

# CURRICULUM VITAE: Prof. Dr. Laura Ildikó Kovács

*Last updated in June 2020*

## PROFESSOR

Formal Methods in Systems Engineering – FORSYTE Group  
Faculty of Informatics  
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<http://forsyte.at/people/kovacs/>

## PERSONAL DATA

Date of birth: April 26, 1980  
Citizenship: Hungarian and Romanian  
Family status: Married, two children  
Languages spoken: Hungarian, Romanian, English, German, basic Swedish

## RESEARCH INTERESTS

Formal software verification, especially assertion synthesis and static analysis.  
Symbolic computation, especially computer algebra and algorithmic combinatorics.  
Automated reasoning, especially automated first-order theorem proving.

## EDUCATION

|               |   |   |
|---------------|---|---|
| November 2012 | Habilitation in Computer Science                      | Vienna University of Technology (TU Wien)<br>Austria  |
| October 2007  | Ph.D. in Computer Science<br>with highest distinction | Research Institute for Symbolic Computation<br>(RISC-Linz),<br>Johannes Kepler University Linz, Austria |
| February 2004 | M.Sc. in Computer Science                             | West University of Timișoara, Romania   |
| July 2002     | B.Sc. in Math and Computer Science                    | West University of Timișoara, Romania   |

## CAREER HISTORY

|           |   |  |
|-----------|---|--|
| 2016-now  | Full professor<br>Head of the FORSYTE Group<br>and<br>Adjunct professor | TU Wien, Austria<br>(since 07/2017)<br><br>Chalmers University of Technology, Sweden |
| 2013-2016 | Associate professor<br>and<br>Adjunct associate professor               | Chalmers University of Technology, Sweden<br><br>TU Wien, Austria                    |
| 2010-2013 | Hertha-Firnberg research fellow<br>Assistant Professor                  | TU Wien, Austria   |
| 2009-2010 | Postdoctoral scientist  | ETH Zürich, Switzerland<br>Programming Methodology group of Prof. Peter Müller       |
| 2007-2009 | Postdoctoral scientist  | EPFL Lausanne, Switzerland<br>MTC group of Prof. Thomas A. Henzinger                 |

|                |                    |  |
|----------------|--------------------|--|
| 2003-2007      | Ph.D. researcher   | RISC-Linz, Austria                     |
| September 2007 | Research visitor   | SCORE group, Tsukuba University, Japan |
| 2003-2007      | Teaching assistant | West University of Timișoara, Romania  |

## **CAREER BREAKS**

Maternity leaves during 2014-2015 and 2017.

## **PRIZES, HONORS, AND DISTINCTIONS**

|                |  |
|----------------|--|
| 2019 April     | Wien Live Look! Business Awards Nominee<br>One of the top 3 nominees of the Viennesse look! magazine   |
| 2018 December  | ERC Proof of Concept<br>European Research Council  |
| 2014 December  | Wallenberg Academy Fellowship<br>Knut and Alice Wallenberg Foundation, Sweden<br>Sweden's largest private investement in young researchers                               |
| 2014 November  | ERC Starting Grant<br>European Research Council<br>Europe's most competitive research program for young researchers  |
| 2013 November  | Swedish Research Council - VR grant for Junior Researchers, Sweden<br>Competitive grant: 769 applications, 64 approved   |
| 2012 June      | Visiting professorship at the University Joseph Fourier, Grenoble, France  |
| 2011           | FESTO Austria Prize for Young Researchers and Scientists<br>FESTO IT company in process automation, Austria<br>22nd DAAAM International World Symposium, Vienna, Austria |
| 2010 - 2013    | FWF Hertha-Firnberg Fellowship, Austria<br>Competitive fellowship: 53 applications, 13 approved  |
| 2008           | Best paper award in application track<br>3rd International Computer Science Symposium in Russia (CSR), Moscow, Russia  |
| 2007 September | Japan Society for the Promotion of Science (JSPS) fellowship<br>Tsukuba University, Japan (Host: Prof. Tetsuo Ida)   |
| 2005           | Best student presentation award<br>2nd South-East European Workshop on Formal Methods (SEEFM), Ohrid<br>FYR of Macedonia   |

## **UNIVERSITY TEACHING EXPERIENCE (only lecture courses)**

|           |   |
|-----------|---|
| 2019/2020 | Lecturer of "Formal Methods in Computer Science", TU Wien.<br>Master course, 140 enrolled students. |
| 2019      | Lecturer of "Automated Deduction", TU Wien.<br>Master course, 34 enrolled students.                 |
| 2019      | Lecturer of "Formal Methods in Computer Science", TU Wien.<br>Master course, 140 enrolled students. |

- 2018 Lecturer of “Automated Deduction”, TU Wien.  
Master course, 21 enrolled students.
- 2018 Lecturer of “Formal Methods in Computer Science”, TU Wien.  
Master course, 140 enrolled students.
- 2016 Lecturer of “Automated Deduction”, TU Wien.  
Master course, 10 enrolled students.
- 2015 Lecturer of “First-Order Theorem Proving and Vampire”, Chalmers & University of Gothenburg.  
PhD course, 7 enrolled students.
- 2015 Lecturer of “The Computer Scientist in Society”, Chalmers & University of Gothenburg.  
Master course, 78 enrolled students.
- 2015 Lecturer of “Automated Reasoning and Program Verification”, TU Wien.  
Master Course, 13 enrolled students.
- 2015 Lecturer of “Chalmers Computing Lab Tech Talks”, Chalmers & University of Gothenburg.  
PhD Course, 20 enrolled students.
- 2014 Lecturer of “Automated Reasoning and Program Verification”, TU Wien.  
Master Course, 5 enrolled students.
- 2013 Lecturer of “Automated Reasoning for Program Verification”, Chalmers & University of Gothenburg.  
Master Course, 19 enrolled students.
- 2013 Lecturer of “Automated Reasoning and Program Verification”, TU Wien.  
Master Course, 7 enrolled students.
- 2012 Lecturer of “Advanced Topics in Theoretical Computer Science”, TU Wien.  
Master Course, 9 enrolled students.
- 2012 Lecturer of “Automated Reasoning and Program Verification”, TU Wien.  
Master Course, 13 enrolled students.
- 2011 Lecturer of “Advanced Theoretical Computer Science”, TU Wien.  
Bachelor Course, 11 enrolled students.
- 2010 Lecturer of “Advanced Theoretical Computer Science”, TU Wien.  
Bachelor Course, 10 enrolled students.
- 2009 Lecturer of “Foundations of Computer Science 1”, University of Zürich.  
Bachelor Course, 120 enrolled students.
- 2009 Lecturer of “Software Engineering Seminar”, ETH Zürich.  
Bachelor and Master Seminar, 13 enrolled students.
- 2009 Lecturer of “Advanced Theoretical Computer Science”, EPFL.  
Bachelor Course, 34 enrolled students.
- 2008 Teaching assistant of “Basic and Advanced Theoretical Computer Science”, EPFL.  
Bachelor Courses, 80 and respectively 40 enrolled students.
- 2006 Teaching assistant of “Mathematical Basis of Computer Science”, West University of Timișoara.  
Bachelor Course, 60 enrolled students.

## **STUDENT SUPERVISION**

### **Current**

PhD main supervisor at TU Wien for Dipl.Ing. Pamina Georgiou, 2019-2023.  
PhD main supervisor at TU Wien for Dipl.Ing. Jakob Rath, 2019-2023.  
PhD main supervisor at TU Wien for MSc. Petra Hozzova, 2019-2023.  
PhD main supervisor at TU Wien for MSc. Miroslav Stankovic, 2018-2022.  
PhD main supervisor at TU Wien for Dipl.Ing. Bernhard Gleiss, 2016-2020.  
PhD main supervisor at TU Wien for Dipl.Ing. Andreas Humenberger, 2016-2020.  
PhD co-supervisor at Chalmers for MSc. Yuting Chen, 2016-2021. – Licentiate degree completed in August 2018.  
Master thesis supervisor at TU Wien for Christoph Hochrainer, 2019–2020.  
Master thesis supervisor at TU Wien for Marcel Moosbrugger, 2019–2020.  
Master thesis supervisor at TU Wien for Sophie Rain, 2019–2020.  
Master thesis supervisor at TU Wien for Johannes Schoisswohl, 2019–2020.  
Master thesis supervisor at TU Wien for David Demastani, 2018–2020.  
Bachelor thesis supervisor at TU Wien for Lena Schnedlitz, 2018-2019.  
Bachelor thesis supervisor at TU Wien for Jana Chadt, 2019-2020.

## Completed

PhD main supervisor at Chalmers for MSc. Simon Robillard (now postdoc IMT Atlantique, U. Nantes, France), 2014-2019. Thesis title: *Deductive Program Analysis with First-Order Theorem Provers*.  
PhD main supervisor at Chalmers for MSc. Evgenii Kotelnikov (now scientific developer at Ericsson, Sweden), 2013-2018. Thesis title: *Automated Theorem Proving with Extensions of First-Order Logic*  
PhD main supervisor at TU Wien for MSc. Ioan Drăgan (now researcher at eAustria Institute Timișoara), 2011-2015. Thesis title: *First-order Theorem Proving for Program Analysis and Theory Reasoning*  
PhD main supervisor at TU Wien for Dipl.-Ing. Jakob Zwirchmayr (now senior scientist at TTech Austria), 2010-2013. Co-supervisor: Prof. Jens Knoop. Thesis title: *Symbolic Methods for the Timing Analysis of Programs*  
Master thesis supervisor at TU Wien for Hanna Lachnitt (to start PhD at Stanford in Fall 2020), 2019–2020. Thesis title: *Formalizing Graph Trail Properties*  
Master thesis supervisor at TU Wien for Pamina Georgiou (now PhD student at TU Wien), 2018-2019. Thesis title: *Trace Reasoning in Formal Verification – Guiding Vampire in Induction*  
Master thesis supervisor at TU Wien for Jakob Rath (now PhD student at TU Wien), 2019. Thesis title: *Subsumption Demodulation in First-Order Theorem Proving*  
Master thesis supervisor at TU Wien for Romana Jezek, Summer 2018- Summer 2019. Thesis title: *Formalization of Group Theory Problems for Automated Theorem Proving*  
Master thesis supervisor at Chalmers for Yuting Chen (now PhD student at Chalmers), Fall 2015-Summer 2016. Thesis title: *Theory-Specific Reasoning about Loops with Arrays using Vampire*  
Master thesis supervisor at TU Wien for Bernhard Gleiss (now PhD student at TU Wien), Fall 2015-Summer 2016. Thesis title: *Interpolation and Local Proofs*  
Master thesis supervisor at TU Wien for Bernhard Kragl (now PhD student at IST Austria), Fall 2013-Spring 2014. Thesis title: *Reasoning in First-Order Theories with Extensionality*

Master thesis supervisor at TU Wien for Ioana Jucu, Fall 2011-Fall 2013. Thesis title: *An Evaluation of Symbol Elimination for Generating First-Order Loop Invariants*

Master thesis supervisor at EPFL for Thibaud Hotellier (now PhD student at University of Berkeley), Fall 2008-Spring 2009. Thesis topic: *Invariants for Arrays and Matrices*. Co-supervisor: Prof. Thomas A. Henzinger.

