

Curriculum Vitae

Ruzica Piskac

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Research Interests

Verification, software engineering, program synthesis, automated reasoning, network verification

Work Experience

- [07/2021 – present] Yale University, New Haven, CT, USA
 - Associate Professor, tenured
- [07/2019 – 06/2021] Yale University, New Haven, CT, USA
 - Associate Professor on Term, tenure-track
- [09/2013 – 06/2019] Yale University, New Haven, CT, USA
 - Assistant Professor, tenure-track
- [01/2012 – 08/2013] Max Planck Institute for Software Systems (MPI-SWS), Germany
 - Independent Research Group Leader
- [June – September 2008] Microsoft Research, Redmond, WA, USA
 - summer internship, mentor: Nikolaj Bjørner
- [08/2006 – 08/2007] Digital Enterprise Research Institute (DERI), Innsbruck, Austria
 - junior researcher and teaching assistant
- [12/2000 – 09/2002] University of Zagreb, Croatia
 - junior researcher and teaching assistant, part-time intern at CERN, Geneva

Education

- [09/2007 – 12/2011] Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland
 - PhD student at EPFL, Laboratory for Automated Reasoning and Analysis (LARA) group
 - thesis title: “Decision Procedures for Program Synthesis and Verification”, no. 5220 (2011)
 - thesis advisor: Viktor Kuncak
- [10/2002 – 08/2006] Saarland University, Saarbrücken, Germany
 - master student in the Programming Logics Group, advisors: Harald Ganzinger[†], Andreas Podelski, Hans de Nivelle
 - Master’s thesis: “Formal Correctness of Result Checking for Priority Queues”
 - finished Master program with the best grades (1.0/1.0)
- [09/1995 – 12/2000] University of Zagreb, Croatia
 - student of mathematics at the University of Zagreb, Croatia, advisor: Robert Manger
 - Diploma thesis: “Parallel Algorithms for Sorting and Merging” (in Croatian)
 - Dipl.Ing. degree with Honors, graduated as the first in the class of 81 students

Honors and Awards

- The Spring 2021 Amazon Research Award, \$60,000
- Named the Donna L. Dubinsky Associate Professor of Computer Science, 2019
- The winner of the 2019 Ackerman Award for Teaching and Mentoring, Yale University
- The Facebook Communications and Networking award 2018, \$50,000
- The Microsoft Research Award for the Software Engineering Innovation Foundation (SEIF) 2014, \$40,000
- Elected Member of Elisabeth-Schiemann-Kolleg, Max Planck Society, 2014
- The Patrick Denantes Prize 2012 winner, awarded annually to “an outstanding Master, Doctoral or Post-doc project from the I&C School” (the school of computer and communication sciences at EPFL)
- *Research Highlight* paper published in Communications of the ACM (55), Volume 55, Number 2, February 2012
- Rising Stars in EECS: An Academic Career Workshop for Women, MIT, Cambridge, MA, 2012 – *by invitation only*
- The Google Anita Borg Memorial Scholarship 2010 winner
- Grace Hopper Conference attendance full scholarship recipient 2008 and 2007
- [2002 – 2006] IMPRS Fellowship for both Master and Ph.D. studies in Computer Science. Max-Planck Institut für Informatik, Saarbrücken, Germany
- Won the most prestigious student’s award of Croatia: Chancellor’s Award (“Rektorova nagrada”), 2000 for the work in the area of decision making theory

Grants

- *DASS: Accountability from Attention, not Assumption*, lead PI: Ruzica Piskac, co-PIs: Scott Shapiro, Timos Antonopoulos, \$749,999, awarded by NSF (CCF-2131476)
- *TWC: Large: Collaborative: Verifiable Hardware: Chips that Prove their Own Correctness*, (originally awarded to Mariana Raykova) PIs: Siddharth Garg, Rosario Gennaro, Ruzica Piskac, Mariana Raykova (Yale, left Yale in 2019 to join Google), Abhi Shelat, Michael Taylor, Yale portion: \$540,000, awarded by NSF (CNS-1565208)
- *TWC: Medium: Collaborative: New Protocols and Systems for RAM-Based Secure Computation*, (originally awarded to Mariana Raykova) PIs: Samuel D. Gordon, Jonathan Katz, Ruzica Piskac, Mariana Raykova (Yale, left Yale in 2019 to join Google) Yale portion: \$364,769, awarded by NSF (CNS-1562888)
- *SHF: Medium: DeepSEA: A Language for Programming and Synthesizing Certified Software*, PI: Zhong Shao; co-PIs: Ruzica Piskac, Vilhelm Sjöberg, \$388,503, awarded by NSF (CCF-1715387) (full amount: \$800,000)
- *SHF: Small: ConfigV: Automated Verification of Configuration Files*, \$450,000, awarded by NSF (CCF-1715387)
- *CAREER: Synthesis in a Live Programming Environment*, \$275,065, awarded by NSF (CCF-1553168) (full amount: \$500,000)
- *SHF: Medium: Collaborative Research: FRP for Real*, \$866,000, awarded by NSF (CCF-1302327) originally to Paul Hudak
- *Student Travel Support for VMCAI Winter School 2020*, \$15,000, awarded by NSF (CCF-2004561)
- *Student Travel Support for SAT/SMT/AR Summer School at IJCAR 2016*, \$30,000, awarded by NSF (CCF-1636493)
- *Student Travel Support for VMCAI 2015*, \$19,992, awarded by NSF (CCF-1515943)
- *Student Travel Support for POPL 2015*, \$25,000, awarded by NSF (CCF-1451760)
- *Student Travel Support for VMCAI 2014*, \$15,000, awarded by NSF (CCF-1401905)

