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# CURRICULUM VITAE

Grigore Roşu

*Current Position:* Professor (UIUC), President&CEO (RV)

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## Research Interests

Design, semantics and implementation of programming and specification languages. Automated software engineering and formal methods, especially “push-button” techniques for certification, monitoring, synthesis and modularization. Automated reasoning about computer systems, applications of logics, theorem proving. Algorithms, (co)algebra, category theory.

## Education

Ph.D. in Computer Science	University of California at San Diego, 2000
M.S. in Fundamentals of Computing	University of Bucharest, Romania, 1996
B.A. in Mathematics	University of Bucharest, Romania, 1995

## Professional and Academic Experience

- 2014 to present. Professor. Department of Computer Science, University of Illinois at Urbana-Champaign, USA.
- 2011 to present. Adjunct Professor. Department of Computer Science, University Alexandru Ioan Cuza, Romania.
- 2010 to present. President, CEO and CTO of Runtime Verification, Inc.
- 2005 to present. Senior Researcher. Information Trust Institute, University of Illinois at Urbana-Champaign, USA.
- 2008 to 2014. Associate Professor. Department of Computer Science, University of Illinois at Urbana-Champaign, USA.

- 2008, August to December. Visiting Researcher. Microsoft Research, Redmond, Washington. On sabbatical leave from the University of Illinois.
- 2002-2008. Assistant Professor. Department of Computer Science, University of Illinois at Urbana-Champaign, USA.
- 2000-2002. Research Scientist. NASA Ames Research Center, California, USA. Automated Software Engineering Group, hired by the Research Institute for Advanced Computer Science of the Universities Space Research Association.
- Summer 2000. Instructor for “Data Structures & Algorithms”. Department of Computer Science & Engineering, University of California at San Diego, USA.
- 1996-2000. Research assistant, teaching assistant and Ph.D. student. Department of Computer Science & Engineering, University of California at San Diego, USA. Ph.D. and research adviser: Joseph Goguen.
- 1998-2002. Assistant Professor. Chair of Fundamentals of Computer Science, Department of Mathematics at the University of Bucharest, Romania.
- 1996-1998. Preparator. Chair of Fundamentals of Computer Science, Department of Mathematics at the University of Bucharest, Romania.
- 1995-1996. Teaching assistant, research assistant and M.S. student in Fundamentals of Computer Science, Department of Mathematics at the University of Bucharest, Romania. M.S. and research adviser: Virgil Emil Căzănescu.
- 1994-1996. Consultant to Automation Research Institute IPA, Romania. Working on European Community projects. Adviser and coordinator: Gheorghe Săndulescu.

## **Awards and Distinctions**

Reverse chronological order:

- RV 2018 test of time award for paper published in RV 2001. [Link]
- ACM SIGPLAN distinguished paper award at OOPSLA 2016. [Link]
- “Ad Astra” 2016 award for excellence in mathematics and computer science research. [Link]
- ASE 2016 most influential paper award for paper published in ASE 2001 [Link]
- ACM SIGSOFT distinguished paper award at ASE 2016. [Link]
- ASE 2015 distinguished reviewer award.
- “Dean’s Award for Excellence in Research”, 2014, offered by the College of Engineering of the University of Illinois at Urbana-Champaign. [Link]
- UIUC’s “Spring 2013 List of Teachers Ranked as Excellent by Their Students”. [Link]

- UIUC’s “Fall 2012 List of Teachers Ranked as Excellent by Their Students”. [Link]
- ACM SIGSOFT distinguished paper award at ASE 2008. [Link]
- UIUC’s “Spring 2008 List of Teachers Ranked as Excellent by Their Students”. [Link]
- “C.W. Gear Outstanding Junior Faculty Award”, 2005, offered by the Department of Computer Science of the University of Illinois at Urbana-Champaign for research/teaching accomplishments. [Link]
- “CAREER” award, under the program “Software Engineering and Languages” 2005, offered by the National Science Foundation (NSF). [Link]
- UIUC’s “Fall 2004 List of Teachers Ranked as Excellent by Their Students”. [Link]
- “European Association for the Study of Science and Technology” award winner for the best software science paper at ETAPS 2002. [Link]
- “Irina Gorun-Bercovici memorial prize”, 22 December 1997, offered by the Society of Mathematicians from Romania (once a year to a young researcher in computer science).
- 1<sup>st</sup> place, National Symposium “Info-Junior”, Iași 1995, Romania, with *Inclusive Equational Logics*.
- 2<sup>nd</sup> place, National Symposium “Info-Junior”, Iași 1993, Romania, with *Knuth-Bendix Completion in Prolog*.

