikschl, Jens Oehlerking, Ernst-Rüdiger Olderog, Jun Pang, **André Platzer**, Marc Segelken, and Boris Wirtz. Automating verification of cooperation, control, and design in traffic applications. In Cliff B. Jones, Zhiming Liu, and Jim Woodcock, editors, *Formal Methods and Hybrid Real-Time Systems*, volume 4700 of *LNCS*, pp. 115–169. Springer, 2007.

Theses

1. **André Platzer**. *Differential Dynamic Logics: Automated Theorem Proving for Hybrid Systems*. Ph.D. thesis, Department of Computing Science, University of Oldenburg. 299 pages, 2008. Appeared with Springer as *Logical Analysis of Hybrid Systems: Proving Theorems for Complex Dynamics*. Springer, 2010.
2. **André Platzer**. *An object-oriented dynamic logic with updates*. Master's thesis, University of Karlsruhe, Department of Computer Science. Institute for Logic, Complexity and Deduction Systems. 193 pages, Sep 2004.
3. **André Platzer**. *Using a program verification calculus for constructing specifications from implementations*. Minor thesis, University of Karlsruhe, Department of Computer Science. 83 pages, Feb 2004.

Other

1. **André Platzer**. KeYmaera X Tutorial. 66 pages, Fall 2020. `https://keymaeraX.org/Xtutorial.html`
2. Stefan Mitsch and **André Platzer**. Verified runtime validation for partially observable hybrid systems. arXiv:1811.06502, November 2018.
3. **André Platzer**. Dynamic logics of dynamical systems. arXiv:1205.4788, May 2012. Long version of invited tutorial at LICS 2012.
4. Edmund M. Clarke, Bruce Krogh, **André Platzer**, and Raj Rajkumar. Analysis and verification challenges for cyber-physical transportation systems. In *NITRD National Workshop for Research on Transportation Cyber-Physical Systems: Automotive, Aviation, and Rail*, 2008. (*Position paper*)

Editor

1. **André Platzer**, Kristin Yvonne Rozier, Matteo Pradella, and Matteo Rossi. *Formal Methods - 26th International Symposium, FM 2024, Proceedings, Part I*. volume 14933 of *LNCS*. Springer, 2024.
2. **André Platzer**, Kristin Yvonne Rozier, Matteo Pradella, and Matteo Rossi. *Formal Methods - 26th International Symposium, FM 2024, Proceedings, Part II*. volume 14933 of *LNCS*. Springer, 2024.
3. **André Platzer** and Geoff Sutcliffe. *Automated Deduction - CADE 28 - 28th International Conference on Automated Deduction, Virtual Event, July 12–15, 2021, Proceedings*, volume 12699 of *LNCS*. Springer, 2021.
4. Roland Meyer, **André Platzer**, and Heike Wehrheim. *Correct System Design. Symposium in Honor of Ernst-Rüdiger Olderog on the Occasion of His 60th Birthday, Oldenburg, Germany, September 8–9, 2015. Proceedings*, volume 9360 of *LNCS Festschrift*. Springer, 2015.

Software Artifacts

KeYmaera X: An aXiomatic tactical theorem prover for hybrid systems	*2014–*
KeYmaeraD: Distributed hybrid theorem prover for distributed hybrid systems	*2009–2013*
KeYmaera: A hybrid theorem prover for hybrid systems	*2006–2014*
AMC: Approximation refinement model checker for hybrid systems	*2006–2009*
SAAtRe: SAT-based abstraction refinement model checker, real-time systems	*2005–2008*
Orbital library: Computer algebra and theorem proving	*1996–2011*

Video Productions

1. **André Platzer**. Logical Foundations of Cyber-Physical Systems, April 2019: Videos for 22 lectures of about an hour each. YouTube `http://video.lfcps.org/`