Publications

Conferences

1. N. Luo, S. Judson, T. Antonopoulos, R. Piskac, X. Wang: **ppSAT: Towards Two-Party Private SAT Solving**. In the *31st USENIX Security Symposium*, to appear.
2. J. Zhang, R. Piskac, E. Zhai, T. Xu: **Static detection of silent misconfigurations with deep interaction analysis**. *Proceedings of the 36th ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA’21)*, p. pp.1-30

3. J. Lepiller, R. Piskac, M. Schaef, M. Santolucito: **Analyzing Infrastructure as Code to Prevent Intra-update Sniping Vulnerabilities**. *Proceedings of the 27th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2021)*, p. 105-123
4. Eric Campbell, William Hallahan, Priya Srikumar, Carmelo Cascone, Jed Liu, Vignesh Ramamurthy, Hossein Hojjat, Ruzica Piskac, Robert Soulé, Nate Foster: **Avenir: Managing Data Plane Diversity with Control Plane Synthesis**. *Proceedings of the 18th USENIX Symposium on Networked Systems Design and Implementation (NSDI 202)*, p. 133-153
5. Yichao Cheng, Ning Luo, Jingxuan Zhang, Timos Antonopoulos, Ruzica Piskac, Qiao Xiang: **Looking for the Maximum Independent Set: A New Perspective on the Stable Path Problem**. *Proceedings of the 16th IEEE International Conference on Computer Communications (INFOCOM 2021)*, p. 1-10
6. William T. Hallahan, Ennan Zhai, Ruzica Piskac: **Automated Repair by Example for Firewalls**. *The International Journal on Formal Methods in System Design (FMSD)*, volume 56, p. 127-153
7. Nicholas Shoemaker, Ruzica Piskac, Mark Santolucito: **Towards Checkpoint Placement for Dynamic Memory Allocation in Intermittent Computing**. *Proceedings of the 11th Workshop on Tools for Automatic Program Analysis (TAPAS 2020)*, p. 20-22
8. S. Judson, N. Luo, T. Antonopoulos, R. Piskac: **Privacy Preserving CTL Model Checking through Oblivious Graph Algorithms**. *Proceedings of the 19th Workshop on Privacy in the Electronic Society (WPES 2020)*, p. 101-115
9. R. Piskac: **Efficient Automated Reasoning About Sets and Multisets with Cardinality Constraints**. *Proceedings of the 10th International Joint Conference on Automated Reasoning (IJCAR 2020)*, p. 3-10
10. E. Zhai, A. Chen, R. Piskac, M. Balakrishnan, B. Song, H. Zhang: **Check before You Change: Preventing Correlated Failures in Service Updates**. *Proceedings of the 17th USENIX Symposium on Networked Systems Design and Implementation (NSDI 2020)*, p. 575-589
11. K. Morton, W. Hallahan, E. Shum, R. Piskac, M. Santolucito: **Grammar Filtering for Syntax Guided Synthesis**. *Proceedings of the 34th AAAI Conference on Artificial Intelligence (AAAI 2020)*, p. 1611-1618
12. M. Santolucito, R. Piskac: **Formal Methods and Computing Identity-based Mentorship for Early Stage Researchers**. *Proceedings of the ACM Special Interest Group on Computer Science Education (SIGCSE 2020)*, p. 135-141
13. M. Levatich, N. Bjørner, R. Piskac, S. Shoham: **Solving LIA* Using Approximationsg**. *Proceedings of the 21st International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2020)*, p. 360-378
14. W. Hallahan, A. Xue, R. Piskac: **G2Q: Haskell constraint solving**. *Proceedings of the 12th ACM SIGPLAN International Symposium on Haskell (Haskell@ICFP 2019)*, p. 44-57
15. B. Finkbeiner, F. Klein, R. Piskac, M. Santolucito: **Synthesizing functional reactive programs**. *Proceedings of the 12th ACM SIGPLAN International Symposium on Haskell (Haskell@ICFP 2019)*, p. 162-175
16. B. Finkbeiner, F. Klein, R. Piskac, M. Santolucito: **Temporal Stream Logic: Synthesis Beyond the Booleans**. *Proceedings of the 31st International Conference on Computer Aided Verification (CAV 2019)*, p. 609-629.
17. W. Hallahan, A. Xue, M. Bland, R. Jhala, R. Piskac: **Lazy counterfactual symbolic execution**. *Proceedings of the 40th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2019)*, p. 411-424.
18. M. Santolucito, W. Hallahan, R. Piskac: **Live Programming By Example**. *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems (CHI 2019)*
19. M. Santolucito, D. Goldman, A. Weseley, R. Piskac: **Programming by Example: Efficient, but Not “Helpful”**. *Proceedings of the 9th Workshop on Evaluation and Usability of Programming Languages and Tools (PLATEAU@SPLASH 2018)*, p.3:1-3:10.
20. M. Santolucito, K. Rogers, A. Lombardo, R. Piskac: **Programming-by-example for audio: synthesizing digital signal processing programs**. *Proceedings of the 6th ACM SIGPLAN International Workshop on Functional Art, Music, Modeling, and Design (FARM@ICFP 2018)*, p. 18-25.
21. R. Piskac: **New Applications of Software Synthesis: Verification of Configuration Files and Firewall Repair**. *Proceedings of the 25th International Symposium (SAS 2018)*, p. 71-76.
22. B. Finkbeiner, F. Klein, R. Piskac, M. Santolucito: **Vehicle Platooning Simulations with Functional Reactive Programming**. *Proceedings of the 1st International Workshop on Safe Control of Connected and Autonomous Vehicles (SCAV@CPSWeek 2017)*, p. 43-47.
23. W. Hallahan, E. Zhai, R. Piskac.: **Automated Analysis and Repair By Example for Firewalls**. *Proceedings of the 17th International Conference on Formal Methods in Computer-Aided Design (FMCAD 2017)*, p. 220-229.

