

Viktor Kuncak

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School of Computer & Communications Sciences, INR 318
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Research Interests: Programming Languages, Synthesis, Verification, Automated Reasoning

Work Experience Summary

- 2007- **Tenure-Track Assistant Professor**
School of Computer and Communication Sciences
EPFL (École Polytechnique Fédérale de Lausanne), Switzerland
- 2000-2007 **Research Assistant**
MIT Computer Science and Artificial Intelligence Laboratory, Cambridge, MA, USA
- Summer 2002 **Research Intern**, Microsoft Research, Redmond, WA

Education

- 2001-2007 **Massachusetts Institute of Technology, Cambridge, USA**
Ph.D. in Computer Science (degree date February 2007), GPA 5.0/5.0
Thesis: Modular Data Structure Verification Advisor: Prof. Martin Rinard
- 2000-2001 **Massachusetts Institute of Technology, Cambridge, USA**
M.Sc. in Computer Science, Minor in Physics, September 2001, GPA 5.0/5.0
Thesis: Designing an Algorithm for Role Analysis Advisor: Prof. Martin Rinard
- 1996-2000 **University of Novi Sad, Serbia**
B.Sc. in Computer Science, GPA 10.0/10.0, Best Student of the University Award
Thesis: Modular Interpreters in Haskell Advisor: Prof. Mirjana Ivanović

Five Recent Publications

- **Constraints as control.**
Ali Sinan Köksal, Viktor Kuncak, and Philippe Suter.
In *38th ACM SIGACT-SIGPLAN Symp. Principles of Programming Languages (POPL)*, 2012.
- **Trustworthy numerical computation in Scala.**
Eva Darulová and Viktor Kuncak.
In *ACM SIGPLAN SPLASH Conference on Programming (OOPSLA Research Paper)*, 2011.
- **Complete functional synthesis (selected for ACM Communications Research Highlights).**
Viktor Kuncak, Mikael Mayer, Ruzica Piskac, and Philippe Suter.
In *ACM Conf. Programming Language Design and Implementation (PLDI)*, 2010.
- **Test generation through programming in UDITA (ACM Distinguished Paper Award).**
Milos Gligoric, Tihomir Gvero, Vilas Jagannath, Sarfraz Khurshid, Viktor Kuncak, and Darko Marinov.
In *ACM/IEEE International Conference on Software Engineering (ICSE)*, 2010.
- **Decision procedures for algebraic data types with abstractions.**
Philippe Suter, Mirco Dotta, and Viktor Kuncak.
In *37th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages (POPL)*, 2010.

Keynotes at Conferences and Invited Presentations

- Keynote: Satisfiability Modulo Theories (SMT), with CAV, July 2011, USA, <http://lara.epfl.ch/~kuncak/talks/smt11-keynote.pdf>
- Keynote: Intermediate Verification Languages, with CADE, August 2011, PL
- Keynote: Interactions, Games and Protocols (iWIGP), with ETAPS, March 2011, DE
- Practical Synthesis (PSY), with CAV, July 2011, USA
- Keynote: 19th Annual Conference on Computer Science Logic (CSL), August 2010, Brno, CZ
- Invited Tutorial: Verification, Model Checking and Abstract Interpretation (VMCAI), 2010
- Symposium “Reactive Modeling in Science and Engineering”, May 2010, IST Austria
- Keynote: Aliasing, Confinement and Ownership in Object-Oriented Programming, July 2009
- Keynote: KeY Symposium, May 2009, Speyer, DE
- Automated Deduction: Decidability, Complexity, Tractability (ADDCT), July 2007, Bremen, DE
- Dagstuhl Seminars (including seminars 03101, 05431, 07401, 09301, 09411, 09501) and COST Action meetings
- The above does not include conference talks or talks given at the occasion of visiting universities and research labs, such as: Caltech, CMU, Cornell, IBM T.J. Watson Research Center, LIAFA (Paris VII), LSV (ENS Cachan), Microsoft Research (Redmond, Cambridge), MIT, MPI for Software Systems and MPI for Computer Science (Saarbrücken), New York University, Northeastern University, Stanford University, Toyota Technological Institute at Chicago, TU München, UC Berkeley, University of Illinois (Urbana-Champaign), University of Maryland, University of Novi Sad, UT Austin, Verimag (Grenoble).