Bachelor thesis supervisor at TU Wien for Bernhard Kragl, Spring 2012. Co-supervisor: Prof. Ger- not Salzer. Thesis title: *Loop Invariants in Deductive Verification*

Internship supervisor at TU Wien for Régis Blanc, Summer 2012. Project topic: *Tree Interpolants in Vampire*

Semester project supervisor at TU Wien for Csaba Vaczula, Fall 2011. Project topic: *Warships*.

Semester project supervisor at TU Wien for Csaba Vaczula, Spring 2011. Project topic: *Wordplay 2*.

Semester project supervisor at EPFL for Régis Blanc (now researcher at Google Zürich), Spring 2009. Project topic: *ABC: Analyzing Bound and Complexity of Loops*. Co-supervisor: Prof. Thomas A. Henzinger.

Semester project supervisor at EPFL for Papa Ly Alioune, Fall 2008. Project topic: *Case Study: Polynomial Invariant Generation*. Co-supervisor: Prof. Thomas A. Henzinger.

Semester project supervisor at EPFL for Thibaud Hotellier (now PhD student at University of Berkeley), Spring 2008. Project topic: *VALIGATOR: A Verification tool with Bound and Invariant Generation*. Co-supervisor: Prof. Thomas A. Henzinger.

## UNIVERSITY COMMITTEES

### HIRING COMMITTEES

Hiring committee member of the “Computer Engineering – Technischen Informatik” professorship at U. Salzburg, Austria 2018-2019.

Hiring committee member of the “Computer Aided Verification” professorship at TU Wien, 2017-2018.

Hiring committee member of the “Non-Classical Logics” professorship at TU Wien, 2016.

### PHD EXAMINATION AND REVIEWING COMMITTEES

PhD thesis reviewer and examination committee member of Elizabeth Polgreen, U. Oxford, November 2019.

PhD thesis reviewer and examination committee member of Sylvia Grewe, TU Darmstadt, Germany, July 2019.

PhD examination committee member of Philipp Schillinger, KTH Stockholm, Sweden, June 2019.

PhD thesis reviewer of Michael Roman Färber, University of Innsbruck, Austria, November 2018.

PhD thesis reviewer and examination committee member of Roberto Blanco, University of Paris-Saclay, France, November 2017.

PhD thesis reviewer and examination committee member of Thorsten Tarrach, IST Austria, June 2016.

PhD examination committee member of Alexander Gustaffson, Mälardalen University, Västerås, Sweden, May 2016.

PhD thesis reviewer and examination committee member of Nathan Daniel Wasser, Technische Universität Darmstadt, Germany, February 2016.

PhD/Licentiate thesis examiner of Abdullah Mamun, Chalmers University of Technology, Gothenburg, Sweden, Fall 2015.

PhD thesis reviewer of Daniel Larraz, Universitat Politecnica de Catalunya (UPC), Barcelona, Spain, Spring 2015.

PhD/Licentiate examination committee member for Leo Hatvani, Mälardalen University, Sweden, Fall 2014.

PhD examination committee member for Ramona Enache at the University of Gothenburg, Fall 2013.

PhD examination committee member of PhD qualification exam for Thorsten Tarrach (now PhD student at IST Austria), at the Institute of Science and Technology (IST), Austria, Fall 2013.

PhD examination committee member and thesis examiner for Tejfel Máté (now Assoc.Prof. at ELTE Hungary), at Eötvös Lóránt University, Hungary, Fall 2008.

### **HABILITATION COMMITTEES**

Habilitation thesis referee for Dr. Christian Sternagel, Univeristy of Innsbruck, Austria, Spring 2020.

Habilitation committee chair and member for Dr. Igor Konnov, TU Wien, Spring-Fall 2019.

Habilitation committee member for Dr. Sascha Hunold, TU Wien, Spring-Fall 2019.

Habilitation committee member for Dr. Ezio Bartocci, TU Wien, Spring 2019.

Habilitation thesis referee for Dr. Cezary Kaliszyk, Univeristy of Innsbruck, Austria, Fall 2015.

Habilitation thesis referee for Dr. Harald Zankl, Univeristy of Innsbruck, Austria, Spring 2015.

### **UNDERGRADUATE EVALUATION COMMITTEES**

Jury member of “EPIPLOG - Best Master Thesis” Committee at the Faculty of Informatics, TU Wien, June 2018.

### **EDUCATIONAL COMMITTEES**

Computer Science Curriculum Committee member at TU Wien, 2011-2013 and 2016-2019.

### **OTHER COMMITTEES**

Committee member of the “Faculty Model” Committee of the Faculty of Informatics, TU Wien, 2017-now.

Committee member of the Jubilee Committee on “100 Years of Women Studying at the TU Wien” , 2018-2019.

Committee member of the “Code of Conduct” Committee of the Faculty of Informatics, TU Wien, 2016.

Committee member of the “Bachelor with Honors” program of the Faculty of Informatics, TU Wien, 2016-2018.

Faculty Senate member at Chalmers, 2013-2014.

## **SOFTWARE**

### **ALIGATOR**

<https://github.com/ahumenberger/Aligator.jl>

a software package for generating loop invariants of programs over scalars and arrays (since 2007).

### **VAMPIRE**

<http://vprover.org/>

developing program analysis and theory reasoning in the Vampire theorem prover (since 2009).

## **MORA**

<https://github.com/miroslav21/mora>  
a static analysis tool for analysing probabilistic programs (since 2019).

## **R-TUBOUND**

<http://www.complang.tuwien.ac.at/jakob/tubound/>  
a static analysis tool for the WCET analysis of programs (since 2010).

## **VALIGATOR**

<http://mtc.epfl.ch/software-tools/Aligator/Valigator/>  
a verification tool with invariant and bound inference (2008).

## **ABC**

<http://mtc.epfl.ch/software-tools/ABC>  
a software tool for computing upper bounds on loop iterations (2009).

# **PROFESSIONAL ACTIVITIES**

## **PC CHAIR**

- Int. Conference on Concurrency Theory (CONCUR), 2020 (co-chair);
- Int. Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), 2020 (co-chair);
- Int. Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), 2015;
- Int. Symposium on Symbolic and Numeric Algorithms for Scientific Computing - Logic and Programming track (SYNASC), 2019, 2018, 2017, 2016, 2014, 2013, and 2012;
- Deduction Mentoring Workshop, 2019;
- Automated New-era Deductive Reasoning Event in Iberia (ANDREI-60), 2019 – honoring the 60th birthday of Andrei Voronkov;
- Verification and Deduction Mentoring Workshop, 2018;
- Third Workshop on Automated Inductive Theorem-Proving (WAIT), 2016;
- Int. Workshop on Computational Origami and Applications (COA), 2016;
- The Vampire Workshop, 2019, 2018, 2017, 2016, 2015 and 2014;
- Int. Workshop on Interpolation: from Proofs to Applications (iPrA), 2015, 2014 and 2013;
- Int. Symposium on Symbolic Computation in Software Science (SCSS), 2013;
- Int. Workshop on Automated Specification and Verification of Web Systems (WWV), 2011 and 2010;
- Int. Workshop on Invariant Generation (WING), 2010 and 2009.

## **WORKSHOP AND TUTORIAL CHAIR**

- Workshop chair at Int. Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), 2012.
- Workshop chair at Int. Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), 2013, 2012, 2010 and 2008;

Tutorial chair at Int. Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), 2011 and 2009;

## **MEMBER OF PROGRAM COMMITTEES**

- ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL), 2021;
- Int. Conference on Computer Science Logic (CSL), 2021;
- Int. Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2021;
- Int. Colloquium on Automata Languages and Programming (ICALP), 2021;
- Int. Joint Conference on Automated Reasoning (IJCAR), 2020;
- Int. Conference on Computer Aided Verification (CAV), 2020;
- Int. Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2020;
- Int. Conference on Intelligent Computer Mathematics (CICM), 2020;
- NASA Formal Methods Symposium (NFM), 2020;
- Int. Symposium on Symbolic Computation in Software Science (SCSS), 2020;
- Int. Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), 2020;
- Int. Conference on Applied Informatics (ICAI), 2020;
- ACM/IEEE Symposium on Logic in Computer Science (LICS), 2019;
- Int. Conference on Automated Deduction (CADE), 2019;
- Int. Conference on Computer Aided Verification (CAV), 2019;
- Int. Symposium on Formal Methods (FM), 2019;
- Int. Conference on integrated Formal Methods (iFM), 2019;
- Int. Conference on Software Technology and Cyber Security (STCS), 2019;
- Asian Symposium on Programming Languages and Systems (APLAS), 2019;
- NASA Formal Methods Symposium (NFM), 2019;
- Int. Conference on Perspectives of System Informatics - Ershov Informatics Conference (PSI), 2019;
- Int. Conference on Intelligent Computer Mathematics (CICM), 2019;
- Int. Conference on Tests and Proofs (TAP), 2019;
- Int. Workshop on Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements (ARCADE), 2019;
- Int. Workshop on Symbolic Computation and Satisfiability Checking ( $SC^2$ ), 2019;
- Int. Workshop on Proof eXchange for Theorem Proving (PxTP), 2019;



- ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL), 2018;
- Int. Joint Conference on Automated Reasoning (IJCAR), 2018;
- Int. Conference on Computer Aided Verification (CAV), 2018;
- Int. Symposium on Symbolic and Algebraic Computation (ISSAC), 2018;
- Int. Symposium on Formal Methods (FM), 2018;
- Int. Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2018;
- Int. Conference on integrated Formal Methods (iFM), 2018;
- Int. Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), 2018;
- Int. Symposium on Theoretical Aspects of Software Engineering (TASE), 2018;
- Int. Conference on Intelligent Computer Mathematics (CICM) - Systems& Projects Track, 2018;
- Int. Conference on Tests and Proofs (TAP), 2018;
- NASA Formal Methods Symposium (NFM), 2018;
- 2018 IEEE Int. Conference on Future IoT Technologies (Future IoT), 2018;
- Int. Workshop on Formal Techniques for Java-like Programs (FTfJP), 2018;
- Int. Workshop on Practical Aspects of Automated Reasoning (PAAR), 2018;
- Int. Conference on Automated Deduction (CADE-26), 2017;
- Int. Static Analysis Symposium (SAS), 2017;
- Int. Conference on integrated Formal Methods (iFM), 2017;
- PhD Symposium at iFM'17 on Formal Methods: Algorithms, Tools and Applications, 2017;
- Int. Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), 2017;
- Int. Conference on Distributed Computing and Internet Technology (ICDCIT), 2017;
- Int. Conference on Perspectives of System Informatics - Ershov Informatics Conference (PSI), 2017;
- Int. Symposium on Symbolic Computation in Software Science (SCSS), 2017;
- Int. Conference on Intelligent Computer Mathematics (CICM) - Systems& Projects Track, 2017;
- Int. Conference on Tests and Proofs (TAP), 2017;
- Int. Symposium on Theoretical Aspects of Software Engineering (TASE), 2017;
- Int. Conference on Mathematical Aspects of Computer and Information Sciences (MACIS), 2017;
- Int. ARCADE Workshop on Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements (ARCADE), 2017;
- Int. Workshop on Tools for Automatic Program Analysis (TAPAS), 2017;

- ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL), 2016;
- Int. Conference on Computer Aided Verification (CAV), 2016;
- Int. Symposium on Formal Methods (FM), 2016;
- Int. Conference on Computer Science Logic (CSL), 2016;
- Int. Conference on Certified Programs and Proofs (CPP), 2016;
- Int. Symposium on Theoretical Aspects of Software Engineering (TASE), 2016;
- The Haifa Verification Conference (HVC), 2016;
- Int. Conference on Distributed Computing and Internet Technology (ICDCIT), 2016;
- Int. Conference on Intelligent Computer Mathematics (CICM) - Calculemus Track, 2016;
- Int. Workshop on Practical Aspects of Automated Reasoning (PAAR), 2016;
- Int. Workshop on Automated Specification and Verification of Web Systems (WWV), 2016;
- Int. Conferences on Logic in Computer Science (LICS), 2015;
- Int. Conference on Automated Deduction (CADE-25), 2015;
- Int. Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), 2015;
- Int. Symposium on Formal Methods (FM), 2015;
- The Haifa Verification Conference (HVC), 2015;
- Int. Conference on Perspectives of System Informatics - Ershov Informatics Conference (PSI), 2015;
- Int. Workshop on Tools for Automatic Program Analysis (TAPAS), 2015;
- Int. Workshop on Automated Specification and Verification of Web Systems (WWV), 2015;
- Int. Workshop on Quantification (QUANTIFY), 2015;
- Int. Conference on Computer Aided Verification (CAV), 2014;
- Int. Conference on Computer Science Logic (CSL) and Logic in Computer Science (LICS), 2014;
- Int. Static Analysis Symposium (SAS), 2014;
- Int. Symposium on Symbolic Computation in Software Science (SCSS), 2014;
- The Haifa Verification Conference (HVC), 2014;
- Int. Conference on integrated Formal Methods (iFM), 2014;
- Int. Conferencs on Intelligent Computer Mathematics (CICM), 2014;
- Int. Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), 2014;
- Int. Conference on Perspectives of System Informatics - Ershov Informatics Conference (PSI), 2014;
- Int. Workshop on Invariant Generation (WING), 2014;

- Int. Workshop on Quantification (QUANTIFY), 2014;
- Int. Workshop on Automated Specification and Verification of Web Systems (WWV), 2014;
- Int. Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), 2013;
- Int. Conference on Mathematical Aspects of Computer and Information Sciences (MACIS), 2013;
- The Formal Techniques for Java-like Programs Workshop, 2013;
- Int. Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), 2012;
- The Alan Turing Centenary Conference, 2012;
- Int. Workshop on Tools for Automatic Program Analysis (TAPAS), 2012;
- Int. Conference on Certified Programs and Proofs (CPP), 2012;
- Int. Conference on Computer Science Logic (CSL), 2012;
- Int. Workshop on Invariant Generation (WING), 2012;
- Int. Conference on Perspectives of System Informatics - Ershov Informatics Conference (PSI), 2011;
- Int. Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), 2011;
- Int. Conference on Formal Engineering Methods (ICFEM), 2011;
- Int. Conference on Algebraic Informatics (CAI), 2011;
- Int. Conference on Mathematical Aspects of Computer and Information Sciences (MACIS), 2011;
- Int. Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), 2010;
- Int. Symposium on Symbolic and Algebraic Computation (ISSAC), 2010;
- Int. Workshop on Symbolic Computation in Software Science (SCSS), 2010;
- Int. Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), 2009;
- Int. Computer Science Symposium in Russia (CSR) - Application Track, 2007;
- Symposium on the Integration of Symbolic Computation and Mechanized Reasoning (CALCULEMUS), 2007.

## **JOURNAL/BOOK REFEREE**

- J. of ACM, 2020;
- J. of Symbolic Computation, 2019, 2011, and 2010;
- J. of Automated Reasoning, 2015;
- J. on Satisfiability, Boolean Modeling and Computation, 2015;
- Information Processing Letters, 2014;
- J. of Formal Methods in System Design, 2013;

J. of Foundations of Computer Science, 2013;  
J. of Formal Aspects of Computing, 2013;  
J. of Science of Computer Programming, 2013;  
Handbook of Model Checking, 2013;  
J. of Theoretical Computer Science, 2012;  
J. of Science of Computer Programming - special issue on Invariant Generation, Expert reviewer, 2012;  
ACM Transactions on Programming Languages and Systems, 2011 and 2012;  
J. of Applied Logic, 2012;  
The Computer Journal, 2011;  
Information Processing Letters, 2010;  
J. of AI Communications, 2008;  
J. of Software Tools for Technology, 2006.

#### **CONFERENCE (SUB)REFEREE**

Int. European Symposium on Programming (ESOP), 2013;  
Int. Conference on Computer Aided Verification (CAV), 2013;  
Int. Conference on Formal Methods in Computer-Aided Design (FMCAD), 2013;  
Int. Symposium on Symbolic and Algebraic Computation (ISSAC), 2012;  
Int. Workshop on Satisfiability Modulo Theories (SMT), 2011;  
Int. Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), 2011;  
Int. Conference on Programming Language Design and Implementation (PLDI), 2010 and 2009;  
Int. Conference on Computer Aided Verification (CAV), 2009;  
Int. Conference on Static Analysis Symposium (SAS), 2009;  
Int. SPIN Workshop on Model Checking of Software (SPIN), 2009;  
Int. Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), 2008.

#### **SCIENTIFIC REFERENT FOR FUNDING AGENCIES**

Dutch Research Council, 2020;  
Czech Science Foundation, 2019;  
Belgium Research Fund for Scientific Research, F.R.S--FNRS--Belgium, 2019;  
Deutsche Forschungsgemeinschaft - German Research Foundation, 2019;  
The Icelandic Research Fund, 2016;  
European Research Council, 2016;  
Polish National Science Center - Funding scheme OPUS, 2015.

## **EDITORSHIP**

Guest editor of the Special Issue of the J. of Mathematics in Computer Science (MCS) on selected papers of the International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC) 2016, 2017/2019. Co-editors: James H. Davenport and Daniela Zaharie.

Guest editor of the Special Issue of the Annals of Mathematics and Artificial Intelligence (AMAI) on “Formalization of Geometry, Automated and Interactive Geometric Reasoning”, 2017/2019. Co-editors: Pascal Schreck and Tetsuo Ida.

Editor of the Dagstuhl Report on Dagstuhl Seminar 12461 “Games and Decisions for Rigorous Systems Engineering”, 2013. Co-editors: Nikolaj Bjørner, Krishnendu Chatterjee, and Rupak M. Majumdar.

Guest editor of the Special Issue of the J. of Symbolic Computation on “Symbolic Computation in Software Science”, 2013/2015. Co-editors: Prof. Adel Bouhoula, Prof. Bruno Buchberger and Dr. Temur Kutsia.

Guest editor of the Special Issue of the J. of Logic and Algebraic Programming on “Automated Specification and Verification of Web Systems”, 2012/2013. Co-editors: Prof. Rosario Pugliese, Dr. Francesco Tiezzi, and Dr. Josep Silva Galiana.

Guest editor of the Special Issue of the J. of Symbolic Computation on “Invariant Generation and Advanced Techniques for Reasoning about Loops”, 2010/2013. Co-editor: Dr. Nikolaj Bjørner.

Guest editor of the Special Issue of the J. of Applied Logic on “Automated Specification and Verification of Web Systems”, 2010/2012. Co-editor: Dr. Temur Kutsia.

Guest editor of the Special Issue of the J. of Symbolic Computation on “Invariant Generation and Advanced Techniques for Reasoning about Loops”, 2009/2010. Co-editors: Dr. Andrew Ireland and Dr. Martin Giese.

## **EDITORIAL BOARDS**

Editorial Board of the Journal Mathematics in Computer Science (MCS), 2016-now.

## **MEMBER OF ORGANIZING COMMITTEES**

Organiser of the Automated Program Reasoning (APRe) Workshop, TU Wien, 5-6 November, 2019.

Organisation committee member of the First International Workshop Proof Theory for Automated Deduction, Automated Deduction for Proof Theory, Funchal, Madeira, October 2019.

Local chair of the Third Workshop on Automated-Inductive Theorem-Proving (WAIT), TU Wien, November 2016;

Proceedings chair of the Vienna Summer of Logic (VSL), 2014;

Local chair of ICNPAA 2012 World Congress: 9th International Conference on Mathematical Problems in Engineering, Aerospace and Sciences, Vienna University of Technology, 2012;

Local chair of Workshop on Logic and Computer Science, University of Vienna, 2011;

Local chair of Workshop on Automated Specification and Verification of Web Systems (WWV), 2010;

Symposium on the Integration of Symbolic Computation and Mechanized Reasoning (CALCULEMUS) and Mathematical Knowledge Management (MKM), 2007;

Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), 2004 and 2005.

## SEMINAR AND TRAINING SCHOOL ORGANISATION

Co-Organizer. Dagstuhl Seminar 12461 on "Games and Decisions for Rigorous Systems Engineering", Schloss Dagstuhl, Germany, November 11-16, 2012;

Co-Organizer. ARiSE/VCLA Winter School on Verification, Vienna University of Technology, Austria, 6-10 February 2012.

## OTHER TECHNICAL COMMITTEES

Management Committee (MC) member of the EU Cost Action CA19122 on "European Network For Gender Balance in Informatics", 2020-2023;

Trustee of the Conference of Automated Deduction - CADE (Steering Committee member), 2016-2019, re-elected for 2019-2022;

Jury member of the Skolem Award for most influential papers in automated deduction, 2018-2019;

Jury member of "Hedy Lamarr Award for Young Women in IT" of the City of Vienna, Austria, 2018 and 2019

Int. Workshop on Automated Specification and Verification of Web Systems (WWV), Steering Committee, 2011-2014;

Int. Workshop on Invariant Generation (WING), Steering Committee, since 2007;

Vienna Center for Logic and Applications (VCLA), Advisory Board, since 2012.

## MEMBER OF PROFESSIONAL ORGANIZATIONS

Association for Automated Reasoning.

Austrian Society for Rigorous Systems Engineering (ARiSE – [www.arise.or.at](http://www.arise.or.at)) – Founding member.

European Association for Programming Languages and Systems.

## CONSULTING

Dassault Aviation, France

– consulting in theorem proving and loop assertion synthesis for software verification (2009 - 2010).