24. M. Santolucito, E. Zhai, R. Piskac: **Probabilistic Automated Language Learning for Configuration Files.** *Proceedings of the 28th International Conference on Computer Aided Verification (CAV 2016)*, p. 80-87.
25. A. Reinking, R. Piskac: **A Type-Directed Approach to Program Repair.** *Proceedings of the 27th International Conference on Computer Aided Verification (CAV 2015)*, p. 511-517.
26. S. Gulwani, Mikael Mayer, F. Niksic, R. Piskac: **StriSynth: Synthesis for Live Programming.** *Proceedings of the ICSE 2015 Demonstrations Track*, p. 701-704.
27. T. Gvero, V. Kuncak, I. Kuraj, R. Piskac. **InSynth: A System for Code Completion using Types and Weights.** *Proceedings of the Software Engineering & Management 2015* Dresden, Germany, p. 39-40
28. R. Piskac, T. Wies, D. Zufferey: **Automating Separation Logic with Trees and Data.** *Proceedings of the 26th International Conference on Computer Aided Verification (CAV 2014)*, p. 711-728.
29. R. Piskac, T. Wies, D. Zufferey: **GRASShopper: Complete Heap Verification with Mixed Specifications.** *Proceedings of the 20th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2014)*, p. 124-139.
30. J. Kloos, R. Majumdar, F. Niksic, R. Piskac: **Incremental, Inductive Coverability.** *Proceedings of the 25th International Conference on Computer Aided Verification (CAV 2013)*, Springer, LNCS Volume 8044, p. 158-173.
31. R. Piskac, T. Wies, D. Zufferey: **Automating Separation Logic Using SMT.** *Proceedings of the 25th International Conference on Computer Aided Verification (CAV 2013)*, Springer, LNCS Volume 8044, p. 773-789.
32. T. Hillenbrand, R. Piskac, U. Waldmann, C. Weidenbach. **From Search to Computation: Redundancy Criteria and Simplification at Work..** *Proceedings of the Programming Logics - Essays in Memory of Harald Ganzinger*, Springer, LNCS Volume 7797, p. 169-193.
33. T. Gvero, V. Kuncak, I. Kuraj, R. Piskac. **Complete Completion using Types and Weights.** *Proceedings of the ACM SIGPLAN 2013 Conference on Programming Language Design and Implementation (PLDI)*, p. 27-38.
34. T. Gvero, V. Kuncak, R. Piskac. **Interactive Synthesis of Code Snippets.** *Proceedings of the 23rd International Conference on Computer Aided Verification (CAV 2011)*, Springer, LNCS Volume 6806, p. 418-423.
35. R. Piskac, T. Wies. **Decision Procedures for Automating Termination Proofs.** *Proceedings of the 12th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2011)*, Springer, LNCS Volume 6538, p. 371-386.
36. V. Kuncak, R. Piskac, P. Suter. **Ordered Sets in the Calculus of Data Structures.** *Proceedings of the 19th Annual Computer Science Logic (CSL 2010)*, Springer, LNCS Volume 6247, p. 34-48.
37. R. Piskac, V.Kuncak. **MUNCH - Automated Reasoner for Sets and Multisets.** *Proceedings of the 5th International Joint Conference on Automated Reasoning (IJCAR 2010)*, Springer, LNAI 6173, p. 149-155.
38. V. Kuncak, M. Mayer, R. Piskac, P. Suter. **Comfusy: A Tool for Complete Functional Synthesis.** *Proceedings of the 22nd International Conference on Computer Aided Verification (CAV 2010)*, Springer, LNCS Volume 6174, p. 430-433.
39. V. Kuncak, M. Mayer, R. Piskac, P. Suter. **Complete Functional Synthesis.** *Proceedings of the ACM SIGPLAN 2010 Conference on Programming Language Design and Implementation (PLDI)*, p. 316-329.
40. V. Kuncak, R. Piskac, P. Suter, T. Wies: **Building a Calculus of Data Structures.** *Proceedings of the 11th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2010)*, Springer, LNCS Volume 5944, p. 26-44.
41. K. Yessenov, R. Piskac, V. Kuncak. **Collections, Cardinalities, and Relations.** *Proceedings of the 11th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2010)*, Springer, LNCS Volume 5944, p. 380-395.
42. T. Wies, R. Piskac, V. Kuncak. **Combining Theories with Shared Set Operations.** *Proceedings of the 7th International Symposium on Frontiers of Combining Systems (FroCoS 2009)*, Springer, LNCS Volume 5749, p. 366-382.
43. R. Piskac, V. Kuncak. **Fractional Collections with Cardinality Bounds.** *Proceedings of the 17th Annual Computer Science Logic (CSL 2008)*, Springer, LNCS Volume 5213, p. 124-138.
44. R. Piskac, V. Kuncak. **Linear Arithmetic with Stars.** *Proceedings of the 20th International Conference on Computer Aided Verification (CAV 2008)*, Springer, LNCS 5123, p. 268-280.
45. R. Piskac, V. Kuncak. **Decision Procedures for Multisets with Cardinality Constraints.** *Proceedings of the Ninth International Conference on Verification, Model Checking and Abstract Interpretation (VMCAI 2008)*, Springer, LNCS Volume 4905, p. 218-232.