PC Co-Chair: VMCAI 2012, 13th International Conference on Verification, Model Checking, and Abstract Interpretation, <http://lara.epfl.ch/vmcai2012/>

Workshop initiator and co-organizer: Workshop on Synthesis, Verification, and Analysis of Rich Models (SVARM), <http://RichModels.org>, 2010, 2011, 2012

Co-organized Summer School: Software Synthesis, Dagstuhl, August 2011

Publication chair: FMCAD 2011 (Formal Methods in Computer-Aided Design)

Conference program committee member for around 30 conferences: Computer Aided Verification (CAV 2012), Conference on Computer Science Logic (CSL 2012, 2011), OOPSLA 2012 ERC, ACM Conf. Principles of Programming Languages (POPL 2012 ERC, POPL 2011), ACM Conf. Programming Language Design and Implementation (PLDI 2011, PLDI 2010 ERC, PLDI 2007), European Symposium on Programming (ESOP 2011), Conf. Verification, Model Checking, and Abstract Interpretation (VMCAI 2011), Static Analysis Symposium (SAS 2011), Runtime Verification (RV 2011), Conference on Automated Deduction / International Joint Conference on Automated Reasoning (CADE/IJCAR 2011, 2010, 2008), Formal Methods in Computer-Aided Design (FMCAD 2011), ASM, Alloy, B and Z Conference (ABZ 2010), Frontiers of Combining Systems (FroCoS 2009), European Conference on Object-Oriented Programming (ECOOP 2009), International Conference on Compiler Construction (CC 2009), 35th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM 2009), Int. Conf. on Logic for Programming, Artificial Intelligence and Reasoning (LPAR 2006, LPAR 2007), Partial Evaluation and Program Manipulation (PEPM 2010), Bytecode Semantics, Verification, Analysis and Transformation (BYTECODE 2010), Java Technology for Real-time and Embedded Systems (JTRES 2010), Heap Analysis and Verification (HAV 2007), Automated Deduction: Decidability, Complexity, Tractability (ADDCT 2007), Automatic Program Verification (APV 2009), Int. Conf. Formal Verification of Object-Oriented Software (FoVeOOS).

Additionally refereed for ACM Conf. on Programming Language Design and Implementation, PLDI 2001–2004, 2007–2009, 2012; ACM Symposium on the Principles of Programming Languages, POPL 2001, 2005, 2006, 2008, 2009, 2010; SAS 2004; VMCAI 2006; OOPSLA 2002; ACM Transactions on Software Engineering and Methodology, TOSEM; IEEE Transactions on Software Engineering, TSE; LICS 2004; ACM Transactions on Computational Logic, TOCL; PODC 2004; TACAS 2004; FSTTCS 2002, 2003; IFIP World Computer Congress 2004; IWACO 2003.

Graduated doctoral student: Ruzica Piskac (2007-2011), now tenure-track assistant professor at the Max-Planck Institute for Software Systems (<http://www.mpi-sws.org/~piskac>).

Current doctoral students (7): Philippe Suter, since 2008; Hossein Hojjat, since 2009; Giuliano Losa, since 2009 (with Rachid Guerraoui); Eva Darulova, since 2010; Tihomir Gvero, since 2010; Andrej Spielmann, since 2011 (with Christoph Koch); Etienne Kneuss, since 2012.

Supervised 6 completed EPFL master’s theses: Ali Sinan Köksal (now at Berkeley), Etienne Kneuss (now at EPFL), Dinesh Bolkensteyn (now at SonarSource), Mirco Dotta (now at Typesafe), Ersoy Bayramoglu, Sebastian Gfeller (now at PSideo SA), Mikael Mayer, Gizil Oguz, Philippe Suter (now doing Ph.D. with me at EPFL). Currently supervising 3 M.Sc. theses.

Funding awarded:

period	amount	co-PI	source	topic
2008–2011	140'000 CHF	none, sole PI	Swiss NSF	Program Analysis
2011–2012	45'000 CHF	none, sole PI	Swiss NSF	Program Analysis
2011–2012	190'000 CHF	none, sole PI	Swiss NSF	Software Synthesis
2010–2012	103'000 CHF	R.Guerraoui	Swiss NSF	Distributed Computing
2008–2012	1'086'000 CHF	M.Odersky T.Henzinger	Microsoft Switzerland	Software Quality Tools
2010–2013	100'000 CHF mostly for co-PI	Predrag Janičić Serbia	Swiss NSF Cooperation Grant	Decision Procedures
2009–2013	~ 400'000 CHF for 30 countries	many (I am chair)	COST Office www.cost.eu	Rich Model Toolkit

Reviewed proposals for major funding agencies in Switzerland, USA, France, and the Netherlands.