Intel Haifa, Israel

– consulting in program verification (December 2010, restarted in October 2012).

## RESEARCH GRANTS

### Principal Investigator

1. Principal Investigator and Applicant, ERC Proof of Concept 2018, European Research Council (ERC), *SYMELS: Symbol Elimination in Reliable System Engineering*, 06/2019-12/2020, EUR 150,000.
2. Principal Investigator and Applicant, Austrian-Hungarian Action Foundation (OMAA), Grant 101öu8, *Domain-Specific Reasoning in IoT Applications*, 02/2019 - 01/2020, EUR 10,200.
3. Principal Investigator and Applicant, Austrian Science Foundation (FWF), DK Grant W1255-N23, *LogiCS: Logical Methods in Computer Science – Doctoral College*, 03/2018-02/2022, EUR 3,622,033.

4. Principal Investigator and Applicant, ERC Starting Grant 2014, European Research Council (ERC), *SYMCAR: Symbolic Computation and Automated Reasoning for Program Analysis*, 4/2016-3/2021, EUR 1,500,000.
5. Principal Investigator and Applicant, Wallenberg Academy Fellow 2014, Knut and Alice Wallenberg Foundation, *TheProSE: Theorem Proving and Symbol Elimination for Software Analysis and Verification*, 7/2015-6/2020, SEK 10,000,000.
6. Principal Investigator and Applicant, Swedish Research Council (VR), *Generating and Proving Program Properties using Symbol Elimination*, 1/2014-12/2017, SEK 3,360,000.
7. Principal Investigator and Applicant, Austrian Science Foundation (FWF), NFN Grant S11410-N23, *Interpolation and Symbol Elimination*, 3/2011-2/2015, EUR 178,668.
8. Principal Investigator and Applicant, Austrian-Hungarian Action Foundation (OMAA), Grant 82öu11, *Symbolic Computation and Automated Reasoning for the Numeric Analysis of Diabetes Models*, 10/2010 - 11/2011, EUR 9,143.
9. Principal Investigator and Applicant, TU Wien, Grant Innovative Ideas, *CETAT: Cutting-Edge Timing Analysis Technologies for Safety-Critical Real-Time Systems*, 3/2010 - 2/2013, EUR 99,480.
10. Principal Investigator and Applicant, Dassault Aviation, Grant D18501100001 (jointly with ETH Zürich), *Program Verification with Frama-C, Vampire, and Aligator*, 4/2010 - 12/2011, EUR 15,000.
11. Principal Investigator and Applicant, Austrian Science Foundation (FWF), Hertha Firnberg Grant T425-N23, *Computer Algebra and Theorem Proving for Verified Software*, 1/2010 - 3/2013, EUR 192,330.

### **Co-Principal Investigator and Project Partner**

1. Co-Principal Investigator and Applicant, Vienna Science and Technology Fund (WWTF), Grant ICT (Prof. Ezio Bartocci, TU Wien, PI), *ProbInG: Distribution Recovery for Invariant Generation of Probabilistic Programs*, 5/2020-4/2024, EUR 782,100.
2. Co-Principal Investigator and Applicant, Wallenberg Foundation (Prof. Dave Sands, main PI at Chalmers), *WASP: Wallenberg Autonomous Systems Program*, 9/2015-12/2019, SEK 1,800,000,000.
3. Co-Principal Investigator and Applicant, Austrian Science Foundation (FWF), NFN Grant S11409-N23 (Assoc. Prof. Uwe Egly, TU Wien, PI), *Quantified Boolean Formulas*, 3/2015-2/2019, EUR 193,270.
4. Co-Principal Investigator and Applicant, Chalmers Software Center (Assoc. Prof. Patrizio Pelliccione, Chalmers, PI), *Assurance as a Service: Upfront Quality and Safety in Continuous Software Engineering*, 1/2014 - 6/2014, SEK 140,400.
5. Co-Principal Investigator and Applicant, Vienna Science and Technology Fund (WWTF), Grant ICT C-050 (Prof. Helmut Veith, TU Wien, PI), *PROSEED: Proof Seeding for Software Verification*, 1/2011-12/2014, EUR 598,000.
6. Project Partner, Austrian Research Promotion Agency (FFG), Bridge Grant 834162, (Prof. Eva Kühn, TU Wien, PI), *Coordination Middleware for Wireless Networks of Low Power Nodes (LO-PONODE)*, 4/2012 - 5/2014, EUR 443,000.

7. Project Partner, Austrian Research Promotion Agency (FFG), Bridge Grant 827485 (Prof. Andreas Krall, TU Wien, PI), *C3Pro: Correct Compilers for Correct Application Specific Processors*, 10/2010 - 9/2013, EUR 476,000.



# List of Publications and Talks of Prof. Dr. Laura Kovács

*Last updated in June 2020*

## 1 Textbooks

1. Adalbert Kovács, Gheorghe Țigan, Laura Kovács, and Constantin Milici. *Computer Assisted Mathematics (in Romanian)*. “Politehnica” Publisher, Timișoara, 3rd edition, 2012.

## 2 Invited Papers

2. Laura Kovács. First-Order Interpolation and Grey Areas of Proofs (Invited Talk). In *Proceedings of the 26th EACSL Annual Conference on Computer Science Logic (CSL)*, volume 82 of LIPIcs, pages 3:1-3:1, 2017.
3. Laura Kovács. Symbolic Computation and Automated Reasoning for Program Analysis. In *Proceedings of the International Conference on integrated Formal Methods (iFM 2016)*, volume 9681 of LNCS, pages 20-27, 2016.
4. Laura Kovács. Symbol Elimination for Automated Generation of Program Properties. In *Proceedings of the International Workshop on Automated Verification of Critical Systems (AVoCS 2014)*, volume 70 of ECEASST, pages 1-2, 2014.
5. Laura Kovács and Andrei Voronkov. First-Order Theorem Proving and Vampire. In *Proceedings of the International Conference on Computer Aided Verification (CAV)*, volume 8044 of LNCS, pages 1-35, 2013.
6. Laura Kovács. Symbol Elimination in Program Analysis. In *Proceedings of the International Conference on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, volume P3964 of *IEEE Computer Society*, page 12, 2011.
7. Laura Kovács and Andrei Voronkov. Finding Loop Invariants for Programs over Arrays using a Theorem Prover. In *Proceedings of the International Conference on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, volume P3964 of *IEEE Computer Society*, page 10, 2009.

## 3 Journal Articles

8. Jens Knoop, Laura Kovács and Jakob Zwirchmayr. Replacing Conjectures by Positive Knowledge: Inferring Proven Precise Worst-Case Execution Time Bounds Using Symbolic Execution. *Journal of Symbolic Computation*, 80: 101-124, 2017.
9. Bruno Buchberger, Adrian Craciun, Tudor Jebelean, Laura Kovács, Temur Kutsia, Koji Nakagawa, Florina Piroi, Nikolaj Popov, Judith Robu, Markus Rosenkranz, and Wolfgang Windsteiger. Theorema: Towards Computer-Aided Mathematical Theory Exploration. *Journal of Applied Logic*, 4(4):470–504, 2006.
10. Adalbert Kovács and Laura Kovács. The Lagrange Interpolation Formula in Determining the Fluid’s Velocity Potential through Profile Grids. *Bulletins for Applied and Computer Mathematics*, CVIII(2252):126–135, 2005.
11. Laura Kovács, Tudor Jebelean, and Adalbert Kovács. Practical Aspects of Algebraic Invariant Generation for Loops with Conditionals. *Bulletins for Applied and Computer Mathematics*, CVIII(2251):116–125, 2005.
12. Laura Kovács, Nikolaj Popov, and Tudor Jebelean. A Verification Environment for Imperative and Functional Programs in the Theorema System. *Annals of Mathematics, Computing and Teleinformatics (AMCT), TEI Larissa, Greece*, 1(2):27–34, 2005.
13. Laura Kovács and Tudor Jebelean. Automated Generation of Loop Invariants by Recurrence Solving in Theorema. *Annals of the West University of Timișoara. Series Mathematics - Computer Science*, XLII:151–166, 2004.
14. Laura Kovács and Tudor Jebelean. Generation of Loop Invariants in Theorema by Combinatorial and Algebraic Methods. *Bulletins for Applied and Computer Mathematics*, CVI(2172):125–134, 2004.

15. Laura Kovács and Tudor Jebelean. Practical Aspects of Imperative Program Verification in Theorema. *Annals of the West University of Timișoara. Series Mathematics - Computer Science*, XLI:135–154, 2003.

## 4 Refereed Publications in Proceedings

Note: Refereed publications have been published in proceedings and presented at conferences/workshops.

All co-authored publications present work done in an equally distributed joint collaboration.

The co-authored publications (since 2007) have their authors listed in alphabetical order.

### Refereed Papers in Conference Proceedings

16. Bernhard Gleiss, Laura Kovács and Jakob Rath. Subsumption Demodulation in First-Order Theorem Proving. In *Proceedings of the International Joint Conference on Automated Reasoning (IJCAR)*, 2020. To appear.
17. Laura Kovács, Hanna Lachnitt and Stefan Szeider. Formalizing Graph Trail Properties in Isabelle/HOL. In *Proceedings of the International Conference on Intelligent Computer Mathematics (CICM)*, 2020. To appear.
18. Marton Hajdú, Petra Hozzová, Laura Kovács, Johannes Schoisswohl and Andrei Voronkov. Induction with Generalization in Superposition Reasoning. In *Proceedings of the International Conference on Intelligent Computer Mathematics (CICM)*, 2020. To appear.
19. Ezio Bartocci, Laura Kovács and Miroslav Stankovic. MORA - Automatic Generation of Moment-Based Invariants. In *Proceedings of the 26th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, volume 12078 of LNCS, pages 492–498, 2020.
20. Bernhard Gleiss, Laura Kovács and Lena Schnedlitz. Interactive Visualization of Saturation Attempts in Vampire. In *Proceedings of the 15th International Conference on Integrated Formal Methods (iFM)*, volume 11918 of LNCS, pages 504–513, 2019.
21. Gilles Barthe, Renate Eilers, Pamina Georgiou, Bernhard Gleiss, Laura Kovács and Matteo Maffei. Verifying Relational Properties using Trace Logic. In *Proceedings of the 19th International Conference on Formal Methods in Computer-Aided Design (FMCAD)*, IEEE, pages 170–178, 2019.
22. Ezio Bartocci, Laura Kovács and Miroslav Stankovic. Automatic Generation of Moment-Based Invariants for Prob-Solvable Loops. In *Proceedings of the 17th International Symposium on Automated Technology for Verification and Analysis (ATVA)*, volume 11781 of LNCS, pages 255–276, 2019.
23. Gergely Kovásznaï, Gajdár Krisztián and Laura Kovács. Portfolio SAT and SMT Solving of Cardinality Constraints in Sensor Network Optimization. In *Proceedings of the 21st International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, IEEE Computer Society, pages 85–91, 2020.
24. David Damestani, Laura Kovács and Martin Suda. Superposition Reasoning about Quantified Bitvector Formulas. In *Proceedings of the 21st International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, IEEE Computer Society, pages 95–99, 2020.
25. Bernhard Gleiss, Laura Kovács and Simon Robillard. Loop Analysis by Quantification over Iterations. In *Proceedings of the 22nd International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR)*, volume 57 of EasyChair EPiC Series in Computing, pages 381–399, 2018.
26. Evgenii Kotelnikov, Laura Kovács and Andrei Voronkov. A FOOLish Encoding of the Next State Relations of Imperative Programs. In *Proceedings of the 9th International Joint Conference on Automated Reasoning (IJCAR)*, volume 10900 of LNCS, pages 405–421, 2018.
27. Andreas Humenberger, Maximilian Jaroschek and Laura Kovács. Invariant Generation for Multi-Path Loops with Polynomial Assignments. In *Proceedings of the 19th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)*, volume 10747 of LNCS, pages 226–246, 2018.
28. Andreas Humenberger, Maximilian Jaroschek and Laura Kovács. Aligator.jl – A Julia Package for Loop Invariant Generation. In *Proceedings of the 11th Conference on Intelligent Computer Mathematics (CICM)*, volume 11006 of LNCS, pages 111–117, 2018.
29. Bernhard Gleiss, Laura Kovács and Martin Suda. Splitting Proofs for Interpolation. In *Proceedings of the 26th International Conference on Automated Deduction (CADE)*, volume 10395 of LNCS, pages 291–309, 2017.