## **Research Grants**

Summary: \$9,341,811 total funding, sometimes split among more PIs; \$7,032,144 of it allocated directly to my research group. Here is the complete list of my funded projects, in reverse chronological order, listing all the PIs (PI means I am/was the Principal Investigator, and co-PI means I am/was a co-Principal Investigator):

- (UIUC PI) “Efficient Runtime Monitors for Assured Autonomy”. Joint project with HRL. Defense Advanced Research Projects Agency (DARPA), team funded under the Assured Autonomy (AA) program, DARPA-BAA–HR 001117 S 0045, subcontract 17090-181687-US. The UIUC share is \$278,103 for the period 2018-2022. [Link]
- (PI) “ Formal Executable Semantics to EVM, Haskell and Plutus with Applications”. Input Output Honk Kong. \$100,000 for the period 2017-2018.
- (co-PI) “TWC: Small: Trustworthy Code Generation for the LLVM Compiler Infrastructure”, with Vikram Adve (PI). National Science Foundation (NSF), Proposal Number CNS-1619275. \$500,000 for the period 2016-2019. [Link]
- (PI) “Formal Analysis Tools for Cyber Security”. Boeing Corporation. \$350,000 for the period 2016-2017.
- (PI) “SHF: Small: Scalable and Maximal Predictive Runtime Verification for Concurrent Software”. National Science Foundation (NSF), Proposal Number CCF-1421575. \$500,000 for the period 2014-2017. [Link]

- (PI) “Formal Analysis Tools for Cyber Security”. Boeing Corporation. \$343,201 for the period 2014-2015.
- (co-PI) “SHF: Small: VeriF-OPT, a Verification Framework for Optimizations and Program Transformations”, with Elsa Gunter (PI). National Science Foundation (NSF), Proposal Number CCF-1318191. \$466,000 for the period 2013-2016. [Link]
- (PI) “Semantics-Based Analysis Framework for C”. Rockwell Collins. \$125,000 for the period 2012-2013.
- (UIUC PI) “Design and Assurance for the Modular Assembly of Sense Control – Actuate Systems (DAMASCAS)”. Joint project with SRI International. Defense Advanced Research Projects Agency (DARPA), team funded under the High-Assurance Cyber Military Systems (HACMS) program, contract FA8750-12-C-0284. The UIUC share is \$1,657,807 for the period 2012-2017. [Link]
- (co-PI) “Formal Analysis of Real-Time Distributed Systems”, with José Meseguer (PI) and Shobha Vasudevan (co-PI). Boeing, \$240,000 for the period 2012-2013.
- (PI) “SHF: Small: Usable Verification using Rewriting and Matching Logic”. National Science Foundation (NSF), Proposal Number CCF-1218605. \$400,000 for the period 2012-2015. [Link]
- (FSL group was a winner) “K Framework”. Google Summer of Code. \$24,000 for Summer 2012.
- (PI) UIUC Campus Research Board Award, 2010, \$9,250. [Link]
- (PI) “Formal Verification of C Programs using Rewriting Logic Semantics and Matching Logic”. National Security Agency (NSA), Proposal number UIeRA#2010-05814-00-00. \$754,100 for the period 2010-2013.
- (PI) “Static and Dynamic Analysis Tool for Testing Concurrent Embedded Systems”, with Darko Marinov (co-PI). Samsung SAIT, \$100,000 for one year, 2010.
- (co-PI) “SHF: Small: IMUnit: Improved Multithreaded Unit Testing”, with Darko Marinov (PI). National Science Foundation (NSF), Proposal Number CCF-0916893. \$500,000 for the period 2009-2012. [Link]
- (PI) “An Integrated Tool-Supported Framework for IVHM Monitoring, Control and Verification”. National Aeronautics and Space Administration (NASA) ARMD safety Program, Proposal number NNL08AA23C. \$900,000 for 2008-2010 (Qualtech Systems, Inc., is a 50% subcontractor). [Link]
- (co-PI) “CSR-EHS: Monitor and Control: Towards Dependable COTS-based Real-Time Embedded Systems”, with Marco Caccamo (PI). National Science Foundation (NSF), Proposal Number CNS-0720512. \$400,000 for the period 2007-2010. [Link]
- (PI) “Scalable Formal Methods for Distributed Systems”. Air Force / Small Business Technology Transfer (STTR), phase I award, Topic Number AF07-T019, Proposal Number F074-019-0162. Small business partner: Qualtech Systems, Inc. \$40,000 for the period 2007-2008.
- (PI) UIUC Campus Research Board Award, 2007, \$9,350.
- (PI) Microsoft grant, 2007. \$35,000 as unrestricted gift (Recommended by James Larus).

- (PI) Microsoft grant, 2007. \$15,000 as unrestricted gift (Recommended by Tom Ball).
- (PI) Microsoft grant, 2005. \$10,000 as unrestricted gift (Recommended by Wolfram Schulte).
- (PI) C.W. Gear Outstanding Junior Faculty award. Department of Computer Science, University of Illinois at Urbana-Champaign. \$5,000 as unrestricted gift.
- (co-PI) “CSR—SMA: Dynamic Analysis and Control for Robust Scalable Open Distributed Systems”, with Gul Agha (PI) and Mahesh Viswanathan (co-PI). National Science Foundation (NSF), Proposal Number CNS-0509321. \$700,000 for the period 2005-2009. [Link]
- (PI) “CAREER: Runtime Verification and Monitoring”. National Science Foundation (NSF), Proposal Number CCF-0448501. \$400,000 for the period 2005-2010. [Link]
- (PI) “Scalable Formal Methods for Multidimensional Components”, with José Meseguer (co-PI). National Aeronautics and Space Administration (NASA), cooperative agreement NNA04CI49A, \$80,000 for the period 2003-2004.
- (PI) “Scalable Formal Methods for Multidimensional Components”, with José Meseguer (co-PI). National Science Foundation (NSF), Proposal Number CCF-0234524. \$400,000 for the period 2002-2006. [Link]

## Visiting Positions

- August - December (5 months) 2008. Sabbatical.  
Microsoft Research, Redmond, hosted by Wolfram Schulte.
- 7-17 December 2001  
University of Illinois at Urbana-Champaign, hosted by José Meseguer.