46. H. de Nivelle, R. Piskac. **Verification of an Off-Line Checker for Priority Queues.** *Proceedings of the Third IEEE International Conference on Software Engineering and Formal Methods (SEFM 2005)*, IEEE computer society press, 210-219.
47. L. Caklovic, R. Piskac, V. Segó. 2001. **Improvement of AHP method.** *Mathematical Communications - Supplement No.1* (2001), 13-21. (Proceedings of the 8th International Conference on Operational Research - KOI 2000)

Journals

1. W. Hallahan, E. Zhai, R. Piskac.: **Automated Repair By Example for Firewalls.** *Formal Methods in System Design (FMSD)*, accepted.
2. E. Zhai, R. Piskac, R. Gu, X. Lao, X. Wang.: **An Auditing Language for Preventing Correlated Failures in the Cloud.** *Proceedings of the 32th ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA'17) PACMPL 1(OOPSLA)*: 97:1-97:28 (2017)
3. M. Santolucito, E. Zhai, R. Dhodapkar, A. Shim, R. Piskac.: **Synthesizing Configuration File Specifications with Association Rule Learning.** *Proceedings of the 32th ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA'17) PACMPL 1(OOPSLA)*: 64:1-64:20 (2017)
4. V. Kuncak, M. Mayer, R. Piskac, P. Suter. **Functional Synthesis for Linear Arithmetic and Sets.** *STTT* 15(5-6): 455-474 (2013).
5. V. Kuncak, M. Mayer, R. Piskac, P. Suter. **Software Synthesis Procedures.** *Communications of the ACM* (55), Volume 55, Number 2, p. 103-111, DOI: 10.1145/2076450.2076472 February 2012.
6. R. Piskac, L. de Moura, N. Bjørner. **Deciding Effectively Propositional Logic Using DPLL and Substitution Sets** , *Journal of Automated Reasoning*, DOI: 10.1007/s10817-009-9161-6, Volume 44, Number 4, p. 401-424, April 2010.
7. P. Saiz, L. Aphecetche, P. Buncic, R. Piskac, J.-E. Revsbech, V. Segó. 2003. **AliEn-ALICE environment on the GRID.** *Nuclear Instruments and Methods in Physics Research Section A*, Volume 502, Issue 2-3, p. 437-440.

Workshops without Proceedings

1. M. Santolucito, D. Goldman, A. Weseley, R. Piskac: **Programming by example: efficient, but not “helpful”** . *Presented at the 7th Workshop on Synthesis (SYNT 2018)*
2. M. Santolucito, R. Piskac and Ennan Zhai: **Using Machine Learning to Synthesize Specifications for Configuration Files.** *Presented at the 2nd Workshop on Learning in Verification (LiVe 2018)*
3. W. Hallahan, A. Xue, R. Piskac: **Building a Symbolic Execution Engine for Haskell.** *Presented at the 8th Workshop on Tools for Automatic Program Analysis (TAPAS 2017)*
4. E. Zhai, R. Piskac: **Towards An Auditing Language for Preventing Cascading Failures.** *Presented at the ACM SIGCOMM 2017 The Third Workshop on Networking and Programming Languages (NetPL 2017)*

Theses

1. **Decision Procedures for Program Synthesis and Verification.** *PhD Thesis.*
École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, December 2011.
2. **Formal Correctness of Result Checking for Priority Queues.** *Master Thesis.*
Universität des Saarlandes, Saarbrücken, Germany, February 2005.

Proceedings Editor

1. R. Piskac, M. Whalen: *Proceedings of the 21st International Conference on Formal Methods in Computer-Aided Design, FMCAD 2021, New Haven, CT, USA, October 20-22, 2021.*
2. C. Enea, R. Piskac: *Proceedings of the 20th International Conference on Verification, Model Checking, and Abstract Interpretation, VMCAI 2019, Cascais, Portugal, January 13-15, 2019.*
3. R. Piskac, P. Rümmer: *Proceedings of the 10th International Conference on Verified Software. Theories, Tools, and Experiments, VSTTE 2018, Oxford, UK, July 18-19, 201.*

4. R. Piskac, M. Talupur: Proceedings of the 16th International Conference on Formal Methods in Computer-Aided Design, FMCAD 2016, Mountain View, CA, USA, October 3-6, 2016.
5. T. King, R. Piskac. Proceedings of the 14th International Workshop on Satisfiability Modulo Theories affiliated with the International Joint Conference on Automated Reasoning, SMT@IJCAR 2016, Coimbra, Portugal, July 1-2, 2016.
6. R. Piskac, R. Dimitrova: Proceedings of the 5th Workshop on Synthesis, SYNT@CAV 2016, Toronto, Canada, July 17-18, 2016.
7. R. Piskac, F. van Harmelen, N. Zhong. Proceedings of the 6th International Semantic Web Conference and the 2nd Asian Semantic Web Conference Workshop on New forms of reasoning for the Semantic Web: scalable, tolerant and dynamic, Busan, Korea, November 2007.
8. F. van Harmelen, A. Herzig, P. Hitzler, Z. Lin, R. Piskac, G. Qi. Proceedings of the 5th European Semantic Web Conference Workshop on Advancing Reasoning on the Web: Scalability and Commonsense (ARea-2008), Tenerife, Spain, June, 2008.
9. R. Piskac, E. Simperl. Proceedings of the Doctoral Consortium of the 3rd Future Internet Symposium 2010, Berlin, Germany, September 23-24, 2010.