Doctoral thesis committee member for 15 Ph.D. theses:

1. Cezara Drăgoi, “Automated verification of heap-manipulating programs with infinite data”, Universite Paris Diderot—Paris 7, 2011 (directors: Ahmed Bouajjani and Mihaela Sighireanu)
2. Gilles Dubochet, “Embedded domain-specific languages using libraries and dynamic metaprogramming”, EPFL 2011 (director: Martin Odersky)
3. Philipp Haler, “Isolated Actors for Race-Free Concurrent Programming”, EPFL 2010 (director: Martin Odersky)
4. Iulian Dragos, “High-level Optimizations in the Scala Compiler”, EPFL 2010 (director: Martin Odersky)
5. Maysam Yabandeh, “Model Checking of Distributed Algorithm Implementations”, EPFL 2010
6. Gregory Théoduloz, “Software Verification by Combining Program Analyses of Adjustable Precision”, EPFL 2010 (director: Thomas A. Henzinger)
7. Jean-Loup Carré, “Static Analysis of Embedded Multithreaded Programs”, ENS Cachan and EADS, 2010 (directors: Jean Goubault-Larecq, Charles Hymans)
8. Michal Kapalka, “Transactional Memory: The Theory”, EPFL, 2010 (director: Rachid Guerraoui)
9. Swen Jacobs, “Hierarchic Decision Procedures for Verification”, Saarland University, 2009 (director: Viorica Sofronie-Stokkermans)
10. Michał Moskal, “Satisfiability Modulo Software”, U. of Wrocław, 2009 (director: Leszek Pacholski)
11. Jesper Honig Spring, “Reflexes: Programming Abstractions for Highly Responsive Computing in Java”, EPFL, 2008 (directors: Rachid Guerroui, Jan Vitek)
12. Irina Rychkova, “Formal Semantics for Refinement Verification of Enterprise Models”, EPFL, 2008 (director: Alain Wegmann)
13. Johannes Borgström, “Equivalences and Calculi for Formal Verification of Cryptographic Protocols”, EPFL, 2008 (directors: Uwe Nestmann, Thomas Henzinger)
14. Sébastien Briaïs, “Theory and Tool Support for Formal Verification of Cryptographic Protocols”, EPFL, 2007 (directors: Uwe Nestmann, Martin Odersky)
15. Burak Emir, “Object-Oriented Pattern-Matching”, EPFL, 2007 (director: Martin Odersky)

Courses designed and taught:

- Compiler Construction: undergraduate level (3rd year, 5th semester), 2008–2011 (in 4 semesters, each semester is 14 weeks):
 - 2 hours of lectures (given by me)
 - 2 hours of exercises (given by a teaching assistant), and
 - 2 classes of laboratory work (building a compiler in stages, run by a teaching assistant)
- Software Analysis and Verification: master’s level (7th semester), 2007–2012 (in 6 semesters, each semester is 14 weeks)
 - 2-3 hours of lectures (given by me)
 - 1-2 hours of exercises (given by a teaching assistant), and
 - two classes of laboratory work (building a compiler in stages, run by a teaching assistant)
- Doctoral Seminar on Automated Reasoning, Fall 2010.
 - attended by doctoral and M.Sc. students
 - background presentation by teaching staff
 - paper and book chapter presentations by students

School of Computer and Communication Sciences Committee Service:

- M.Sc. committee, multiple years (admissions)
- Ph.D. committee (EDIC), multiple years (admissions, student progress, doctoral curriculum)
- Co-organized Summer Research Institute (SuRI) 2011, with Rüdiger Urbanke
<http://suri.epfl.ch/past/2011>
 - coordinated three-week seminar involving prominent invited speakers from all areas of computer and communication sciences
 - within these three weeks organized a focused week “Models and Tools for Reliable Systems”, with invited speakers including C.A.R. Hoare, Aarti Gupta, Sharad Malik, Predrag Janičić, Rupak Majumdar, Darko Marinov, David Monniaux, Radu Iosif, Barbara Jobstmann, and J Strother Moore.