Invited Talks, Tutorials, Courses & Lectures

1. "Logic of Autonomous Dynamical Systems", keynote, International Workshop on Formal Methods for Autonomous Systems, Paris, France, 11/2025.
2. "Safe Physical AI", Bonn Humboldt Award Winners' Forum: The "what, how and why" of AI, keynote, Bonn, Germany, 10/2025.
3. "The Significance of Symbolic Logic for Scientific Education", keynote, Formal Methods Teaching Workshop FMTea, Milan, Italy, 09/2024.
4. "Uniform Substitution", Keynote, 9th Workshop on Practical Aspects of Automated Reasoning (PAAR), Nancy, France, 07/2024.
5. "Logic of Autonomous Dynamical Systems", Summer School on Automated Reasoning, Nancy, France, 06/2024.
6. "Differential Equation Invariance Axiomatization: From Ordinary to Extraordinary Differential Equations", DART XII Conference on Differential Algebra and Related Topics, Kassel, 4/2024.
7. "Differential Equation Invariance Axiomatization: From Ordinary to Extraordinary Differential Equations", Symposium on Sparsity and Singular Structures 2024, Aachen, 3/2024.
8. "Differential Equation Invariance Axiomatization", Differential Elimination Day, Computer Algebra for Functional Equations in Combinatorics and Physics, Amphiteatre Darboux of the Institut Henri Poincaré, Paris, 12/2023.
9. "Theorem Proving and Computer Algebra for Hybrid Systems", Keynote, SC^2 Satisfiability Checking and Symbolic Computation, Tromsø, Norway, 07/2023.
10. "Refinements of Hybrid Dynamical Systems Logic", Keynote, ABZ, Nancy, 06/2023.
11. "Logic of Autonomous Dynamical Systems", Invited course, Summer School on Verification Technology, Systems & Applications, VTSA, Saarbrücken, 09/2022.
12. "Differential Game Logic and Its Use for Aircraft Collision Avoidance Games", Invited talk, Nerode 90, 07/2022.
13. "Programming and Proving with Dynamical Systems", Invited tutorial, Continuity, Computability, Constructivity From Logic to Algorithms, CCC, University of Birmingham, 09/2021.
14. "Stochastic Differential Dynamic Logic for Stochastic Hybrid Programs", Invited talk, Symposium on Stochastic Hybrid Systems and Applications, University of Connecticut, 07/2021.
15. "The Logical Path to Autonomous Cyber-Physical Systems", Invited talk, Verified Software: Tools and Experiments, Isaac Newton Institute, Cambridge, UK, 06/2021.
16. "Cyber-Physical Systems Verification with KeYmaera X", Keynote, Logical Foundations of Computer Science, LFCS, Dearfield Beach, FL, 01/2020.
17. "Safe AI for CPS", Lightning talk, Trustworthy AI Symposium, Columbia University, New York, 11/2019.