Professional Activities

- Steering Committee member
 1. *The International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)* (2019 -)
 2. *The International Workshop on Satisfiability Modulo Theories (SMT)* (2021 -)
- Organizer and PC co-Chair
 1. *The 21st Conference on Formal Methods in Computer-Aided Design (FMCAD 2021)*, New Haven, CT, USA. Co-organizer with M. Whalen
 2. *The 20th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2019)*, co-located with POPL 2019, Lisbon, Portugal. Co-organizer with C. Enea
 3. *The VMCAI Winter School 2019*, co-event of VMCAI 2019, Lisbon, Portugal. Co-organizer with C. Enea, and V. Manquinho
 4. *The 10th Working Conference on Verified Software: Theories, Tools, and Experiments (VSTTE 2017)*, co-located with FLoC 2018, Oxford, UK. Co-organizer with P. Rümmer
 5. *The 16th Conference on Formal Methods in Computer-Aided Design (FMCAD 2016)*, Mountain View, CA, USA. Co-organizer with M. Talupur
 6. *The 5th Workshop on Synthesis (SYNT 2016)*, co-located with CAV 2016, Toronto, Canada. Co-organizer with R. Dimitrova
 7. *The Verification Mentoring Workshop (VMW 2016)*, held with CAV 2016, Toronto, Canada. Co-organizer with A.Gupta, and A. Rybalchenko
 8. *International Summer School on Satisfiability, Satisfiability Modulo Theories, and Automated Reasoning*, held in Lisbon, Portugal, before IJCAR 2016. Co-organizer with I. Lynce and P. Rümmer
 9. *The 14th International Workshop on Satisfiability Modulo Theories Workshop (SMT 2016)*. Co-organizer with T. King
 10. *The Verification Mentoring Workshop (VMW 2015)*, held with CAV 2015, San Francisco, USA. Co-organizer with A.Gupta, R. Majumdar and C. Pasareanu
 11. *The 2015 ACM SIGPLAN Programming Languages Mentoring Workshop (PLMW)*, co-located with POPL 2015, January 2015, Mumbai, India. Co-organizer with D. Dreyer, A. Kanade, A. Schmitt and R. Tate
 12. *FMCAD 2014 Student Forum*, co-located with Formal Methods in Computer-Aided Design (FMCAD 2014), Lausanne, Switzerland, October 2014. Organizer.
 13. *Doctoral Consortium of the 3rd Future Internet Symposium 2010*, Berlin, Germany, September 2010. Education co-Chair together with E. Simperl
 14. *Advancing Reasoning on the Web: Scalability and Commonsense*, workshop co-located with the 5th European Semantic Web Conference, Tenerife, Spain, June 2008. Co-organizer with F. van Harmelen, A. Herzig, P. Hitzler, Z. Lin and G. Qi

15. *New forms of reasoning for the Semantic Web: scalable, tolerant and dynamic*, workshop co-located with the 6th International Semantic Web Conference and the 2nd Asian Semantic Web Conference, Busan, Korea, November 2007. Co-organizer with F. van Harmelen and N. Zhong
- Organizing Scientific Meetings
 1. *Theoretical Foundations of Computer Systems* program at Simons Institute in Spring 2021. Co-organizer with P. Černý, T. Colcombet, M. Kwiatkowska, and M. Vardi
 2. Dagstuhl seminar 20142 *Resilient Software Configuration and Infrastructure Code Analysis* in Spring 2020, postponed due to the pandemic. Co-organizer with J. Cito, A. Zaidman, and Y. Zhou
 - Publicity Chair
 1. The Workshops Chair for the 49th ACM SIGPLAN-SIGACT Symposium on *Principles of Programming Languages (POP) 2022*, jointly with I. Sergey
 2. The Workshops Chair for the 48th ACM SIGPLAN-SIGACT Symposium on *Principles of Programming Languages (POP) 2021*, jointly with J. Hoffmann
 3. The Travel Grant Chair for the International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2020, VMCAI 2018)
 4. The 43rd ACM SIGPLAN-SIGACT Symposium on *Principles of Programming Languages (POPL 2016)*
 5. The Publication Chair for the Formal Methods in Computer-Aided Design conference (FMCAD 2015), Austin, TX, USA.
 6. The Outreach Activities Chair for the 16th International Conference on *Verification, Model Checking, and Abstract Interpretation (VMCAI 2016)*
 7. The 42nd ACM SIGPLAN-SIGACT Symposium on *Principles of Programming Languages (POPL 2015)*, jointly with Viktor Vafeiadis
 8. The 15th International Conference on *Verification, Model Checking, and Abstract Interpretation (VMCAI 2014)*
 - Program Committees
 1. The 33rd International Conference on Computer-Aided Verification (CAV 2022)
 2. The 26th ACM International Conference on Programming Language Design and Implementation (PLDI 2022)
 3. The Workshop on Programming Languages and the Law (ProLaLa) @POPL 2022
 4. The 32nd International Conference on Computer-Aided Verification (CAV 2021)
 5. The 25th ACM International Conference on Programming Language Design and Implementation (PLDI 2021)
 6. The 31st International Conference on Computer-Aided Verification (CAV 2020)
 7. The 24th ACM International Conference on Programming Language Design and Implementation (PLDI 2020)
 8. The 31st International Conference on Computer-Aided Verification (CAV 2019)
 9. The 12th International Workshop on Numerical Software Verification (NSV 19)
 10. The 1st International Workshop on Software Engineering for Infrastructure and Configuration Code (seconf19)
 11. The 22nd ACM International Conference on Programming Language Design and Implementation (PLDI 2018)
 12. The 45th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2018)
 13. The 14th International Conference on integrated Formal Methods (iFM 2018)
 14. The 7th Workshop on Synthesis (SYNT 2018)
 15. The 2nd Summit on Advances in Programming Languages (SNAPL 2017)
 16. The 6th Workshop on Synthesis (SYNT 2017)
 17. 26th International Conference on Automated Deduction (CADE 2017)
 18. The 26th European Symposium on Programming (ESOP 2017)
 19. The 28th International Conference on Computer-Aided Verification (CAV 2016)
 20. The International Conference on Distributed Computing and Internet Technology (ICDCIT 2016)
 21. The 6th International Symposium on Games, Automata, Logics and Formal Verification (GandALF 2015)
 22. The 13th International Workshop on Satisfiability Modulo Theories (SMT 2015)