Publication List

Statistics: Google scholar reports over 20 papers cited over 20 times each.

See <http://scholar.google.com/citations?user=kmoklesAAAAJ> for statistics.

[1] **Synthesis for unbounded bitvector arithmetic.**

Andrej Spielmann and Viktor Kuncak.

In *International Joint Conference on Automated Reasoning (IJCAR)*, LNAI. Springer, 2012.

[2] **Speculative linearizability.**

Rachid Guerraoui, Viktor Kuncak, and Giuliano Losa.

In *ACM SIGPLAN Conf. Programming Language Design and Implementation (PLDI)*, 2012.

[3] **Software synthesis procedures.**

Viktor Kuncak, Mikael Mayer, Ruzica Piskac, and Philippe Suter.

Communications of the ACM, 2012.

[4] **Functional synthesis for linear arithmetic and sets.**

Viktor Kuncak, Mikael Mayer, Ruzica Piskac, and Philippe Suter.

Software Tools for Technology Transfer (STTT), 2012.

[5] **Deciding functional lists with sublist sets.**

Thomas Wies, Marco Munniz, and Viktor Kuncak.

In *Verified Software: Theories, Tools and Experiments (VSTTE)*, LNCS, 2012.

- [6] **Development and evaluation of LAV: an SMT-based error-finding platform.**
Milena Vujošević-Janičić and Viktor Kuncak.
In *Verified Software: Theories, Tools and Experiments (VSTTE)*, LNCS, 2012.
- [7] **Constraints as control.**
Ali Sinan Köksal, Viktor Kuncak, and Philippe Suter.
In *38th ACM SIGACT-SIGPLAN Symp. Principles of Programming Languages (POPL)*, 2012.
- [8] **Trustworthy numerical computation in Scala.**
Eva Darulová and Viktor Kuncak.
In *ACM SIGPLAN SPLASH Conference on Programming (OOPSLA Research Paper)*, 2011.
- [9] **Satisfiability modulo recursive programs.**
Philippe Suter, Ali Sinan Köksal, and Viktor Kuncak.
In *Static Analysis Symposium (SAS)*, 2011.
- [10] **An efficient decision procedure for imperative tree data structures.**
Thomas Wies, Marco Muñoz, and Viktor Kuncak.
In *Computer-Aideded Deduction (CADE)*, 2011.
- [11] **Scala to the power of Z3: Integrating SMT and programming.**
Ali Sinan Köksal, Viktor Kuncak, and Philippe Suter.
In *Computer-Aideded Deduction (CADE) Tool Demo*, 2011.
- [12] **Interactive synthesis of code snippets.**
Tihomir Gvero, Viktor Kuncak, and Ruzica Piskac.
In *Computer Aided Verification (CAV) Tool Demo*, 2011.
- [13] **Sets with cardinality constraints in satisfiability modulo theories.**
Philippe Suter, Robin Steiger, and Viktor Kuncak.
In *Verification, Model Checking, and Abstract Interpretation (VMCAI)*, 2011.
- [14] **Towards complete reasoning about axiomatic specifications.**
Sven Jacobs and Viktor Kuncak.
In *Verification, Model Checking, and Abstract Interpretation (VMCAI)*, 2011.
- [15] **Phantm: PHP analyzer for type mismatch (research demonstration).**
Etienne Kneuss, Philippe Suter, and Viktor Kuncak.
In *ACM SIGSOFT Conference on Foundations of Software Engineering (FSE)*, 2010.
- [16] **Runtime instrumentation for precise flow-sensitive type analysis.**
Etienne Kneuss, Philippe Suter, and Viktor Kuncak.
In *International Conference on Runtime Verification (RV)*, 2010.
- [17] **Synthesis for regular specifications over unbounded domains.**
Jad Hamza, Barbara Jobstmann, and Viktor Kuncak.
In *Formal Methods in Computer-Aided Design (FMCAD)*, 2010.
- [18] **Ordered sets in the calculus of data structures (invited paper).**
Viktor Kuncak, Ruzica Piskac, and Philippe Suter.
In *Computer Science Logic (CSL)*, 2010.
- [19] **Munch - automated reasoner for sets and multisets (system description).**
Ruzica Piskac and Viktor Kuncak.
In *Int.Joint Conf. Automated Reasoning (IJCAR)*, 2010.
- [20] **Comfusy: Complete functional synthesis (tool presentation).**
Viktor Kuncak, Mikael Mayer, Ruzica Piskac, and Philippe Suter.
In *Computer-Aided Verification (CAV)*, 2010.
- [21] **Complete functional synthesis (selected for ACM Communications Research Highlights).**
Viktor Kuncak, Mikael Mayer, Ruzica Piskac, and Philippe Suter.
In *ACM Conf. Programming Language Design and Implementation (PLDI)*, 2010.
- [22] **Test generation through programming in UDITA (ACM Distinguished Paper Award).**