18. "Modular Formal Verification of Cyber-Physical Systems", Contributed tutorial, Formal Methods Symposium, Porto, Portugal, 10/2019.
19. "The Logical Path to Autonomous Cyber-Physical Systems", Keynote, International Conference on Quantitative Evaluation of SysTems, QEST, Glasgow, UK, 09/2019.
20. "Logical Foundations of Cyber-Physical Systems", Invited course, Marktoberdorf Summer School on Safety and Security of Software Systems: Logics, Proofs, Applications, Marktoberdorf, Germany, 08/2019.
21. "Programming Cyber-Physical Systems with Logic", Contributed tutorial, Symposium on Principles of Programming Languages POPL, Lisbon, Portugal, 01/2019.
22. "Safe AI in CPS", Invited talk, International Test Conference ITC, Phoenix, AZ, USA, 10/2018.
23. "Safe Reinforcement Learning via Formal Methods", Invited talk, Summit on Machine Learning Meets Formal Methods, Oxford, UK, 07/2018.
24. "Logic of Distributed Hybrid Games", Invited talk, International Workshop on Methods and Tools for Distributed Hybrid Systems, Ecole polytechnique, Paris, France, 07/2018.
25. "Logical Foundations of Cyber-Physical Systems", Keynote, Logical Foundations of Computer Science LFCS, Nerode 85 Session, Dearfield Beach, FL, 01/2018.
26. "Logic & Proofs for Cyber-Physical Systems with KeYmaera X", Keynote, Integrated Formal Methods iFM, Turin, Italy, 09/2017.
27. "Dynamic Logic for Dynamical Systems", Invited course, Marktoberdorf Summer School on Logical Methods for Safety and Security of Software Systems, Marktoberdorf, Germany, 08/2017.
28. "Logical Foundations of Cyber-Physical Systems", Invited lectures, Summer School on Cyber-Physical Systems, Halmstad, Sweden, 07/2017.
29. "Lessons from the Formal Verification of the Next-generation Airborne Collision Avoidance System ACAS X", Invited talk, Verification vs. Certification for Software Intense Systems, 4th AIAA SciTech Software Challenges in Aerospace symposium, Grapevine, TX, 01/2017.
30. "How to Prove Hybrid Systems", Keynote, MEMOCODE, IIT Kanpur, India, 11/2016.
31. Stefan Mitsch, Nathan Fulton, André Platzer. "KeYmaera X Tutorial: Tactics and Proofs for Cyber-Physical Systems", Contributed tutorial, Formal Methods FM 2016, Cyprus, 11/2016.
32. "Logic & Proofs for Cyber-Physical Systems", Keynote, International Joint Conference on Automated Reasoning (IJCAR), Coimbra, Portugal, 06/2016.
33. Nathan Fulton, Stefan Mitsch, André Platzer. "From Idea to Provably Safe Implementation: Modeling, Proving, Simulation, and Synthesis in KeYmaera X", Contributed tutorial, CPSWEEK 2016, Vienna, Austria, 04/2016.
34. "How to Prove Hybrid Systems and Why that Matters", Invited talk, International Conference on Complex Systems Engineering (ICCSE), Storrs, Connecticut, 11/2015.
35. "Logical Foundations of Cyber-Physical Systems", Invited lectures, AVACS Autumn School, Oldenburg, Germany, 10/2015.
36. "Differential Game Logic", Invited talk, AVACS Concluding Colloquium, Oldenburg, Germany, 09/2015.
37. "Proving Hybrid Systems", Invited tutorial, FMCAD, Austin, TX, 09/2015.
38. "Logical Foundations of Cyber-Physical Systems: The Basis for Correctness", Invited talk, NITRD HCSS, NSF, Arlington, VA, 04/2015.
39. "Logical Foundations of Cyber-Physical Systems", Keynote, QuantLA Workshop, Dresden, Germany, 10/2014.
40. "Logical Foundations of Cyber-Physical Systems", Keynote, HCSS'14, Annapolis, MD, USA, 05/2014.