## Patents

- Shinichi Shiraishi, Grigore Roşu, Philip Daian, Akihito Iwai and Yuki Mae. “Fleet-Wide Monitoring System for Vehicles”. United States Patent No. US xx,xxx,xxx (to be assigned; application no. 15/227,422). This patent covers technology incorporated in RV-ECU. Allowance issued on 2019-12-05.
- Shinichi Shiraishi, Grigore Roşu, Philip Daian, Akihito Iwai and Yuki Mae. “Efficient Over-the-Air Software Update for a Connected Vehicle”. United States Patent No. US 10,203,947. This patent covers technology incorporated in RV-ECU. Granted on 2019-02-12.
- Jeff Huang and Grigore Roşu. “Maximizing Concurrency Bug Detection in Multithreaded Software Programs”. United States Patent No. US 9,792,161. This patent covers the technology incorporated in RV-Predict. Granted on 2017-10-17.
- Grigore Roşu, Feng Chen and Patrick Meredith. “Parametric Trace Slicing”. United States Patent No. US 8,719,796 B2. This patent covers the technology incorporated in JavaMOP and RV-Monitor. Granted on 2014-05-06.

## Publications

All papers are available on line from <http://fsl.cs.illinois.edu/grosu>. Most of them also from my Google Scholar entry at <http://scholar.google.com/citations?user=yxpqbdQAAAAJ>.

## **Journal Papers**

- 1) Owolabi Legunsen, Nader Al Awar, Xinyue Xu, Wajih Ul Hassan, Grigore Roşu, Darko Marinov. “How effective are existing Java API specifications for finding bugs during runtime verification?”, *Automated Software Engineering*, Volume 26, Issue 4, 2019, pages 795-837.
- 2) Chris Hathhorn and Grigore Roşu. “Dealing With C’s Original Sin”, *IEEE Software*, Volume 36, Issue 5, 2019, pages 24-28.
- 3) Andrei Ştefănescu, Ştefan Ciobăcă, Radu Mereuţă, Brandon M. Moore, Traian Florin Şerbănuţă and Grigore Roşu. “All-Path Reachability Logic”, *Logical Methods in Computer Science*, Volume 15, Issue 2, 2019, pages 5:1-5:23.
- 4) Ezio Bartocci, Yliès Falcone, Borzoo Bonakdarpour, Christian Colombo, Normann Decker, Klaus Havelund, Yogi Joshi, Felix Klaedtke, Reed Milewicz, Giles Reger, Grigore Roşu, Julien Signoles, Daniel Thoma, Eugen Zalinescu and Yi Zhang. “First international Competition on Runtime Verification: rules, benchmarks, tools, and final results of CRV 2014”. *Software Tools for Technology Transfer*, Volume 21, Issue 1, 2019, pages 31-70.
- 5) Grigore Roşu. “Finite-trace linear temporal logic: coinductive completeness”, *Formal Methods in System Design*, Volume 53, Issue 1, 2018, pages 138-163.
- 6) Grigore Roşu. “Matching Logic”, *Logical Methods in Computer Science*, Volume 13, Issue 4, 2017, pages 1-61.
- 7) Ştefan Ciobăcă, Dorel Lucanu, Vlad Rusu and Grigore Roşu. “A Language-Independent Proof System for Full Program Equivalence”, *Journal of Formal Aspects of Computing*, Volume 28, Issue 2, 2016, pages 469-497.
- 8) Vlad Rusu, Dorel Lucanu, Traian Florin Şerbănuţă, Andrei Arusoai, Andrei Ştefănescu and Grigore Roşu. “Language Definitions as Rewrite Theories”, *Journal of Logical and Algebraic Methods in Programming*, Volume 85, Issue 1, Part 1, 2016, pages 98-120.
- 9) Andrei Popescu and Grigore Roşu. “Term-Generic Logic”, *Theoretical Computer Science*, Volume 577, Issue 1, 2015, pages 1-24.
- 10) Joerg Endrullis, Dimitri Hendriks, Rena Bakhshi and Grigore Roşu. “On the Complexity of Stream Equality”, *Journal of Functional Programming*, Volume 24, Issue 2-3, 2014, pages 166-217.
- 11) José Meseguer and Grigore Roşu. “The Rewriting Logic Semantics Project: A Progress Report”, *Information and Computation*, Volume 231, 2013, pages 38-69.
- 12) Grigore Roşu. “On Safety Properties and Their Monitoring”, *Scientific Annals of Computer Science*, Volume 22, Issue 2, 2012, pages 327-365.