- Milos Gligoric, Tihomir Gvero, Vilas Jagannath, Sarfraz Khurshid, Viktor Kuncak, and Darko Marinov.
In *ACM/IEEE International Conference on Software Engineering (ICSE)*, 2010.
- [23] **Predicting and preventing inconsistencies in deployed distributed systems.**
Maysam Yabandeh, Nikola Knežević, Dejan Kostić, and Viktor Kuncak.
ACM Transactions on Computer Systems (TOCS), 2010.
- [24] **Building a calculus of data structures.**
Viktor Kuncak, Ruzica Piskac, Philippe Suter, and Thomas Wies.
In *Verification, Model Checking, and Abstract Interpretation (VMCAI)*, 2010.
- [25] **Collections, cardinalities, and relations.**
Kuat Yessenov, Viktor Kuncak, and Ruzica Piskac.
In *Verification, Model Checking, and Abstract Interpretation (VMCAI)*, 2010.
- [26] **Decision procedures for algebraic data types with abstractions.**
Philippe Suter, Mirco Dotta, and Viktor Kuncak.
In *37th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages (POPL)*, 2010.
- [27] **Combining theories with shared set operations.**
Thomas Wies, Ruzica Piskac, and Viktor Kuncak.
In *Frontiers in Combining Systems (FRODOS)*, 2009.
- [28] **Simplifying distributed system development.**
Maysam Yabandeh, Nedeljko Vasić, Dejan Kostić, and Viktor Kuncak.
In *12th Workshop on Hot Topics in Operating Systems (HOTOS)*, 2009.
- [29] **An integrated proof language for imperative programs.**
Karen Zee, Viktor Kuncak, and Martin Rinard.
In *ACM Conf. Programming Language Design and Implementation (PLDI)*, 2009.
- [30] **CrystalBall: Predicting and preventing inconsistencies in deployed distributed systems.**
Maysam Yabandeh, Nikola Knežević, Dejan Kostić, and Viktor Kuncak.
In *6th USENIX Symp. Networked Systems Design and Implementation (NSDI)*, 2009.
- [31] **Opis: Reliable distributed systems in OCaml.**
Pierre-Évariste Dagand, Dejan Kostić, and Viktor Kuncak.
In *ACM Workshop on Types in Language Design and Implementation (TLDI)*, 2009.
- [32] **Fractional collections with cardinality bounds, and mixed integer linear arithmetic with stars.**
Ruzica Piskac and Viktor Kuncak.
In *Computer Science Logic (CSL)*, 2008.
- [33] **Linear arithmetic with stars.**
Ruzica Piskac and Viktor Kuncak.
In *Computed-Aided Verification (CAV)*, volume 5123 of *LNCS*, 2008.
- [34] **Full functional verification of linked data structures.**
Karen Zee, Viktor Kuncak, and Martin Rinard.
In *ACM Conf. Programming Language Design and Implementation (PLDI)*, 2008.
- [35] **Decision procedures for multisets with cardinality constraints.**
Ruzica Piskac and Viktor Kuncak.
In *9th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)*, LNCS, 2008.
- [36] **Runtime checking for separation logic.**
Huu Hai Nguyen, Viktor Kuncak, and Wei Ngan Chin.
In *9th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)*, LNCS, 2008.
- [37] **Towards efficient satisfiability checking for Boolean Algebra with Presburger Arithmetic.**