41. "Foundations of Cyber-Physical Systems", Invited course, MAP-i, Universities of Minho, Braga, Porto and Aveiro, Portugal, 03/2014.
42. "Logical Foundations of Cyber-Physical Systems" and "Developing a Successful NSF Proposal", Invited talk, NSF Workshop for Aspiring PIs in Cyber-Physical Systems, 02/2014.
43. "Logic of Dynamical Systems", Invited Research School at École Normale Supérieure (ENS) de Lyon, France, 01/2014.
44. "Hybrid Systems Verification", Invited talk, Formal Methods for Robotics and Automation, Berlin, Germany, 06/2013.
45. "How to Explain Cyber-Physical Systems to Your Verifier", Keynote, VSTTE'13, Atherton, CA, USA, 05/2013.
46. "Logic of Hybrid Games", Invited talk, LCCC Focus Period and Workshop on Formal Verification of Embedded Control Systems, Lund, Sweden, 04/2013.
47. "Logic of Dynamical Systems", Invited course, European PhD Program in Computational Logic, Basic Training Camp, Dresden, Germany, 12/2012.
48. "Logical Analysis of Hybrid Systems: The KeYmaera Approach", Invited course, Verified Software Summer School at 2nd Verified Software Workshop by East China Normal University and Microsoft Research Asia, Shanghai, 08/2012.
49. "Differential Dynamic Logic and Differential Invariants for Hybrid Systems", Keynote, ITP'12, Princeton, NJ, 08/2012.
50. "Logical Analysis of Hybrid Systems: A Completeness Answer to a Complexity Challenge", Keynote, Descriptional Complexity of Formal Systems (DCFS), Braga, Portugal, 07/2012.
51. "Logics of dynamical systems", Invited tutorial, LICS'12, Dubrovnik, Croatia, 06/2012.
52. "Logical Analysis of Hybrid Systems: The KeYmaera Approach", Invited tutorial, FroCoS'11, Saarbrücken, Germany, 10/2011.
53. "The Correct Future of Intelligent Transportation Systems", Keynote, Intelligent Transportation Society Tri-Chapter Annual Meeting, Hagerstown, MD, 09/2011.
54. "Logic and Compositional Verification of Hybrid Systems", Invited tutorial, CAV'11, Snowbird, UT, 07/2011.
55. "Logical Analysis of Hybrid Systems: How Logic and Computer Algebra Help Save the World", Invited talk, Applications of Computer Algebra ACA'11, Houston, TX, 06/2011.
56. "Logical Analysis of Hybrid Systems", Invited talk, Verification of Control Systems at CDC, 12/2010.
57. "Real Analysis for Complex Systems", Keynote, VERIFY'10, Edinburgh, 07/2010.
58. "Proof Systems for Hybrid System Logics", Keynote, Proof Systems for Program Logics PSPL'10, Edinburgh, 07/2010.

Outreach Talks

1. "Logik gegen Chaos – wie wir Technik vertrauenswürdig machen", KI:NO, 06/2025.
2. "Logic of Dynamical Systems for Flight Safety", International Excellence Talk, KIT Humboldt-Tag, 05/2025.
3. "Wie Mathematik den Flugzeugen das Fliegen beibrachte", KIT Mathematik Wissenswoche, 10/2024.
4. "Wie gut sind selbstfahrende Autos?" Invited talk, William-Stern-Gesellschaft und Mathematische Gesellschaft, Universität Hamburg, Germany, 06/2018.