30. Koen Claessen, Jonatan Kilhamn, Laura Kovács and Bengt Lennartson. A Supervisory Control Algorithm Based on Property-Directed Reachability. In *Proceedings of the 13th International Haifa Verification Conference (HVC)*, volume 10629 of LNCS, pages 115-130, 2017.
31. Andreas Humenberger, Maximilian Jaroschek and Laura Kovács. Automated Generation of Non-Linear Loop Invariants Utilizing Hypergeometric Sequences. In *Proceedings of the 2017 ACM on International Symposium on Symbolic and Algebraic Computation (ISSAC)*, ACM press, pages 221-228, 2017.
32. Laura Kovács and Andrei Voronkov. First-Order Interpolation and Interpolating Proofs Systems. In *Proceedings of 21st International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR)*, volume 46 of EasyChair EPiC Series in Computing 46, pages 49-64, 2017.
33. Laura Kovács, Simon Robillard and Andrei Voronkov. Coming to Terms with Quantified Reasoning. In *Proceedings of ACM SIGACT-SIGPLAN International Symposium on Principles of Programming Languages (POPL)*, pages 260-270, ACM press, 2017.
34. Evgenii Kotelnikov, Laura Kovács, Martin Suda and Andrei Voronkov. A Clausal Normal Form Translation for FOOL. In *Proceedings of the 2nd Global Conference on Artificial Intelligence (GCAI)*, volume 41 of EPiC Series in Computing, pages 53-71, 2016.
35. Evgenii Kotelnikov, Laura Kovács, Giles Regeer and Andrei Voronkov. The Vampire and The FOOL. In *Proceedings of the ACM SIGPLAN Conference on Certified Programs and Proofs (CPP)*, ACM Press, pages 37-48, 2016.
36. Wolfgang Ahrendt, Laura Kovács, and Simon Robillard. Reasoning About Loops Using Vampire in KeY. In *Proceedings of the International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR)*, volume 9450 of LNCS, pages 434-443, 2015.
37. Evgenii Kotelnikov, Laura Kovács, and Andrei Voronkov. A First Class Boolean Sort in First-Order Theorem Proving and TPTP. In *Proceedings of the International Conference on Intelligent Computer Mathematics (CICM) – Calculemus Track*, volume 9150 of LNCS, pages 71-86, 2015.
38. Pavol Cerny, Thomas A. Henzinger, Laura Kovács, Arjun Radhakrishna, and Jakob Zwirchmayr. Segment Abstraction for Worst-Case Execution Time Analysis. In *Proceedings of the European Symposium on Programming (ESOP)*, volume 9032 of LNCS, pages 105-131, 2015.
39. Ashutosh Gupta, Laura Kovács, Bernhard Kragl and Andrei Voronkov. Extensional Crisis and Proving Identity. In *Proceedings of the International Symposium on Automated Technology for Verification and Analysis (ATVA)*, volume 8837 of LNCS, pages 185-200, 2014.
40. Mohammad Reza Shoaie, Laura Kovács, and Bengt Lennartson. Supervisory Control of Discrete-Event Systems via IC3. In *Proceedings of the International Haifa Verification Conference (HVC)*, volume 8855 of LNCS, pages 252-266, 2014.
41. Armin Biere, Ioan Dragan, Laura Kovács, and Andrei Voronkov. Experimenting with SAT Solvers in Vampire. In *Proceedings of the Mexican International Conference on Artificial Intelligence (MICAI)*, volume 8856 of LNCS, pages 431-442, 2014.
42. Ioan Dragan and Laura Kovács. Lingva: Generating and Proving Program Properties using Symbol Elimination. In *Proceedings of the International Conference on Perspectives of System Informatics (PSI)*, volume 8974 of LNCS, pages 67-75, 2014.
43. Régis Blanc, Ashutosh Gupta, Laura Kovács, and Bernhard Kragl. Tree Interpolation in Vampire. In *Proceedings of the International Conference on Logic for Programming Artificial Intelligence and Reasoning (LPAR)*, volume 8312 of LNCS, pages 173-181, 2013.
44. Laura Kovács, Andrei Mantsivoda, and Andrei Voronkov. The Inverse Method for Many-Valued Logics. In *Proceedings of the Mexican International Conference on Artificial Intelligence (MICAI)*, volume 8265 of LNAI, pages 12-23, 2013.
45. Laura Kovács, Natasha Sharygina, and Simone Fulvio Rollini. A Parametric Interpolation Framework for First-Order Theories. In *Proceedings of the Mexican International Conference on Artificial Intelligence (MICAI)*, volume 8265 of LNAI, pages 24-40, 2013.

46. Armin Biere, Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. SmacC: A Retargetable Symbolic Execution Engine. In *Proceedings of the International Symposium on Automated Technology for Verification and Analysis (ATVA)*, volume 8172 of LNCS, pages 482–286, 2013.
47. Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. WCET Squeezing: On-Demand Feasibility Refinement for Proven Precise WCET-Bounds. In *Proceedings of the International Conference on Real-Time Networks and Systems (RTNS)*, ACM, pages 161–170, 2013.
48. Ioan Dragan, Konstantin Korovin, Laura Kovács, and Andrei Voronkov. Bound Propagation for Arithmetic Reasoning in Vampire. In *Proceedings of the International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, IEEE, pages 169-176, 2013.
49. Kryštof Hoder and Laura Kovács and Andrei Voronkov. Playing in the Grey Area of Proofs. In *Proceedings of ACM SIGACT-SIGPLAN International Symposium on Principles of Programming Languages (POPL)*, volume 47 of *ACM SIGPLAN Notices*, pages 259–272, 2012.
50. Armelle Bonenfant, Hugues Cassé, Marianne De Michiel, Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. FFX: A Portable WCET Annotation Language. In *Proceedings of the ACM International Conference on Real-Time and Network Systems (RTNS)*, pages 91–100, ACM, 2012.
51. Kryštof Hoder, Andreas Holzer, Laura Kovács, and Andrei Voronkov. Vinter: A Vampire-Based Tool for Interpolation. In *Proceedings of Asian Symposium on Programming Languages and Systems (APLAS)*, volume 7705 of LNCS, pages 148–146, 2012.
52. Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. r-TuBound: Loop Bounds for WCET Analysis (Tool Paper). In *Proceedings of International Conference on Logic for Programming, Artificial Intelligence, and Reasoning (LPAR)*, volume 7180 of LNCS, pages 435–444, 2012.
53. Laura Kovács, Béla Paláncz, and Levente Kovács. Solving Robust Glucose-Insulin Control by Dixon Resultant Computations. In *Proceedings of International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, IEEE Computer Society 978-0-7695-4934-7/12, pages 53–61, 2012.
54. Adalbert Kovács and Laura Kovács. A Hodographic Approximation Method for Analyzing the Fluid Motion Through Network Profiles. In *Proceedings of 23rd International DAAAM Symposium*, volume 23 of *DAAAM International*, pages 125–128, 2012.
55. Adalbert Kovács, Laura Kovács, and Levente Kovács. The Boundary Element Method in the Study of Non-Stationary Movements Through Network Profiles. In *Proceedings of 13th International Conference on Mathematics and its Applications (ICMA)*, Scientific Bulletin of Politehnica University Timișoara (ISSN 1224-6069), pages 241–248, 2012.
56. Laura Kovács and Adalbert Kovács. Symbol Elimination and its Applications in Program Verification. In *Proceedings of 13th International Conference on Mathematics and its Applications (ICMA)*, Scientific Bulletin of Politehnica University Timișoara (ISSN 1224-6069), pages 329–334, 2012.
57. Kryštof Hoder, Laura Kovács, and Andrei Voronkov. Case Studies on Invariant Generation Using a Saturation Theorem Prover. In *Proceedings of the Mexican International Conference on Artificial Intelligence (MICAI)*, volume 7094 of LNAI, pages 1–15, 2011.
58. Kryštof Hoder, Laura Kovács, and Andrei Voronkov. Invariant Generation in Vampire. In *Proceedings of the International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, volume 6605 of LNCS, pages 60–64, 2011.
59. Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. Symbolic Loop Bound Computation for WCET Analysis. In *Proceedings of the International Conference on Perspectives of System Informatics (PSI)*, volume 7162 of LNCS, pages 224–239, 2011.
60. Laura Kovács, Georg Moser, and Andrei Voronkov. On Transfinite Knuth-Bendix Orders. In *Proceedings of the International Conference on Automated Deduction (CADE)*, volume 6803 of LNAI, pages 384–399, 2011.
61. Adalbert Kovács and Laura Kovács. Analyzing the Fluid Motion Through Network Profiles Using the Boundary Element Method. In *Proceedings of 22nd International DAAAM Symposium: Intelligent Manufacturing and Automation*, volume 2 of *DAAAM International*, pages 1147–1148, 2011.