- 13) Patrick Meredith, Dongyun Jin, Dennis Griffith, Feng Chen and Grigore Roşu. “An Overview of the MOP Runtime Verification Framework”, *Software Tools for Technology Transfer*, Volume 14, Issue 3, 2012, pages 249-289.
- 14) Grigore Roşu and Feng Chen. “Semantics and Algorithms for Parametric Monitoring”, *Logical Methods in Computer Science*, Volume 8, Issue 1, 2012, pages 1-47.
- 15) Grigore Roşu and Traian Florin Şerbănuţă. “An Overview of the K Semantic Framework”, *Logic and Algebraic Programming*, Volume 79, Issue 6, 2010, pages 397-434.
- 16) Patrick Meredith, Dongyun Jin, Feng Chen and Grigore Roşu. “Efficient Monitoring of Parametric Context-Free Patterns”, *Automated Software Engineering*, Volume 17, Number 2, 2010, pages 149-180.
- 17) Andrei Popescu, Traian Florin Şerbănuţă and Grigore Roşu. “A Semantic Approach to Interpolation”, *Theoretical Computer Science*, Volume 410, Issues 12-13, 2009, pages 1109-1128.
- 18) Traian Florin Şerbănuţă, Grigore Roşu and José Meseguer. “A Rewriting Logic Approach to Operational Semantics”, *Information and Computation*, Volume 207, Number 2, 2009, pages 305-340.
- 19) José Meseguer and Grigore Roşu. “The Rewriting Logic Semantics Project”. *Theoretical Computer Science*, Volume 373, Number 3, 2007, pages 213-237.
- 20) Grigore Roşu and Koushik Sen. “An Instrumentation Technique for Online Analysis of Multithreaded Systems”. *Concurrency and Computation: Practice and Experience*, Volume 19, Number 3, March 2007, pages 311-325.
- 21) Koushik Sen, Gul Agha and Grigore Roşu. “Online Efficient Predictive Safety Analysis of Multithreaded Programs”. *Software Tools and Technology Transfer*, Volume 8, Number 3, June 2006, pages 248-260.
- 22) Marcelo d’Amorim and Grigore Roşu. “An Equational Specification for the Scheme Language”. *Universal Computer Science*, Volume 11, Number 7, 2005, pages 1327-1348.
- 23) Cyrille Artho, Howard Barringer, Allen Goldberg, Klaus Havelund, Sarfraz Khurshid, Michael Lowry, Corina Păsăreanu, Grigore Roşu, Koushik Sen, Willem Visser, Rich Washington. “Combining Test Case Generation and Runtime Verification”, *Theoretical Computer Science*, Volume 336, Numbers 2-3, 26 May 2005, pages 209-234.
- 24) Grigore Roşu and Klaus Havelund. “Rewriting-based Techniques for Runtime Verification”. *Automated Software Engineering*, Volume 12, Number 2, 2005, pages 151-197. Parts of this paper have been published as “Synthesizing Dynamic Programming Algorithms from Linear Temporal Logic Formulae”, *RIACS Technical Report TR 01-15*, May 2001, and as “Testing Linear Temporal Logic Formulae on Finite Execution Traces”, *RIACS Technical Report TR 01-08*, May 2001.
- 25) Grigore Roşu. “Behavioral Abstraction is Hiding Information”. *Theoretical Computer Science*, Volume 327, Number 1-2, 2004, pages 197-221.
- 26) Klaus Havelund and Grigore Roşu. “Efficient Monitoring of Safety Properties”. *Software Tools and Technology Transfer*, Volume 6, Number 2, 2004, pages 158-173.

- 27) Klaus Havelund and Grigore Roşu. “An Overview of the Runtime Verification Tool Java PathExplorer”. *Formal Methods in System Design*, Volume 24, Number 2, 2004, pages 189-215.
- 28) Joseph Goguen and Grigore Roşu. “Institution Morphisms”. *Formal Aspects of Computing*, Volume 13, Numbers 3-5, 2002, pages 274-307.
- 29) Grigore Roşu. “Axiomatizability in Inclusive Equational Logic”. *Mathematical Structures in Computer Science*, Volume 12, Number 5, 2002.
- 30) Grigore Roşu. “Equational Axiomatizability for Coalgebra”. *Theoretical Computer Science*, Volume 260, Numbers 1-2, 2001, pages 229-247.
- 31) Virgil Emil Căzănescu and Grigore Roşu. “Weak Inclusion Systems; Part Two”. *Universal Computer Science*, Volume 6, Number 1, 2000, pages 5-21.
- 32) Grigore Roşu and Joseph Goguen. “On Equational Craig Interpolation”. *Universal Computer Science*, Volume 6, Number 1, 2000, pages 194-200.
- 33) Grigore Roşu. “Kan Extensions of Institutions”. *Universal Computer Science*, Volume 5, Number 8, 1999, pages 482-493.
- 34) Virgil Emil Căzănescu and Grigore Roşu. “Weak Inclusion Systems”. *Mathematical Structures in Computer Science*, Volume 7, Number 2, 1997, pages 195-206.