23. The 15th Conference on Formal Methods in Computer-Aided Design (FMCAD 2015)
 24. The 25th International Conference on Automated Deduction (CADE 2015)
 25. Programming Language Design and Implementation (PLDI 2015)
 26. The 21st International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2015)
 27. The 16th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2015)
 28. The 10th Haifa Verification Conference 2014 (HVC 2014)
 29. ESEC/FSE 2014 Tool Demos track
 30. The 14th Conference on Formal Methods in Computer-Aided Design (FMCAD 2014)
 31. The 6th International Symposium on Symbolic Computation in Software Science (SCSS 2014)
 32. The 5th Workshop on Practical Aspects of Automated Reasoning (PAAR-2014)
 33. Programming Language Design and Implementation (PLDI 2014), External Review Committee member
 34. The 15th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2014)
 35. The 13th Conference on Formal Methods in Computer-Aided Design (FMCAD 2013)
 36. ESEC/FSE 2013 Tool Demos track
 37. The 22nd EACSL Annual Conferences on Computer Science Logic (CSL 2013)
 38. The 14th International Workshop on Verification of Infinite-State Systems (INFINITY 2012)
 39. The 3rd Workshop on Practical Aspects of Automated Reasoning (PAAR-2012)
 40. The 18th International Conference on Logic for Programming Artificial Intelligence and Reasoning (LPAR-18)
 41. STI International Symposium 2010 - Organizing Committee Member
 42. The 4th Asian Semantic Web Conference (ASWC 2009)
 43. The 3rd Asian Semantic Web Conference (ASWC 2008)
 44. The Second International Workshop on New forms of reasoning for the Semantic Web: scalable, tolerant and dynamic (NeForS08)
- Reviewer for
 - Springer’s Machine Learning (MACH) journal, Journal of Automated Reasoning, The COMLAN (Computer Languages, Systems and Structures) journal, The TOSEM (Transactions on Software Engineering and Methodology) journal, Handbook of Model Checking, International Workshop on Verification of Infinite-State Systems (INFINITY 2012), International Workshop on Computer Science Logic (CSL 2013, CSL 2012), Workshop on Practical Aspects of Automated Reasoning (PAAR-2012), Journal of Symbolic Computation, STTT Journal, International Conference on Automated Deduction (CADE 2011), European Symposium on Programming (ESOP2011), Symposium on Principles of Programming Languages (POPL 2011), International Conference on Computer Aided Verification (CAV 2014, 2013, 2012, 2011, 2010), Computer Science Symposium in Russia (CSR 2010), Static Analysis Symposium (SAS 2012, SAS 2011, SAS 2009), Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2012, VMCAI 2009), Asian Semantic Web Conference (ASWC 2009, ASWC 2008), Conference on Logic for Programming Artificial Intelligence and Reasoning (LPAR-12, LPAR-08, LPAR-07), International Joint Conference on Automated Reasoning (IJCAR-08), Workshop on Web Semantics (WebS2007), International World Wide Web Conference (WWW2007), Conference on Information Integration and Web-based Applications & Services (iiWAS2006)
 - Served on NSF Panels in 2015, 2016, 2018, 2019, 2021
 - Served on a panel of Portuguese National Agency for Innovation (ANI) in 2019
 - [September 2008 - present] Managing editor and publisher of the CEUR-WS.org proceedings series (<http://CEUR-WS.org/>)
 - over 3000 published conference and workshop proceedings