62. Laura Kovács and Adalbert Kovács. Aligator: Experiments and Limitations. In *Proceedings of 22nd International DAAAM Symposium: Intelligent Manufacturing and Automation*, volume 2 of *DAAAM International*, pages 1145–1146, 2011.
63. Régis Blanc, Thomas A. Henzinger, Thibaud Hottelier, and Laura Kovács. ABC: Algebraic Bound Computation for Loops. In *Proceedings of the International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR)*, volume 6355 of *LNAI*, pages 103–118, 2010.
64. Thomas A. Henzinger, Thibaud Hottelier, Laura Kovács, and Andrey Rybalchenko. Aligators for Arrays (Tool Paper). In *Proceedings of the International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR)*, volume 6397 of *LNCS*, pages 348–356, 2010.
65. Thomas A. Henzinger, Thibaud Hottelier, Laura Kovács, and Andrei Voronkov. Invariant and Type Inference for Matrices. In *Proceedings of the International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)*, volume 5944 of *LNCS*, pages 163–179, 2010.
66. Kryštof Hoder and Laura Kovács and Andrei Voronkov. Interpolation and Symbol Elimination in Vampire. In *Proceedings of the International Joint Conference on Automated Reasoning (IJCAR)*, volume 6173 of *LNCS*, pages 188–195, 2010.
67. Laura Kovács. A Complete Invariant Generation Approach for P-solvable Loops. In *Proceedings of the International Conference on Perspectives of System Informatics (PSI)*, volume 5947 of *LNCS*, pages 242–256, 2009.
68. Laura Kovács and Andrei Voronkov. Finding Loop Invariants for Programs over Arrays Using a Theorem Prover. In *Proceedings of the International Conference on Fundamental Approaches to Software Engineering (FASE)*, volume 5503 of *LNCS*, pages 470–485, 2009.
69. Laura Kovács and Andrei Voronkov. Interpolation and Symbol Elimination. In *Proceedings of the International Conference on Automated Deduction (CADE)*, volume 5663 of *LNCS*, pages 199–213, 2009.
70. Laura Kovács and Adalbert Kovács. Deciding Properties of Affine Loops. In *Proceedings of the International Symposium of Mathematics and its Applications (ISMA)*, Scientific Bulletins of the Politehnica, University of Timișoara, Transactions on Mathematics and Physics, pages 401–406, 2009.
71. Laura Kovács and Adalbert Kovács. Solving the Four Fundamental Problems from the Theory of Profile Grids via BEM. In *Proceedings of the International Symposium of Mathematics and its Applications (ISMA)*, Scientific Bulletins of the Politehnica, University of Timișoara, Transactions on Mathematics and Physics, pages 393–400, 2009.
72. Thomas A. Henzinger, Thibaud Hottelier, and Laura Kovács. Valigator: A Verification Tool with Bound and Invariant Generation. In *Proceedings of the International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR)*, LNCS, pages 333–342, 2008.
73. Laura Kovács. Aligator: A Mathematica Package for Invariant Generation (System Description). In *Proceedings of the International Joint Conference on Automated Reasoning (IJCAR)*, volume 5195 of *LNCS*, pages 275–282, 2008.
74. Laura Kovács. Invariant Generation for P-solvable Loops with Assignments Only. In *Proceedings of Computer Science in Russia (CSR)*, volume 5010 of *LNCS*, pages 349–359, 2008. **Best Paper Award in the Application Track.**
75. Laura Kovács. Reasoning Algebraically About P-solvable Loops. In *Proceedings of the International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, volume 4963 of *LNCS*, pages 249–264, 2008.
76. Laura Kovács. Aligator: a Package for Reasoning about Loops. In *Proceedings of the International Conference on Logic for Programming, Artificial Intelligence and Reasoning – Short Papers (LPAR)*, pages 5–8, 2007.
77. Laura Kovács, Nikolaj Popov, and Tudor Jebelean. Combining Logic and Algebraic Techniques for Program Verification in Theorema. In *Proceedings of the International Conference on Leveraging Applications of Formal Methods, Verification and Validation (ISOLA)*, pages 59–67, 2006.

78. Laura Kovács and Tudor Jebelean. An Algorithm for Automated Generation of Invariants for Loops with Conditionals. In *Proceedings of the International Conference on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, IEEE Computer Society, pages 245–249, 2005.
79. Tudor Jebelean, Laura Kovács, and Nikolaj Popov. Experimental Program Verification in the Theorema System. In *Proceedings of the International Conference on Leveraging Applications of Formal Methods (ISOLA)*, pages 92–99, 2004.
80. Laura Kovács and Tudor Jebelean. Automated Generation of Loop Invariants by Recurrence Solving in Theorema. In *Proceedings of the International Conference on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, pages 451–464, 2004.
81. Adalbert Kovács and Laura Kovács. The Calculus Algorithm for the Integral Equation of the Compressible Fluid’s Speeds Potentials through Specialized Networks (in german). In *Proceedings of the International Symposium of Mathematics and its Application (ISMA)*, Scientific Bulletins of the Politehnica” University of Timișoara, Transactions on Mathematics and Physics, pages 427–434, 2003.
82. Laura Kovács and Tudor Jebelean. Generation of Invariants in Theorema. In *Proceedings of the International Symposium of Mathematics and its Application (ISMA)*, Scientific Bulletins of the Politehnica” University Timișoara, Transactions on Mathematics and Physics, pages 407–415, 2003.
83. Laura Kovács and Tudor Jebelean. Practical Aspects of Imperative Program Verification in Theorema. In *Proceedings of the International Conference on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, pages 317–320, 2003.

## Refereed Papers in Workshop Proceedings

84. Yuting Chen, Laura Kovács and Simon Robillard. Theory-Specific Reasoning about Loops with Arrays using Vampire. In *Proceedings of the 3rd Vampire Workshop*, volume 44 of EPiC Series in Computing, pages 16-32, 2017.
85. Laura Kovács and Simon Robillard. Reasoning About Loops Using Vampire. In *Proceedings of the 1st and 2nd Vampire Workshops 2014 and 2015*, volume 38 of EPiC Series in Computing, pages 52-62, 2015.
86. Armin Biere, Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. The Auspicious Couple: Symbolic Execution and WCET Analysis. In *Proceedings of the International Workshop on Worst-Case Execution Time Analysis (WCET)*, volume 30 of OASICS, pages 53-63, 2013.
87. Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. An Evaluation of WCET Analysis using Symbolic Loop Bounds. In *Proceedings of the International Workshop on Worst-Case Execution Time Analysis (WCET)*, pages 93–103, 2011.
88. Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. Practical Experiments with Symbolic Loop Bound Computation for WCET Analysis. In *Proceedings of the 28th Workshop of the GI-Working group on Programming Languages and Computing Concepts*, 2011. Technical Report of the Computer Science Faculty of the Christian-Albrechts University Kiel.
89. Laura Kovács. Invariant Generation with Aligator. In *Proceedings of Austrian-Japanese Workshop on Symbolic Computation in Software Science (SCCS)*, number 08-08 in RISC-Linz Report Series, pages 123–136, 2008.
90. Laura Kovács. Automated Invariant Generation by Algebraic Techniques for Imperative Program Verification in Theorema. In *Proceedings of the International Workshop on Invariant Generation (WING)*, number 07-07 in RISC Report Series, pages 56–69, 2007.
91. Laura Kovács and Tudor Jebelean. Finding Polynomial Invariants for Imperative Loops in the Theorema System. In *Proceedings of the Verify Workshop, IJCAR, The 2006 Federated Logic Conferences (FLoC)*, pages 52–67, 2006.
92. Laura Kovács, Nikolaj Popov, and Tudor Jebelean. A Verification Environment for Imperative and Functional Programs in the Theorema System. In *Proceedings of the South-East European Workshop on Formal Methods (SEEFM)*, 2005.

93. Laura Kovács, Tudor Jebelean, and Nikolaj Popov. Verification of Imperative Programs in Theorema. In *Proceedings of the South-East European Workshop on Formal Methods (SEEFM)*, pages 140–147, 2003.
94. Laura Kovács. Optical Music Recognition. In *Proceedings of the Symposium of Informatics in Higher Education, Symposium of Mathematics and its Applications*, 2002. Electronic Proceedings.

## 5 Other Publications

### Editorial Papers

95. James H. Davenport, Laura Kovács, and Daniela Zaharie, editors. Foreword to the Special Issue of the 18th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC). *Mathematics in Computer Science*, 13(4): 459–460, 2019.
96. Pascal Schreck, Tetsuo Ida, and Laura Kovács, editors. Foreword to the Special Issue on Formalization of Geometry, Automated and Interactive Geometric Reasoning. *Annals of Mathematics and Artificial Intelligence (AMAI)*, 85(2-4): 71-72, 2019.
97. Adel Bouhoula, Bruno Buchberger, Laura Kovács, and Temur Kutsia. Editorial to the Special issue on Symbolic Computation in Software Science. *Journal of Symbolic Computation*, 69: 1-2, 2015.
98. Laura Kovács, Rosario Pugliese, Josep Silva, and Francesco Tiezzi. Editorial to the Special issue on Automated Specification and Verification of Web Systems. *Journal of Logic and Algebraic Programming*, 82(4): 241-242, 2013.
99. Nikolaj Bjørner and Laura Kovács. Foreword to the Special Issue on Invariant Generation and Advanced Techniques for Reasoning about Loops. *Journal of Symbolic Computation*, 47(12):1413–1415, 2012.
100. Laura Kovács and Temur Kutsia. Editorial to the Special Issue on Automated Specification and Verification of Web Systems. *Journal of Applied Logic*, 10(1):1, 2012.
101. Martin Giese, Andrew Ireland, and Laura Kovács. Introduction to the Special Issue on Invariant Generation and Advanced Techniques for Reasoning about Loops. *Journal of Symbolic Computation*, 45(11):1097–1100, 2010.

### Edited Volumes

102. Elvira Albert and Laura Kovács, editors. Proceedings of the 23rd International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), volume 73 of the EPIc Series in Computing, EasyChair, 2020.
103. Laura Kovács and Andrei Voronkov, editors. Proceedings of the 5th and 6th Vampire Workshops. Volume 71 of the EPIc Series in Computing, EasyChair, 2020.
104. James H. Davenport, Laura Kovács, and Daniela Zaharie, editors. Special Issue of the 18th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC). Volume 13 of *Mathematics in Computer Science*, 2019.
105. Pascal Schreck, Tetsuo Ida, and Laura Kovács, editors. Special Issue on Formalization of Geometry, Automated and Interactive Geometric Reasoning. Volume 85 of *Annals of Mathematics and Artificial Intelligence (AMAI)*, 2019.
106. Laura Kovács and Andrei Voronkov, editors. Proceedings of the 4th Vampire Workshop. Volume 53 of the EPIc Series in Computing, 2018.
107. Laura Kovács and Andrei Voronkov, editors. Proceedings of the 3rd Vampire Workshop. Volume 44 of the EPIc Series in Computing, 2017.
108. Laura Kovács and Andrei Voronkov, editors. Proceedings of the 1st and 2nd Vampire Workshops. Volume 38 of the EPIc Series in Computing, 2016.
109. Adel Bouhoula, Bruno Buchberger, Laura Kovács, and Temur Kutsia, editors. Special issue on Symbolic Computation in Software Science. Volume 69 of *Journal of Symbolic Computation*, 2015.