### **Editing: Proceedings Books**

- 35) Grigore Roşu, Massimiliano Di Penta, Tien N. Nguyen. “Automated Software Engineering”, proceedings of the 32<sup>nd</sup> IEEE/ACM International Conference on ASE 2017, held on 30 October - 03 November 2017, Urbana, IL, USA. *IEEE Computer Society*, ISBN 978-1-5386-2684-9, 2017.
- 36) Holger Giese and Grigore Roşu. “Formal Techniques for Distributed Systems”, proceedings book of the joint 14<sup>th</sup> IFIP WG 6.1 International Conference FMOODS 2012 and 32<sup>nd</sup> IFIP WG 6.1 International Conference FORTE 2012, held on 13-16 June 2012, Stockholm, Sweden. *Lecture Notes in Computer Science*, Volume 7273, 2012.
- 37) Howard Barringer, Ylies Falcone, Bernd Finkbeiner, Klaus Havelund, Insup Lee, Gordon Pace, Grigore Roşu, Oleg Sokolsky, Nikolai Tillmann. “Runtime Verification 2010 (RV’10)”, proceedings book of the First International Conference on Runtime Verification held on 1-4 November, 2010, in Malta. *Lecture Notes in Computer Science*, Volume 6418, 2010.
- 38) Grigore Roşu. “Rewriting Logic and its Applications”, proceedings book of the 7<sup>th</sup> International Workshop on Rewriting Logic and its Applications (WRLA’08), a satellite workshop to ETAPS’08 held on 29-30 March 2008, Budapest, Hungary. *Electronic Notes in Theoretical Computer Science*, Volume 238, Number 3, 2009.
- 39) Bernd Finkbeiner, Klaus Havelund, Grigore Roşu and Oleg Sokolsky. “Runtime Verification, 02.01.2007 - 06.01.2007”, proceedings of a Dagstuhl seminar. Internationales Begegnungs- und Forschungszentrum fuer Informatik (IBFI), Schloss Dagstuhl, Germany, Volume 07011, 2008.



- 40) José Meseguer and Grigore Roşu. “Algebraic Methodology and Software Technology”, proceedings book of the 12<sup>th</sup> International AMAST Conference, AMAST’08, held on 28-31 July 2008, Urbana, Illinois, USA. *Lecture Notes in Computer Science*, Volume 5140, 2008.
- 41) Klaus Havelund, Manuel Nunez, Grigore Roşu and Burkhart Wolff. “Formal Aspects of Testing and Runtime Verification (FATES/RV’06)”, proceedings book of a satellite workshop to FLOC’04 held on 15-16 August 2006, Seattle, USA. *Lecture Notes in Computer Science*, Volume 4262, 2006.
- 42) Klaus Havelund and Grigore Roşu. “Runtime Verification 2004 (RV’04)”, proceedings book of a satellite workshop to TACAS’04 at ETAPS’04 held on 3 April 2004, Barcelona, Spain. *Electronic Notes in Theoretical Computer Science*, Volume 113, 2005.
- 43) Klaus Havelund and Grigore Roşu. “Runtime Verification 2002 (RV’02)”, proceedings book of a satellite workshop to CAV’02 held on 26 July 2002, Copenhagen, Denmark. *Electronic Notes in Theoretical Computer Science*, Volume 70.4, 2002.
- 44) Klaus Havelund and Grigore Roşu. “Runtime Verification 2001 (RV’01)”, proceedings book of a satellite workshop to CAV’01 held on 23 July 2001, Paris, France. *Electronic Notes in Theoretical Computer Science*, Volume 55.2, 2001.

### **Editing: Special Issues of Journals**

- 45) Oleg Sokolsky and Grigore Roşu. “Runtime Verification”. Special issue of the International Journal on *Formal Methods in System Design*, by Springer US, Volume 41, Number 3, 2012. Includes the best papers at the First Runtime Verification Conference held in St. Julians, Malta, 1-4 November 2010.
- 46) Narciso Marti-Oliet, Grigore Roşu and Carolyn Talcott. “Rewriting Logic and its Applications”. Special issue of the International Journal on *Higher-Order and Symbolic Computation*, by Springer, Volume 20, issue 1/2, 2007. Dedicated to the 6<sup>th</sup> International Workshop on Rewriting Logic and its Applications held in Vienna, Austria, 1-2 April, 2006. Satellite event to ETAPS’06.
- 47) Klaus Havelund and Grigore Roşu. “Runtime Verification”. Special issue of the International Journal on *Formal Methods in System Design*, by Kluwer Academic Publishers, Volume 27, Number 3, 2005. Dedicated to the 2<sup>nd</sup> Runtime Verification Workshop held in Copenhagen, Denmark, 26 July 2002. Satellite event to CAV’02.
- 48) Klaus Havelund and Grigore Roşu. “Runtime Verification”. Special issue of the International Journal on *Formal Methods in System Design*, by Kluwer Academic Publishers, Volume 24, Number 2, 2004. Dedicated to the First Runtime Verification Workshop held in Paris, France, 23 July 2001. Satellite event to CAV’01.