- Viktor Kuncak and Martin Rinard.
 In *Conference on Automated Deduction (CADE-21)*, volume 4603 of *LNCS*, 2007.
- [38] **Polynomial constraints for sets with cardinality bounds.**
 Bruno Marnette, Viktor Kuncak, and Martin Rinard.
 In *Foundations of Software Science and Computation Structures (FOSSACS)*, volume 4423 of *LNCS*, March 2007.
- [39] **Verifying complex properties using symbolic shape analysis.**
 Thomas Wies, Viktor Kuncak, Karen Zee, Andreas Podelski, and Martin Rinard.
 In *Workshop on Heap Abstraction and Verification (collocated with ETAPS)*, 2007.
- [40] **Runtime checking for program verification.**
 Karen Zee, Viktor Kuncak, Michael Taylor, and Martin Rinard.
 In *Workshop on Runtime Verification (RV)*, volume 4839 of *LNCS*, 2007.
- [41] *Modular Data Structure Verification.*
 Viktor Kuncak.
 PhD thesis, EECS Department, Massachusetts Institute of Technology, February 2007.
- [42] **Using first-order theorem provers in the Jahob data structure verification system.**
 Charles Bouillaguet, Viktor Kuncak, Thomas Wies, Karen Zee, and Martin Rinard.
 In *Verification, Model Checking and Abstract Interpretation (VMCAI)*, volume 4349 of *LNCS*, November 2007.
- [43] **Modular pluggable analyses for data structure consistency.**
 Viktor Kuncak, Patrick Lam, Karen Zee, and Martin Rinard.
IEEE Transactions on Software Engineering (TSE), December 2006.
- [44] **Deciding Boolean Algebra with Presburger Arithmetic.**
 Viktor Kuncak, Huu Hai Nguyen, and Martin Rinard.
Journal of Automated Reasoning (JAR), 2006.
- [45] **An overview of the Jahob analysis system: Project goals and current status.**
 Viktor Kuncak and Martin Rinard.
 In *NSF Next Generation Software Workshop*, 2006.
- [46] **Field constraint analysis.**
 Thomas Wies, Viktor Kuncak, Patrick Lam, Andreas Podelski, and Martin Rinard.
 In *Verification, Model Checking, and Abstract Interpretation (VMCAI)*, volume 3855 of *LNCS*, 2006.
- [47] **Implications of a data structure consistency checking system.**
 Viktor Kuncak, Patrick Lam, Karen Zee, and Martin Rinard.
 In *International conference on Verified Software: Theories, Tools, Experiments (VSTTE, IFIP Working Group 2.3 Conference)*, Zürich, Switzerland, 10–13th October 2005.
- [48] **Relational analysis of algebraic datatypes.**
 Viktor Kuncak and Daniel Jackson.
 In *10th European Soft. Eng. Conf. (ESEC) and 13th Symp. Foundations of Software Engineering (FSE)*, 2005.
- [49] **An algorithm for deciding BAPA: Boolean Algebra with Presburger Arithmetic.**
 Viktor Kuncak, Huu Hai Nguyen, and Martin Rinard.
 In *20th International Conference on Automated Deduction, CADE-20*, volume 3632 of *LNCS*, Tallinn, Estonia, July 2005.
- [50] **Hob: A tool for verifying data structure consistency.**
 Patrick Lam, Viktor Kuncak, and Martin Rinard.
 In *14th International Conference on Compiler Construction (tool demo)*, volume 3443 of *LNCS*, April 2005.
- [51] **Cross-cutting techniques in program specification and analysis.**
 Patrick Lam, Viktor Kuncak, and Martin Rinard.
 In *4th International Conference on Aspect-Oriented Software Development*. ACM, March 2005.