Presentations

- Conference Presentations
 - OOPSLA 2017, CAV 2011, SMT 2011, POPL 2011 (student session), IJCAR 2010, CSL 2008, CAV 2008, VMCAI 2008
- Invited Talks and Meetings
 - Keynote talk at the 20th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM 2020), Adelaide, Australia
 - Keynote talk at the 10th International Joint Conference on Automated Reasoning (IJCAR 2020), Paris, France
 - Colloquium talk at the University of Iowa (2020)
 - VMW 2019 (Verification Mentoring Workshop)
 - ANDREI-60 (Automated New-era Deductive Reasoning Event in Iberia), conference in honor of 60th birthday of Andrei Voronkov, Tbilisi, Georgia, May 19-23, 2019.
 - Meeting on String Constraints and Applications (MOSCA 2019), Bertinoro, Italy, May 6-9, 2019.
 - IFIP WG 2.3 (Working Group on Programming Methodology), York, England, February 4-8, 2019.
 - Facebook Testing and Verification Symposium, Facebook London, November 28-29, 2018.
 - The 25th Static Analysis Symposium (SAS 2018), Freiburg im Breisgau, Germany
 - IFIP WG 2.3 (Working Group on Programming Methodology), Providence, RI, May 7-11, 2018.
 - Workshop on Verification of Distributed Systems, May 6–8, 2018.
 - Galois (2018)
 - IFIP WG 2.3 (Working Group on Programming Methodology), Mooloolaba, Australia, July 17-21, 2017.
 - NSF CISE CAREER Workshop 2017, Arlington, VA.
 - Bell Labs, Murray Hill, NJ, April 2017.
 - VMW 2016 (Verification Mentoring Workshop)
 - SYNASC 2015 (Symposium on Symbolic and Numeric Algorithms for Scientific Computing)
 - Microsoft Research Faculty Summit 2014
 - CMACS/AVACS Workshop & PI Meeting, Carnegie Mellon University, Pittsburgh, PA (2013)
 - SYNT 2013, 2nd Workshop on Synthesis, co-located with CAV, Saint Petersburg, Russia (2013)
 - The IMPECS Workshop on Program Analysis, Bangalore, India (2012)
 - “CP meets CAV”, Turunc, Turkey (2012)
 - Microsoft Research Redmond (2017, 2013, 2008)
 - NEC Laboratories, Princeton (2012)
 - LogicBlox, Atlanta (2011)
 - Dagstuhl Seminars: 21371, 19371, 19202, 18121, 17371, 16131, 15442, 14442, 14351, 13502, 13411, 12152, 12461, 10161, 09271, 07401, 05431
 - NII Shonan Meeting Seminars: 139 Causal Reasoning in Systems), 112 (Theory and Practice of Data Plane Programming), 100 (Analysis and Verification of Pointer Programs)
 - Other invited talks include: University of Iowa (2020), MIT (2018), Princeton (2018), University of Washington (2018), University of Konstanz (2017), University of Koblenz (2017), University of Innsbruck (2017), University of Graz (2016), Smith College(2014), Wesleyan University(2014), University of Pennsylvania (2013), National University of Ireland (2013), IIT Kanpur (2012), Microsoft Research India, Bangalore (2012), STI Austria (2012, 2010), IST Austria (2012), NYU (2012, 2011), Caltech (2011), Microsoft Research Cambridge (2011), University of Freiburg, Germany (2011, 2006), Université Libre de Bruxelles (2010), The IMDEA Software Institute, Madrid (2010), Colorado University, Boulder (2008), SRI International (2008)
 - Meetings of various European initiatives:
 - * Meetings of the COST actions: Turin (2011), Saarbrücken (2011), Belgrade (2010), Eindhoven (2009)
 - * Alpine Verification Meetings: Lugano (2010), Semmering, Austria (2008)
 - * German Deduction Meeting: Koblenz (2005), Saarbrücken (2004)
 - * The Ringberg Castle seminars: “Deduction at Scale” (2011), Logic Seminar (2003)

- Poster Presentations
 - presented posters at the “Rising Stars in EECS: An Academic Career Workshop for Women”, an invitational workshop at MIT, 2012, the Verification Technology, Systems & Applications Summer School, Luxembourg, 2010, EPFL Research Day (2010 and 2008), Microsoft Research Summer School, Cambridge (2010), The Technical Poster Competition of The Grace Hopper Celebration (2008) - one of four posters that was qualified in the finals, all together more than 100 submissions; “Femmes de Sciences” at EPFL (2008)

Teaching and Supervising Experience

- Courses designed and taught
 - *Introduction to Systems Programming and Computer Organization (CPSC 323)*, Yale, Fall 2021
 - *Software Engineering (CPSC 439/539)*, Yale, Spring 2019, 2018, 2016, 2015, 2014
 - *Software Analysis & Verification (CPSC 454/554)*, Yale, Fall 2020, 2019, 2018, 2017, 2015, 2014
 - *Seminar on Software Synthesis*, Yale, Summer 2015
 - *Seminar on Decision Procedures (CPSC 729a)*, Yale, Fall 2013
 - *Embedded Systems*, University of Saarland, Germany, Summer 2014
 - *Seminar on Decision Procedures*, University of Saarland, Fall 2012
- Summer / Winter Schools
 - lecturer at the Summer School on Verification Technology, Systems and Applications (VTSA 2016), Liège, September 2016.
 - lecturer at the *10th International Winter School on MOdelling and VErifying parallel Processes (MOVEP 2012)*, Marseille, December 2012.
 - lecturer (Arbeitsgruppe 3 bei der Akademie XII der Studienstiftung des deutschen Volkes). Topic: *Kann der Computer selbst programmieren?* (synthesis), Papenburg, Spring 2012.
 - lecturer at the *First International SAT/SMT Solver Summer School 2011*, MIT, June 2011.
- Supervised Postdoctoral Researchers:
 - Timos Antonopoulos (2017 -) research scientist
 - Julien Lepiller (2020 - 2021) postdoctoral researcher
 - Ennan Zhai (2015 - 2018, associate research scientist) - first position: senior manager of research/staff engineer at Alibaba
- Supervised Graduate Students at Yale
 - Bill Hallahan (2016 -) Thesis topic: *Programming by Example in Live Programming Environment*
 - Jialu Zhang (2018 -) Thesis topic: *Verification of Configuration Files*
 - Ning Luo (2019 -) Thesis topic: *Privacy Preserving Verification*
 - Sam Judson (2019 -) Thesis topic: *Privacy Preserving Model Checking*
 - Mark Santolucito (2015 - 2020) Thesis topic: *A Modular Synthesis Framework for Software Deployment, Design, and Implementation* - first position: Barnard College as a tenure-track Assistant Professor.
- Awards and Recognition of Current and Former Trainees
 - Sam Judson - won the 2020 DoD NDSEG Fellowship
 - Anton Xue - won the 2019 NSF Graduate Research Fellowship
- Supervised Undergraduate Students at Yale (CPSC 290 and 490)
 - Fall 2021: Gabriel Saruhashi
 - Spring 2021: Vishnu Murale, Jared Truong, Alice Wu
 - Spring 2020: Sarim Abbas, Alexi Christakis, Dalya Dickstein, Gabriel Saruhashi, Arthur Kasumyan, Artin Kasumyan, Vivek Katara, Roula Sharqawe, Lea Sparkman
 - Fall 2019: Yichao Cheng, Alexi Christakis, Max Levatich, Alexis Dornan, Rushyendra Maganty, Andrew Sheinberg