110. Laura Kovács and Temur Kutsia, editors. *Proceedings of the Fifth International Symposium on Symbolic Computation in Software Sciences*, Volume 15 of the EPiC Series in Computing and RISC Technical Report 13-06, 2013.
111. Laura Kovács, Rosario Pugliese, Josep Silva, and Francesco Tiezzi. Special issue on Automated Specification and Verification of Web Systems. volume 82 of *Journal of Logic and Algebraic Programming*, 2013.
112. Nikolaj Bjorner, Krishnendu Chatterjee, Laura Kovacs, and Rupak M. Majumdar, editors. *Games and Decisions for Rigorous Systems Engineering (Dagstuhl Seminar 12461)*, volume 2 of *Dagstuhl Reports*. Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, 2013.
113. Nikolaj Bjørner and Laura Kovács, editors. *Special Issue on Invariant Generation and Advanced Techniques for Reasoning about Loops*, volume 47 of *Journal of Symbolic Computation*, 2012.
114. Laura Kovács and Temur Kutsia, editors. *Special Issue on Automated Specification and Verification of Web Systems*, volume 10 of *Journal of Applied Logic*, 2012.
115. Laura Kovács, Rosario Pugliese, and Francesco Tiezzi, editors. *Proceedings of the 7th International Workshop on Automated Specification and Verification of Web Systems*, volume 61 of *EPTCS*, 2011.
116. Nikolaj Bjørner and Laura Kovács, editors. *Proceedings of the International Workshop on Invariant Generation (WING)*. IJCAR, University of Edinburgh, 2010.
117. Martin Giese, Andrew Ireland, and Laura Kovács, editors. *Special Issue on Invariant Generation and Advanced Techniques for Reasoning about Loops*, volume 45 of *Journal of Symbolic Computation*, 2010.
118. Laura Kovács and Temur Kutsia, editors. *Proceedings of the International Workshop on Automated Specification and Verification of Web System (WWV)*. Vienna University of Technology, 2010.
119. Andrew Ireland and Laura Kovács, editors. *Proceedings of the Second International Workshop on Invariant Generation (WING)*. ETAPS, University of York, 2009.

## Abstracts in Conference and Workshop Proceedings

120. Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. An Evaluation of WCET Analysis using Symbolic Loop Bounds (abstract/presentation). In *Proceedings of the 16th Colloquium on Programming Languages and Programming Foundations (KPS)*, page 200, 2011. Westfälische Wilhelms University Münster.
121. Jens Knoop, Laura Kovács, and Jakob Zwirchmayr. An Evaluation of WCET Analysis using Symbolic Loop Bounds (extended Abstract). In *Proceedings of the Annual Doctoral Workshop on Mathematical and Engineering Methods in Computer Science (MEMICS)*, page 119, 2011. Lednice, Czech Republic.

## Theses

122. Laura Kovács. *Symbol Elimination in Program Analysis*. Habilitation Thesis, Vienna University of Technology, Austria, November 2012.
123. Laura Kovács. *Automated Invariant Generation by Algebraic Techniques for Imperative Program Verification in Theorema*. PhD thesis, with highest distinction. RISC, Johannes Kepler University Linz, Austria, October 2007. RISC Technical Report No. 07-16. Supervisor: Prof. Tudor Jebelean.
124. Laura Kovács. *Verification of Imperative Programs in Theorema*. Master’s thesis, West University of Timișoara, Romania, February 2004. Advisors: Prof. Tudor Jebelean and Prof. Viorel Negru.
125. Laura Kovács. *Optical Music Recognition*. Diploma Thesis, West University of Timișoara, Romania, June 2002. Advisor: Dr. Lucian Cucu.



## Progress Reports

126. Bruno Buchberger, Tudor Jebelean, Wolfgang Windsteiger, Temur Kutsia, Koji Nakagawa, Judith Robu, Florina Piroi, Adrian Craciun, Nikolaj Popov, Gábor Kusper, Markus Rosenkranz, Laura Kovács, and Camelia Kocsis. F 1302: THEOREMA: Proving, Solving and Computing in General Domains. In P. Paule and U. Langer, editors, *Special Research Program (SFB) F 013, Numerical and Symbolic Scientific Computing, Proposal for Continuation, Part I: Progress Report, April 2001-September 2003*, pages 148–170. Johannes Kepler University Linz, Austria, 2003.
127. Bruno Buchberger, Tudor Jebelean, Wolfgang Windsteiger, Temur Kutsia, Koji Nakagawa, Judith Robu, Florina Piroi, Adrian Craciun, Nikolaj Popov, Gábor Kusper, Markus Rosenkranz, Laura Kovács, and Camelia Kocsis. F 1302: THEOREMA: Proving, Solving, and Computing in the Theory of Hilbert Spaces. In P. Paule and U. Langer, editors, *Special Research Program (SFB) F 013, Numerical and Symbolic Scientific Computing, Proposal for Continuation, Part II: Proposal*, pages 58–73. Johannes Kepler University Linz, Austria, 2003.

## 6 Invited Lectures and Talks

### Invited Lectures at Summer Schools

1. Laura Kovács. First-Order Interpolation. Invited lecturer at “SAT/SMT/AR Summer School”, Lisbon, Portugal, July 2019.
2. Laura Kovács. First-Order Interpolation in the Grey Area of Proofs. Invited lecturer at “SYSMICS (Syntax meets Semantics – Methods, Interactions, and Connections in Substructural Logics) Summer School”, Les Diablerets, Switzerland, August 2018.
3. Laura Kovács. First-Order Interpolation. Invited lecturer at “SAT/SMT/AR Summer School”, Manchester, UK, July 2018.
4. Laura Kovács and Andrei Voronkov. First-Order Theorem Proving in Rigorous Systems Engineering. Invited lecturer at “RiSE/SHiNE Winter School”, Vienna, Austria, February 2018.
5. Laura Kovács and Martin Suda. First-Order Theorem Proving and Vampire. Invited lecturer at “LoVE: RiSE & LogiCS Spring School on Logic and Verification”, Vienna, Austria, April 2016.
6. Laura Kovács. Program Assertion Synthesis using Symbol Elimination. Invited lecturer at the VTSA Summer School on Verification Technology, Systems, and Applications, Luxemburg, October 2014.
7. Laura Kovács. First-Order Theorem Proving and Vampire. Invited lecturer at the ReRiSE Advanced Winter School on Reasoning Engines for Rigorous Systems Engineering, Linz, Austria, February 2014.
8. Laura Kovács. Automated Theorem Proving. Invited lecturer at the ARiSE/VCLA Winter School on Verification, Vienna, Austria, February 2012.
9. Laura Kovács. Invariant Generation by Algebraic Techniques for Software Verification. Invited lecturer at the 4th International Tbilisi Summer School in Logic and Language, Georgia, September 2008.

### Invited Conference and Workshop Talks

10. Laura Kovács. Automated Reasoning for System Security and Privacy. Invited talk at the sec4dev Conference & Bootcamp – Security for Software Developers, Vienna, Austria, february 26, 2020.
11. Laura Kovács. 60 Shades of Grey. Invited talk at the 60th Birthday Conference ANDREI-60 of Andrei Voronkov: Automating New-Era Deductive Reasoning Event In Iberia. Tbilisi, Georgia, May 20, 2019.
12. Laura Kovács. Symbolic Computation and Automated Reasoning for Program Analysis. Invited talk at the 23rd IEEE International Conference on Intelligent Engineering Systems (INES), Gödöllő, Hungary, April 26, 2019.
13. Laura Kovács. Symbol Elimination in Program Analysis. Invited talk at the 2nd Facebook Testing and Verification Symposium (FaceTAV), London, UK, November 28, 2018.
14. Laura Kovács. Symbol Elimination for Program Analysis. Invited talk at the 6th International Conference on Highlights of Logic, Games and Automata, Berlin, Germany, September 19, 2018.

15. Laura Kovács. Automated Reasoning for Systems Engineering. Invited talk at Austrian Computer Science Day, Salzburg, Austria, June 15, 2018.
16. Laura Kovács. Automated Reasoning for Systems Engineering. Invited talk at 10th International Symposium on Foundations of Information and Knowledge Systems (FoIKS), Budapest, Hungary, 14-18 May, 2018.
17. Laura Kovács. Automated Reasoning for Systems Engineering. Invited talk at 2018 IEEE International Conference on Future IoT Technologies (Future IoT 2018), Eger, Hungary, 18-19 January, 2018.
18. Laura Kovács. Symbol Elimination for Program Analysis. Invited talk at ETH Zürich Workshop on Software Correctness and Reliability, Zürich, Switzerland, 13-14 October, 2017.
19. Laura Kovács. First-Order Interpolation and Grey Areas of Proofs. Invited talk at the 26th EACSL Annual Conference on Computer Science Logic (CSL), Stockholm, Sweden, 20-24 August, 2017.
20. Laura Kovács. Algebraic Reasoning for Program Analysis. Invited talk at the 23th International Conference on Mathematical Foundations of Programming Semantics (MFPS), Ljubljana, Slovenia, 12-13 June, 2017.
21. Laura Kovács. Automated Reasoning for Systems Engineering. Invited talk at the 12th European Computer Science Summit (ECSS), Budapest, Hungary, 24-26 October, 2016.
22. Laura Kovács. Symbolic Computation and Automated Reasoning for Program Analysis. Invited talk at the 12th International Conference on integrated Formal Methods (iFM), Reykjavik, Island, June 1-5, 2016.
23. Laura Kovács. First-Order Theorem Proving and Program Analysis. Invited talk at the at the LCCC-ACCESS workshop on Model-Based Engineering, Lund University, Sweden, 4-5 May 2015.
24. Laura Kovács. Generating Program Properties using Symbol Elimination. Invited talk at the 14th International Workshop on Automated Verification of Critical Systems, University of Twente, The Netherlands, 24-36 September 2014.
25. Laura Kovács. Symbol Elimination in Program Analysis. Invited talk at the International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), Timisoara, Romania, 26-29 September 2011.
26. Laura Kovács. Quantified Invariant Generation using Symbolic Computation and Theorem Proving. Invited talk at the Workshop on Symbolic Computation and Software Verification (SCSV), Tsukuba University, Japan, 8-9 April 2010.

## Invited Seminar Talks

30. Laura Kovács. First-Order Interpolation. Invited colloquium talk at the PhD Research Seminar of the Faculty of Computer Science of the West University of Timișoara, Romania, 29 November, 2019.
31. Laura Kovács. Symbol Elimination for Program Analysis. Invited colloquium talk at the Theoretical Computer Science Seminar Series of the KTH Royal Institute of Technology, Stockholm, Sweden, 18 May, 2015.
32. Laura Kovács. Formal Methods in Software Design and Verification. Invited colloquium talk at SAAB Technical Seminar, Linköping, Sweden, 12 November, 2013.
33. Laura Kovács. Formal Methods for Program Verification. Invited colloquium talk at SAAB Kallebäck, Gothenburg, Sweden, 6 November, 2013.
34. Laura Kovács. Playing in the Grey Area of Proofs. Invited colloquium talk at Microsoft Cambridge, UK, 19 September 2012.
35. Laura Kovács. Playing in the Grey Area of Proofs. Invited colloquium talk at VERIMAG, Grenoble, France, 5 April 2012.
36. Laura Kovács. Playing in the Grey Area of Proofs. Invited colloquium talk at IST/TU Wien Rigorous System Engineering Seminar, TU Wien, 8 March 2012.
37. Laura Kovács. Experiments with Invariant Generation Using a Saturation Theorem Prover. Invited colloquium talk at AdaCore, Paris, France, 18 April 2011.