### **Invited Book Contributions**

- 49) Klaus Havelund, Giles Reger and Grigore Roşu. “Runtime Verification Past Experiences and Future Projections”. Chapter in *Computing and Software Science: State of the Art and Perspectives*. *Lecture Notes in Computer Science*, Volume 10000, pages 532-562. Springer International Publishing, 2019.
- 50) Klaus Havelund and Grigore Roşu. “Runtime Verification - 17 Years Later”. Invited paper and presentation associated to the *test of time award* at RV’18 for a paper published in RV’01 [Link]. *Lecture Notes in Computer Science*, Volume 11237, pages 3-17. Springer 2018.

- 51) Grigore Roşu. “ $\mathbb{K}$ : A Semantic Framework for Programming Languages and Formal Analysis Tools”. *Dependable Software Systems Engineering*, 2017, pages 186-206. Lecture notes of class/seminar held at the Marktoberdorf Summer School 2016.
- 52) Dorel Lucanu, Traian Florin Şerbănuţă and Grigore Roşu. “Towards a Kool Future”. Theory and Practice of Formal Methods: Essays Dedicated to Frank de Boer on the Occasion of His 60th Birthday, April 3, 2016. *Lecture Notes in Computer Science*, Volume 9660, pages 325-343. Springer 2016.
- 53) Grigore Roşu. “From Rewriting Logic, to Programming Language Semantics, to Program Verification”. Logic, Rewriting, and Concurrency: Festschrift Symposium in Honor of José Meseguer, Urbana, Illinois, USA, September 23-25, 2015. *Lecture Notes in Computer Science*, Volume 9200, pages 589-616. Springer 2015.
- 54) Grigore Roşu and Dorel Lucanu. “Behavioral Rewrite Systems and Behavioral Productivity”. Specification, Algebra, and Software: A Festschrift Symposium in Honor of Kokichi Futatsugi (SAS 2014), Kanazawa, Japan, 14-16 April 2014. *Lecture Notes in Computer Science*, Volume 8373, pages 296-314. Springer 2014.
- 55) José Meseguer and Grigore Roşu. “Computational Logical Frameworks and Generic Program Analysis Technologies”. In *Verified Software: Theories, Tools, Experiments*. Edited by Tony Hoare and Jay Misra. *Lecture Notes in Computer Science*, Volume 4171, pages 256-267. Springer 2008.
- 56) Grigore Roşu. “Complete Categorical Deduction for Satisfaction as Injectivity”. In *Algebra, Meaning, and Computation: A Festschrift Symposium in Honor of Joseph Goguen, 2006*. Edited by Kokichi Futatsugi, Jean-Pierre Jouannaud, José Meseguer. *Lecture Notes in Computer Science*, Volume 4060, pages 157-172. Springer 2006.
- 57) Joseph Goguen and Grigore Roşu. “Composing Hidden Information Modules over Inclusive Institutions”. In *Essays in Memory of Ole-Johan Dahl, 2004*. Edited by O. Owe, S. Krogdahl and T. Lyche. *Lecture Notes in Computer Science*, Volume 2635, pages 96-123. Springer 2004.
- 58) Joseph Goguen, Kai Lin, Akira Mori, Grigore Roşu and Bogdan Warinschi. “An Overview of the Tatami Project”. Chapter 3 of *Cafe: An Industrial-Strength Algebraic Formal Method*, pages 61-78. Edited by Kokichi Futatsugi, Tetsuo Tamai and Ataru Nakagawa. Elsevier, 2000.

### Invited Talk Papers

- 59) Xiaohong Chen and Grigore Roşu. “Matching  $\mu$ -Logic: Foundation of K Framework”. Proceedings of the 8<sup>th</sup> International Conference on Algebra and Coalgebra in Computer Science, CALCO’19, London, UK, 3-7 June 2019, pages 1:1-1:4.
- 60) Grigore Roşu. “Formal Design, Implementation and Verification of Blockchain Languages”. Proceedings of the 3<sup>rd</sup> International Conference on Formal Structures for Computation and Deduction, FSCD’18, Oxford, UK, 9-12 July 2018, pages 2:1–2:6.
- 61) Grigore Roşu. “Matching Logic — Extended Abstract”. Proceedings of the 26<sup>th</sup> International Conference on Rewriting Techniques and Applications, RTA’15, Warsaw, Poland, 29 June - 3 July 2015. *Leibniz International Proceedings in Informatics (LIPIcs)*, Volume 36, 2015, pages 5–21, Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik 2015.