Colloquia & Seminar Talks

1. "Applied Differential Dynamic Logic for Cyber-Physical System Safety", LMU Convey, 01/2025.
2. "Refinements of Hybrid Dynamical Systems Logic", IFIP WG1.3 Foundations of System Specification, 04/2023.
3. "Logic of Autonomous Dynamical Systems", Pennsylvania State University, Systems, Controls, and Robotics seminar, 10/2022.
4. "Logic of Autonomous Dynamical Systems", Isaac Newton Institute program on Verified Software: Verified Machine-Learning and Autonomy in Cyber-Physical Systems, 07/2022.
5. "Logic of Autonomous Dynamical Systems", Technical University of Darmstadt, 07/2022.
6. "First-Order Game Logic and Modal μ-Calculus", ConVeY Seminar, Ludwig Maximilian University, Munich, 06/2022.
7. "Logic of Autonomous Dynamical Systems", KIT Supervisory Board meeting, 06/2022.
8. "First-Order Game Logic and Modal μ-Calculus", Logic Seminar, Cornell University, 04/2022.
9. "Dynamic Logic for Dynamical Systems", IFIP WG1.3 Foundations of System Specification, 01/2022.
10. "Logic of Autonomous Dynamical Systems", Karlsruhe Institute of Technology, 12/2021.
11. "Logical Foundations of Cyber-Physical Systems", Max Planck Institute for Software Systems (MPI-SWS), Distinguished Lecture Series, 04/2021.
12. "Logical Foundations of Cyber-Physical Systems", IFIP WG1.3 Foundations of System Specification, 03/2021.
13. "Logical Foundations of Cyber-Physical Systems", Universidad Nacional - Bogotá, 09/2020.
14. "Logical Foundations of Cyber-Physical Systems", Deutsche Gesellschaft der Humboldtianer e.V., München, Germany, 06/2020.
15. "Logical Foundations of Cyber-Physical Systems", University of Southern California, Center for Cyber-Physical Systems and the Internet-of-Things, 04/2020.
16. "Cyber-Physical System Safety", Institute for Advanced Studies, Munich, 07/2019.
17. "Differential Equation Axiomatization", Technical University of Darmstadt, 07/2019.
18. "Logical Foundations of Cyber-Physical Systems", Technical University of Dortmund, 07/2019.
19. "Safe AI for CPS", Max Planck Institute, Saarbrücken, 07/2019.
20. "Logical Foundations of Cyber-Physical Systems", University of Aarhus, 06/2019.
21. "Safe AI for CPS", University of Aalborg, 06/2019.
22. "Safe AI for Cyber-Physical Systems", University of Oldenburg, Kolloquium, 04/2019.
23. "Differential Equation Axiomatization", IST Austria, 04/2019.
24. "Uniform Substitution for Differential Dynamic Logic", TU Munich, 01/2019.
25. "Logic & Proofs for Cyber-Physical Systems with KeYmaera X", Universidade Nova Lisboa, Lisbon, Portugal, 01/2019.
26. "Differential Equation Axiomatization", University of California, Berkeley, 11/2018.
27. "Differential Equation Axiomatization", University of Pennsylvania, Mathematics Colloquium, 11/2018.
28. "Differential Equation Axiomatization", Cornell University, 10/2018.
29. "Differential Equation Axiomatization", Karlsruhe Institute of Technology, 08/2018.
30. "Differential Equation Axiomatization", Kolchin Seminar, Courant Institute, New York University, 04/2018.
31. "Logic & Proofs for Cyber-Physical Systems", Symbolic-Numeric Computing Seminar, City University New York, 04/2018.

32. "Logic of Dynamical Systems", CMU Center for Nonlinear Analysis, 02/2018.
33. "Logic & Proofs for Cyber-Physical Systems with KeYmaera X", Cornell University, 11/2017.
34. "Logical Foundations of Cyber-Physical Systems", Technical University Darmstadt, 06/2017.
35. "Logic & Proofs for Cyber-Physical Systems", Karlsruhe Institute of Technology, 11/2016.
36. "Logic & Proofs for Cyber-Physical Systems", Technical University Darmstadt, 11/2016.
37. "A Uniform Substitution Calculus for Differential Dynamic Logic. or: How I Learned to Stop Instantiating and Love the Substitution", University of Oldenburg, 07/2016.
38. "Logic of Hybrid Games", TU Berlin, 07/2016.
39. "Logic of Hybrid Games", TU Munich, 04/2016.
40. "Logical Foundations of Cyber-Physical Systems and How They Help Prove Aircraft", MIT, 11/2015.
41. "A Uniform Substitution Calculus for Differential Dynamic Logic. or: How I Learned to Stop Instantiating and Love the Substitution", Cornell, 05/2015.
42. "Logical Foundations of Cyber-Physical Systems", École Polytechnique, 10/2014.
43. "Logic of Hybrid Games", École Polytechnique, 10/2014.
44. "Logic of Hybrid Games", Cornell University, 08/2014.
45. "Proving Cyber-Physical Systems with KeYmaera", Safe and Secure Systems and Software Symposium (S5), Dayton, OH, 06/2014.
46. "Logic of Hybrid Games", Dagstuhl Seminar on Cyber-Physical Systems, 03/2014.
47. "Logic of Hybrid Games", Dagstuhl Seminar on Deduction & Arithmetic, 10/2013.
48. "Logic of Hybrid Games", University of Cambridge, 10/2013.
49. "Logic of Hybrid Games", University of California, Berkeley, 05/2013.
50. "Logic of Hybrid Games", IST, Austria, 04/2013.
51. "How to Prove Your Robot Safe", TU Wien, Austria, 04/2013.
52. "Toward a Driver's License Test for Robotic Cars: How to Prove Your Car Correct", Invited talk at McMaster University department seminar, 03/2012.
53. "Logical Analysis of Hybrid Systems: Proving Theorems for Complex Dynamics", Invited talk at MsSCert Seminar, McMaster University, 03/2012.
54. "Logical Analysis of Hybrid Systems", Distinguished lecture, Model Based Systems Engineering Colloquium, University of Maryland, College Park, MD, 09/2011.
55. "Logical Analysis of Hybrid Systems", Mathematics Colloquium, University of Pittsburgh, PA, 09/2011.
56. "Logical Analysis of Hybrid Systems", SRI, 06/2010.
57. "Logical Analysis of Hybrid Systems", RI Seminar, CMU, 02/2011.
58. "Logical Analysis of Hybrid Systems", University of California, Berkeley, 12/2009.
59. "Automated Deduction for Hybrid Systems", Interaction versus Automation - The Two Faces of Deduction, Dagstuhl, 10/2009.
60. "Hybrid Logical Verification for Hybrid Systems", Invited talk, Caltech Workshop on Verification and Validation, Pasadena, CA, 09/2009.
61. "Hybrid Systems Verification and Collision Avoidance for Aircraft", NIA + NASA, Hampton, VA, 06/2009.
62. "Symbolic Computations in Hybrid Systems Verification: Why symbolic computations are required for hybrid systems analysis", Invited talk, NSF Workshop on Symbolic Computation for Constraint Satisfaction Problems, Arlington, VA, 11/2008.