38. Laura Kovács. RiSE: Rigorous Systems Engineering. Invited colloquium talk at the Research Seminar for Master Students, West University of Timisoara, Romania, 25-27 May 2011.
39. Laura Kovács. Symbol Elimination in Program Analysis. Invited colloquium talk at the Technical University Graz, Austria, 31 May 2011.
40. Laura Kovács. Symbol Elimination in Program Analysis. Invited colloquium talk at Helsinki Institute for Information Technology (HIIT), 23 September 2011.
41. Laura Kovács. Aligators and Arrays. Invited colloquium talk at IST/TU Wien Rigorous System Engineering Seminar, IST Austria, 28 October 2010.
42. Laura Kovács. Symbol Elimination and Interpolation. Invited colloquium talk at the University of Verona, Italy, 21 September 2010.
43. Laura Kovács. Symbol Elimination and Interpolation for Software Verification. Invited colloquium talk at Intel, Haifa, Israel, 20 December 2010.
44. Laura Kovács. Program Verification using Algebraic Techniques. Invited talk at the Graduate Seminar: Logic and Information, Joint Workshop of the Universities of Bern, Fribourg, and Neuchâtel, Switzerland, 19 November 2009.
45. Laura Kovács. Finding Loop Invariants Using a Theorem Prover. Invited colloquium talk at Microsoft Research Redmond (MSR), USA, 11 September 2009.
46. Laura Kovács. Finding Loop Invariants Using a Theorem Prover. Invited colloquium talk at SRI International, USA, 9 September 2009.
47. Laura Kovács. Quantified Invariant Generation using Symbolic Computation and Theorem Proving. Invited colloquium talk at IBM Haifa, Israel, 27 July 2009.
48. Laura Kovács. Quantified Invariant Generation using Symbolic Computation and Theorem Proving. Invited colloquium talk at LORIA-Nancy, France, 22 June 2009.
49. Laura Kovács. Quantified Invariant Generation using Symbolic Computation and Theorem Proving. Invited colloquium talk at the University of Manchester, UK, 1 April 2009.
50. Laura Kovács. Quantified Invariant Generation using Symbolic Computation and Theorem Proving. Invited colloquium talk at ETH Zürich, Switzerland, 2 March 2009.
51. Laura Kovács. Invariant Generation by Algebraic Techniques for Software Verification. Invited colloquium talk at the Vienna University of Technology, Austria, 28 November 2008.
52. Laura Kovács. Reasoning Algebraically About P-solvable Loops. Invited colloquium talk at MoVe, LIF, Marseille, France, 14 February 2008.
53. Laura Kovács. Automated Loop Invariant Generation by Algebraic Techniques Over the Reals. Invited colloquium talk at the University of Manchester, UK, 9 March 2007.
54. Laura Kovács. Polynomial Invariant Generation by Algebraic Techniques for Program Verification in Theorema. Invited colloquium talk at the École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, 15 February 2007.
55. Laura Kovács. Polynomial Invariant Generation by Algebraic Techniques for Program Verification in Theorema. Invited colloquium talk at IRIT, Paul Sabatier University, Toulouse, France, 26 March 2007.
56. Laura Kovács. Using Symbolic Summation and Polynomial Algebra for Automated Generation of Polynomial Invariants in Theorema. Invited colloquium talk at VERIMAG, Grenoble, France, 8 February 2007.

## Tutorial Speaker

56. Kryštof Hoder, Laura Kovács, and Andrei Voronkov. First-Order Theorem Proving and Vampire. Tutorial at the International Conference on Automated Deduction (CADE), Wroclaw, Poland, 1 August 2011.
57. Laura Kovács. First-Order Theorem Proving and Vampire. Tutorial at the RiSE-PUMA Workshop, Traunkirchen, Austria, 4 October 2011.
58. Laura Kovács. First-Order Theorem Proving and Vampire. Tutorial at the Mexican International Conference on Artificial Intelligence (MICAI), 26 November - 4 December 2011.
59. Laura Kovács. Program Assertion Synthesis using Symbolic Computation. Tutorial at the International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), Timisoara, Romania, 26-29 September 2011.
60. Laura Kovács and Andrei Voronkov. Invariant Generation using Theorem Proving. Tutorial at the International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC), Timisoara, Romania, 26-29 September 2011.

## Seminar Participation by Invitation

61. Laura Kovács. Symbol Elimination and Vampire, February 2019. Contributed talk at the Dagstuhl seminar 19062 “Bringing CP, SAT and SMT together: Next Challenges in Constraint Solving”, Schloss Dagstuhl, Germany.
62. Laura Kovács. Symbol Elimination for Program Analysis, November 2015. Contributed talk at the Dagstuhl Seminar 15471 on “Symbolic Computation and Satisfiability Checking”, Schloss Dagstuhl, Germany.
63. Laura Kovács. Experiments with Invariant Generation Using a Saturation Theorem Prover, March 2011. Contributed talk at the “Deduction at Scale” Seminar, Ringberg Castle, Germany.
64. Laura Kovács. Interpolation and Symbol Elimination, April 2010. Contributed talk at the Dagstuhl Seminar 10161 on “Decision Procedures in Software, Hardware and Bioware”, Schloss Dagstuhl, Germany.
65. Laura Kovács. Finding Loop Invariants Using a Theorem Prover, October 2009. Contributed talk at the Dagstuhl Seminar 09411 on “Interaction versus Automation: The two Faces of Deduction”, Schloss Dagstuhl, Germany.
66. Laura Kovács. Automated Loop Invariant Generation by Algebraic Techniques Over the Rationals, April 2007. Contributed talk at the Alpine Verification Meeting, Aussois, France.
67. Laura Kovács. Reasoning Algebraically About P-solvable Loops, October 2007. Contributed talk at the Dagstuhl Seminar 07401 on “Deduction and Decision Procedures”, Schloss Dagstuhl, Germany.
68. Laura Kovács and Tudor Jebelean. Generating Invariance Properties by Recurrence Solving and Groebner Basis Computation in the Theorema system, August 2005. Contributed talk at the Dagstuhl Seminar 05311 on “Verifying Optimizing Compilers”, Schloss Dagstuhl, Germany.

## 7 Contributed Talks

### Contributed Talks

69. Laura Kovács. Verifying Relational Properties using Trace Logic, October 2019. Contributed talk at the First International Workshop on “Proof Theory for Automated Deduction, Automated Deduction for Proof Theory”, Madeira, Portugal.
70. Laura Kovács. Interpolation in the Grey Area of Proofs, March 2019. Contributed talk at the “Helmut Veith Memorial Workshop”, Turracher Höhe, Austria.
71. Laura Kovács. Experiments with Invariant Generation Using a Saturation Theorem Prover, March 2011. Contributed talk at the Workshop on Logic and Computer Science, Kurt Gödel Research Center, University of Vienna, Austria.

72. Laura Kovács. Interpolation and Symbol Elimination, February 2010. Contributed talk at the RISE Workshop, Technical University of Graz, Austria.
73. Laura Kovács. Reasoning Algebraically About P-solvable Loops, September 2007. Contributed talk at the SCORE Summer Workshop on Symbolic Computation and Software Verification, Fuji Susono, Japan.
74. Laura Kovács and Tudor Jebelean. Algebraic Methods for Invariant Generation, April 2007. Contributed talk at the SFB Statusseminar, Strobl, Austria.
75. Laura Kovács. Combining Algebraic and Logic Techniques for Program Verification, December 2006. Contributed talk at the SFB Cooperation Meeting, Johannes Kepler University Linz.
76. Laura Kovács and Tudor Jebelean. Automated Generation of Polynomial Invariants for Imperative Program Verification in Theorema, December 2006. Contributed talk at the INTAS Project Meeting, Institute eAustria, Timișoara, Romania.
77. Laura Kovács and Tudor Jebelean. Finding Polynomial Invariants for Imperative Loops, April 2006. Contributed talk at the SFB Statusseminar, Strobl, Austria.
78. Laura Kovács and Tudor Jebelean. Using Symbolic Summation and Polynomial Algebra for Imperative Program Verification in the Theorema System, June 2006. Contributed talk at the International Conference on Applications of Computer Algebra (ACA), Bulgaria.
79. Laura Kovács. Imperative Program Verification in Theorema, November 2005. Contributed talk at the Theorema-Ultra-Omega Workshop, University of Saarbrücken, Germany.
80. Laura Kovács and Tudor Jebelean. Polynomial Invariant Generation by Algebraic and Combinatorial Methods, December 2005. Contributed talk at the SFB Cooperation Meeting, Johannes Kepler University Linz.
81. Laura Kovács and Tudor Jebelean. Using Combinatorial and Algebraic Techniques for Automatic Generation of Loop Invariants, April 2005. Contributed talk at the SFB Statusseminar, Strobl, Austria.
82. Laura Kovács and Nikolaj Popov. Procedural Program Verification in Theorema, May 2003. Contributed talk at the Omega-Theorema Workshop, RISC-Linz, Austria.
83. Laura Kovács, Nikolaj Popov, and Tudor Jebelean. Verification of Imperative Programs in Theorema, April 2003. Contributed talk at the SFB Statusseminar, Strobl, Austria.

## 8 Poster Presentations

84. Pamina Georgiou, Bernhard Gleiss, Laura Kovács, and Matteo Maffei. Trace Reasoning for Formal Verification using the First-Order Superposition Calculus. Poster presentation at the FMCAD 2019 Student Forum, San Jose, US, 2019.
85. Laura Kovács and Tudor Jebelean. Combining Computer Algebra and Computational Logic for Imperative Program Verification in Theorema. Poster presentation at Calculemus 2006, Genova, Italy, 2006.

## 9 Popular Science Presentations

86. Laura Kovács. Formal Methods in the Digital World (in Hungarian). Invited Talk at the JégKépzés - Alumni Network and Presentations of Hungarian Scientists of the Bartók Béla Highschool, Timișoara, Romania, November 27, 2019.
87. Laura Kovács. Automated Reasoning for Rigorous Systems Engineering. Invited Talk at the RiSE/SHiNE Media Seminar, TU Wien, Vienna, Austria, May 7, 2018.
88. Laura Kovács. With Timișoara Background in the Scientific World of Computer Science. Invited Talk at the Hungarian Science Festival, Timișoara, Romania, 25-26 November, 2016.
89. Laura Kovács. Computer Proofs Finding Computer Errors. Contributed popular science talk at the International Science Festival Gothenburg, April 19, 2015.