- 62) Grigore Roşu. “Specifying Languages and Verifying Programs with K”. Proceedings of the 16<sup>th</sup> International Symposium on *Symbolic and Numeric Algorithms for Scientific Computing, SYNASC’13*, Timisoara, Romania, 23-26 September 2013. IEEE, 2014, pages 28–31.
- 63) José Meseguer and Grigore Roşu. “The Rewriting Logic Semantics Project: A Progress Report”. Proceedings of the 17<sup>th</sup> *International Symposium on Fundamentals of Computation Theory, FCT’11*, Oslo, Norway, 22-25 August 2011. *Lecture Notes in Computer Science*, Volume 6914, 2011, pages 1–37. Springer 2011.
- 64) Feng Chen, Dongyun Jin, Patrick Meredith and Grigore Roşu. “Monitoring-Oriented Programming: A Project Overview”. Proceedings of the 4<sup>th</sup> *International Conference on Intelligent Computing and Information Systems*, Cairo, Egypt, 19-22 March 2009. ACM.
- 65) Grigore Roşu. “K: a Rewrite-based Framework for Modular Language Design, Semantics, Analysis and Implementation”. Proceedings of the 8<sup>th</sup> Spanish Conference on *Programming and Computer Languages, PROLE’08*, Gijón, Spain, 7-10 October 2008. Page 1 (a one-page abstract).
- 66) José Meseguer and Grigore Roşu. “The Rewriting Logic Semantics Project”. Proceedings of the 2<sup>nd</sup> Workshop on *Structural Operational Semantics, SOS’05*, Lisbon, Portugal, 10 July 2005. *Electronic Notes in Theoretical Computer Science*, Volume 156.1, 15 May 2006, pages 27-56.
- 67) José Meseguer and Grigore Roşu. “Rewriting Logic Semantics: From Language Specifications to Formal Analysis Tools”. Proceedings of the 2<sup>nd</sup> *International Joint Conference on Automated Reasoning, IJCAR’04*, Cork, Ireland, 4-8 July 2004. *Lecture Notes in Computer Science*, Volume 3097, 2004, pages 1–44.
- 68) Cyrille Artho, Doron Drusinski, Allen Goldberg, Klaus Havelund, Michael Lowry, Corina Păsăreanu, Grigore Roşu and Willem Visser. “Experiments with Test Case Generation and Runtime Analysis”. Proceedings of the 10th International Workshop on *Abstract State Machines, ASM’03*, Taormina, Italy, 3-7 March 2003. *Lecture Notes in Computer Science*, Volume 2589, 2004, pages 87-107.
- 69) José Meseguer and Grigore Roşu. “Towards Behavioral Maude: Behavioral Membership Equational Logic”. Proceedings of *Coalgebraic Methods in Computer Science, CMCS’02*, Grenoble, France, 6-7 April 2002. *Electronic Notes in Theoretical Computer Science*, Volume 65.1, 2002.
- 70) Joseph Goguen, Kai Lin and Grigore Roşu. “Behavioral and Coinductive Rewriting”. Proceedings of the 3<sup>rd</sup> *Workshop on Rewriting Logic and its Applications, WRLA’00*, Kanazawa, Japan, 19 September 2000. *Electronic Notes in Theoretical Computer Science*, Volume 36, 2000.
- 71) Joseph Goguen and Grigore Roşu. “A Protocol for Distributed Cooperative Work”. Proceedings of *Workshop on Distributed Systems, WDS’99*, Iaşi, Romania, 2 September 1999. *Electronic Notes in Theoretical Computer Science*, Volume 28, 1999.

## Major Conference Papers

- 72) **[FM’19]** Theodoros Kasampalis, Dwight Guth, Brandon M. Moore, Traian Florin Şerbănuţă, Yi Zhang, Daniele Filaretti, Virgil Şerbănuţă, Ralph Johnson and Grigore Roşu. “IELE: A Rigorously Designed Language and Tool Ecosystem for the Blockchain”. Proceedings of the 25<sup>th</sup> International Symposium on *Formal Methods, FM’19*, Porto, Portugal, 7-11 October 2019. *Lecture Notes in Computer Science*, Volume 11800, 2019, pages 593-610. Acceptance rate 39/129 (30%).