- [52] **Decision procedures for set-valued fields.**
Viktor Kuncak and Martin C. Rinard.
Electr. Notes Theor. Comput. Sci.; Proc. Abstract Interpretation of Object-Oriented Languages, 2005.
- [53] **Generalized tpestate checking for data structure consistency.**
Patrick Lam, Viktor Kuncak, and Martin Rinard.
In *Verification, Model Checking and Abstract Interpretation (VMCAI)*, volume 3385 of *LNCS*, 2005.
- [54] **Combining theorem proving with static analysis for data structure consistency.**
Karen Zee, Patrick Lam, Viktor Kuncak, and Martin Rinard.
In *International Workshop on Software Verification and Validation*, Seattle, November 2004.
- [55] **Verifying a file system implementation.**
Konstantine Arkoudas, Karen Zee, Viktor Kuncak, and Martin Rinard.
In *Sixth International Conference on Formal Engineering Methods*, volume 3308 of *LNCS*, Seattle, 2004.
- [56] **Generalized records and spatial conjunction in role logic.**
Viktor Kuncak and Martin Rinard.
In *International Static Analysis Symposium*, volume 3148 of *LNCS*, Verona, Italy, August 26–28 2004.
- [57] **Boolean algebra of shape analysis constraints.**
Viktor Kuncak and Martin Rinard.
In *Verification, Model Checking and Abstract Interpretation (VMCAI)*, volume 2937 of *LNCS*, 2004.
- [58] **Generalized tpestate checking using set interfaces and pluggable analyses.**
Patrick Lam, Viktor Kuncak, and Martin Rinard.
SIGPLAN Notices, March 2004.
- [59] **Structural subtyping of non-recursive types is decidable.**
Viktor Kuncak and Martin Rinard.
In *Eighteenth Annual IEEE Symposium on Logic in Computer Science (LICS)*. IEEE, 2003.
- [60] **Existential heap abstraction entailment is undecidable.**
Viktor Kuncak and Martin Rinard.
In *10th Annual International Static Analysis Symposium*, volume 2694 of *LNCS*, San Diego, California, June 11-13 2003.
- [61] **In-place refinement for effect checking.**
Viktor Kuncak and Rustan Leino.
In *Workshop on Automated Verification of Infinite-State Systems*, April 2003.
- [62] **Role analysis.**
Viktor Kuncak, Patrick Lam, and Martin Rinard.
In *ACM Symp. Principles of Programming Languages (POPL)*, 2002.
- [63] **A language for role specifications.**
Viktor Kuncak, Patrick Lam, and Martin Rinard.
In *Workshop on Languages and Compilers for Parallel Computing*, volume 2624 of *LNCS*, 2001.
- [64] **Numerical representations as purely functional data structures: A new approach.**
Mirjana Ivanović and Viktor Kuncak.
INFORMATICA, Institute of Mathematics and Informatics, Vilnius, 2002.
- [65] **Types and confluence in lambda calculus.**
Silvia Ghilezan and Viktor Kuncak.
In *3rd Panhellenic Logic Symposium*, Anogia, Greece, 2001.
- [66] **Confluence of untyped lambda calculus via simple types.**
Silvia Ghilezan and Viktor Kuncak.

In *Proceedings of the 7th Italian Conference on Theoretical Computer Science, ICTCS 2001*, volume 2202 of LNCS, Torino, Italy, October 2001.

- [67] **Reducibility method for termination properties of typed lambda terms.**
Silvia Ghilezan, Viktor Kuncak, and Silvia Likavec.
In *Fifth International Workshop on Termination*, Utrecht, The Netherlands, May 2001.
- [68] **Modular language specifications in Haskell.**
Mirjana Ivanović and Viktor Kuncak.
In *Theoretical Aspects of Computer Science with practical application*, September 2000.
- [69] **Numerical representations as purely functional data structures.**
Mirjana Ivanović and Viktor Kuncak.
In *XIV Conference on Applied Mathematics (PRIM)*, June 2000.
- [70] **Reducibility method in simply typed lambda calculus.**
Silvia Ghilezan and Viktor Kuncak.
In *XIV Conference on Applied Mathematics (PRIM)*, June 2000.

Awards and Fellowships

- ACM SIGSOFT Distinguished Paper, 2010, for [22]
- Best Student of University of Novi Sad in Class of 2000.
- Aleksandar Popović Award for Best Science Project (*Modular Interpreters in Haskell*, Advisor: Prof. Mirjana Ivanović), University of Novi Sad, 2000.
- Student of the Year of Faculty of Science, University of Novi Sad, 2000.
- Mileva Marić-Einstein Award for accomplishments in Computer Science, University of Novi Sad, 1999
- Awards of Excellence for Student Projects (*Early Deadlock Prevention*, Advisor: Prof. Zoran Budimac), University of Novi Sad, 1999; (*Herbrand's Theorem and the Resolution Method*, Advisor: Prof. Gradimir Vojvodić), University of Novi Sad, 1998
- Fellowship of the Serbian Foundation for Scientific Youth Development, 1995-1998
- University of Novi Sad Fellowship, 1998-2000