- Spring 2019: Ken Cheng, Zoe Henry, Allen Miao, Karina Rodriguez, Griffin Solot-Kehl, Hui Yang, Omeed Ziari
- Fall 2018: Ken Cheng, Omeed Ziari
- Spring 2018: Erika Hairston, Udit Jain, Ryan Lim, Andre Monteiro, Kate Rogers, Alexis Saiontz, Scott Smith, Sweyn Venderbush
- Fall 2017: Anton Xue
- Spring 2017: Henok Addis, Annie Cook, David Hergenroeder, Minhtri Pham, William Sun, Christopher Wan, Haohang Xu, Derek Lo, Master students: Xun Lao, Xi Wang, Ruiming Kou, Zijun Tang, Jiaqi Gu
- Fall 2016: Derek Lo, Christopher Wan
- Spring 2016: Nathaya Darakananda, Tihomir Elek, Nick Fieschko, Timothy Follo, Aaron Shim, Jonathon Cai
- Fall 2015: Evan Hellmuth, Graham Kaemmer, Marvin Qian, Nick Fieschko, Stephen Hemenway, Tihomir Elek
- Spring 2015: Akshay, Nathan, Daniel Dickstein, Hunter Ford, Ivan Matej Kolobaric, Earl Lee, John Orland, Alexander Reinking, Mikayla Thompson
- Fall 2014: Feridun Mert Celebi, Abhishek Chandra, Paul Fletcher-Hill, Alexander Reinking, Mikayla Thompson
- Supervised PhD Students at the MPI-SWS Institute, later supervised by Rupak Majumdar
 - Filip Niksic
 - Susanne van den Elsen
- Doctoral Thesis Reviewer and Examiner:
 - Omid Alipourfard: *Change Management Systems for Seamless Evolution in Data Centers*, Yale, 2021.
 - Felix Klein: *Synthesizing Stream Control*, Saarland University 2020.
 - Jérémie Koenig: *A Modular Synthesis Framework for Software Deployment, Design, and Implementation*, Yale 2020.
 - Mark Santolucito: *A Modular Synthesis Framework for Software Deployment, Design, and Implementation*, Yale 2020.
 - Mengqi Liu: *Model Counting for Reactive Systems*, Yale 2020.
 - Hazem Torfah: *Real-Time CertiKOS: Compositional Verification of OS Kernels with Preemptive Scheduling and Temporal Isolation*, Saarland University 2019.
 - Jieung Kim: *Modular and Compositional Development of Certified Concurrent Software Systems*, Yale, 2019.
 - Jose Faleiro: *High Performance Multi-core Transaction Processing via Deterministic Execution*, Yale, 2018.
 - Xiongnan (Newman) Wu: *A Compositional Automation Engine for Verifying Complex System Software*, Yale, 2018.
 - Quentin Carbonneaux: *Modular and Certified Resource-Bound Analyses*, Yale, 2017.
 - Alexander Legg: *A counterexample guided method for reactive synthesis*, UNSW, Australia, 2016.
 - David Costanzo: *Formal End-to-End Verification of Information-Flow Security for Complex Systems*, Yale, 2016.
 - Ronghui Gu: *An Extensible Architecture for Building Certified Sequential and Concurrent OS Kernels*, Yale, 2016.
 - Shu-Chun Weng: *DeepSpec: Modular Certified Programming with Deep Specifications*, Yale, 2015.
 - Daniel Winograd-Cort: *Effects, Asynchrony, and Choice in Arrowized Functional Reactive Programming*, Yale, 2015.
- Master Thesis Reviewer and Examiner:
 - Heinrich Ody: *Synthesis of Distributed Reactive Programs*, Saarland University, Germany, November 2013.
 - Ivan Kuraj: *Interactive Code Generation*, EPFL, Switzerland, January 2012.
- Supervised Master Students
 - Mikael Mayer: “Complete Program Synthesis for Linear Arithmetics”, Master Thesis, EPFL, 2010.
- Academic Outreach

- supervised three high-school students and three undergraduate students over the summer of 2019 and involved them in the research projects
- visiting Roslyn High School to popularize STEM research, involving a local high school student in research and publishing a SYNT 2018 paper with him
- teaching at Yale YES-W 2016 (Yale Engineering and Science Weekend) for high school students and their parents
- giving a talk at a Connecticut Computer Science Teachers Association (CTCSTA) 2016 meeting for high school computer science teachers
- organizing one-day symposiums “Yale PL Day 2016” and “Yale PL Day 2015”
- invited professor in the program “Professors at Large” at the University of Saarland (summer 2014): as a part of the visit, Ruzica organized and supervised weekly meetings of women in the STEM fields. They prepared a poster exhibition on a topic “Women in Computer Science that inspire us”
- invited speaker at *A Yale Celebration of Women in Computing*, January 2014.
- teaching at *cSplash*, NYU - an event for mathematically inclined high school students to attract them to study science and engineering

Language Skills

- Croatian, English, German, Russian