63. "Saturation-based Scaling Techniques for Symbolic Verification of Hybrid Systems", University of California, Berkeley, 10/2008.
64. "Differential dynamic logic for verifying parametric hybrid systems", Invited talk, German Verification Day at Conference on Computer Aided Verification, CAV 2007, Berlin, 07/2007.
65. "Differential dynamic logic for hybrid systems", 6th KeY Symposium 2007, Eisenbachtal, Germany, 06/2007.
66. "Hybrid-differential Logic for Parametric Verification", University of Koblenz-Landau, Germany, 03/2006.
67. "Abstraction refinement for hybrid systems", 4th KeY Symposium, Gothenburg, Sweden, 06/2005.

Selected Press

- Im Porträt André Platzer, Leiter Institute for Reliability of Autonomous Dynamical Systems am KIT, Tagesspiegel Background, July 25, 2022.
- Alexander von Humboldt Professorship for Artificial Intelligence 2023, June 1, 2022.
- How to create AI that can safely navigate our world. *Future of Life Institute*, December 12, 2018.
- Damit es nicht knallt. *Allgäuer Zeitung*, August 3, 2017.
- Here's why self-driving cars may never really be self-driving. *ComputerWorld*, February 23, 2017.
- André Platzer on Verifying Cyber-Physical Systems. *Machine Intelligence Research Institute*, February 15, 2014.
- The Technology that Could Save Robotic Surgery Millions: Software diagnostic research debugs robotic surgical systems. *Robotics Business Review*, May 2013.
- Cars of the Future. *ScienceNews for Kids*, October 5, 2011.
- Perfekte Assistenzsysteme, *Technology Review*, Germany, August 2011.
- The Future of AI: AI's 10 to Watch. *IEEE Intelligent Systems*, Jan./Feb., 2011.
- Better Systems Around Us. Featured in *JFK 50 Legacy Gallery*: Celebrate the past to awaken the future feature in Science & Innovation, *John F. Kennedy Presidential Library and Museum*, December 14, 2010.
- Ten Young Geniuses Shaking Up Science Today. *Popular Science Magazine*, Nov. 2009.
- CMU professor recognized for making things miss. *Pittsburgh Post-Gazette*, Oct. 15, 2009.