- 73) **[LICS'19]** Xiaohong Chen and Grigore Roşu. “Matching  $\mu$ -logic”. Proceedings of the 34<sup>th</sup> Annual ACM/IEEE Symposium on *Logic In Computer Science, LICS 2019*, Vancouver, Canada, 24-27 June 2019. ACM/IEEE, 2019. Acceptance rate 60/154 (39%).
- 74) **[ICST'19]** Owolabi Legunsen, Yi Zhang, Milica Hadzi-Tanovic, Grigore Roşu and Darko Marinov. “Techniques for Evolution-Aware Runtime Verification”. Proceedings of the 12<sup>th</sup> *IEEE Conference on Software Testing, Validation and Verification, ICST'19*, Xi'an, China, 22-27 April 2019. IEEE 2019, pages 300-311. Acceptance rate 31/110 (28%).
- 75) **[PLDI'19]** Sandeep Dasgupta, Daejun Park, Theodoros Kasampalis, Vikram S. Adve and Grigore Roşu. “A complete formal semantics of x86-64 user-level instruction set architecture”. Proceedings of the 40<sup>th</sup> ACM SIGPLAN conference on *Programming Language Design and Implementation, PLDI'19*, Phoenix, Arizona, USA, 22-26 June, 2019. ACM 2019, pages 1133-1148. Acceptance rate 76/281 (27%).
- 76) **[CSF'18]** Everett Hildenbrandt, Manasvi Saxena, Nishant Rodrigues, Xiaoran Zhu, Philip Daian, Dwight Guth, Brandon M. Moore, Daejun Park, Yi Zhang, Andrei Ştefănescu and Grigore Roşu. “KEVM: A Complete Formal Semantics of the Ethereum Virtual Machine”. Proceedings of the 31<sup>st</sup> *IEEE Computer Security Foundations Symposium, CSF 2018*, Oxford, United Kingdom, July 9-12, 2018. IEEE Computer Society 2018, pages 204-217. Acceptance rate 25/72 (35%).
- 77) **[ESOP'18]** Brandon M. Moore, Lucas Pena and Grigore Roşu. “Program Verification by Coinduction”. Proceedings of the 27<sup>th</sup> *European Symposium on Programming, ESOP'18*, Thessaloniki, Greece, 14-20 April 2018. *Lecture Notes in Computer Science*, Volume 10801, Springer 2018, pages 589-618. Acceptance rate 144/479 (30%).
- 78) **[ESEC/FSE'18]** Daejun Park, Yi Zhang, Manasvi Saxena, Philip Daian and Grigore Roşu. “A formal verification tool for Ethereum VM bytecode”. Proceedings of the 2018 ACM Joint Meeting on *European Software Engineering Conference and Symposium on the Foundations of Software Engineering, ESEC/SIGSOFT FSE 2018*, Lake Buena Vista, FL, USA, 4-9 November 2018. ACM, pages 912-915, 2018. Acceptance rate 61/295 (21%).
- 79) **[CAV'16]** Dwight Guth, Chris Hathhorn, Manasvi Saxena and Grigore Roşu. “RV-Match: Practical Semantics-Based Program Analysis”. Proceedings of the 28<sup>th</sup> International Conference on *Computer Aided Verification, CAV'16*, Toronto, ON, Canada, 17-23 July 2016. *Lecture Notes in Computer Science*, Volume 9779, Springer 2016, pages 447-453. Acceptance rate 58/195 (30%).
- 80) **[ASE'16]** Owolabi Legunsen, Wajih Ul Hassan, Xinyue Xu, Grigore Roşu and Darko Marinov. “How good are the specs? a study of the bug-finding effectiveness of existing Java API specifications”. Proceedings of the 31<sup>st</sup> *IEEE/ACM International Conference on Automated Software Engineering, ASE'16*, Singapore, 3-7 September 2016. ACM, pages 602-613, 2016. ACM SIGSOFT **distinguished paper award**. Acceptance rate 71/353 (20%).
- 81) **[OOPSLA'16]** Andrei Ştefănescu, Daejun Park, Shijiao Yuwen, Yilong Li and Grigore Roşu. “Semantics-based program verifiers for all languages”. Proceedings of the 2016 ACM SIGPLAN International Conference on *Object-Oriented Programming, Systems, Languages, and Applications, OOPSLA'16*, part of SPLASH'16, Amsterdam, The Netherlands, 30 October - 4 November 2016. ACM, pages 74-91, 2016. ACM SIGPLAN **distinguished paper award**. Acceptance rate 52/203 (25.6%).

- 82) **[PLDI'15]** Daejun Park, Andrei Ştefănescu and Grigore Roşu. “KJS: A Complete Formal Semantics of JavaScript”. Proceedings of the 36<sup>th</sup> ACM SIGPLAN conference on *Programming Language Design and Implementation, PLDI'15*, Portland, Oregon, 13-17 June 2015. ACM 2015. Acceptance rate 58/303 (19%).
- 83) **[PLDI'15]** Chris Hathhorn, Chucky Ellison and Grigore Roşu. “Defining the Undefinedness of C”. Proceedings of the 36<sup>th</sup> ACM SIGPLAN conference on *Programming Language Design and Implementation, PLDI'15*, Portland, Oregon, 13-17 June 2015. ACM 2015. Acceptance rate 58/303 (19%).
- 84) **[ICSE'15]** Jeff Huang, Qingzhou Luo and Grigore Roşu. “GPredict: Generic Predictive Concurrency Analysis”. Proceedings of the 37<sup>th</sup> *International Conference on Software Engineering, ICSE'11*, Florence, Italy, 16-24 May 2015. ACM 2015. Acceptance rate 84/452 (18.5%).
- 85) **[ICSE/NIER'15]** Owolabi Legunsen, Darko Marinov and Grigore Roşu. “Evolution-Aware Monitoring-Oriented Programming”. Proceedings of the 37<sup>th</sup> *International Conference on Software Engineering, ICSE'15 (New Ideas and Emerging Results Track)*, Florence, Italy, 21 May 2015. ACM 2015. Acceptance rate for the NIER track 25/135 (18%).
- 86) **[POPL'15]** Denis Bogdănaş and Grigore Roşu. “K-Java: A Complete Semantics of Java”. Proceedings of the 42<sup>nd</sup> ACM SIGPLAN-SIGACT Symposium on *Principles of Programming Languages, POPL'15*, Mumbai, India, 12-18 January, 2015. ACM, pages 445-456, 2015. Acceptance rate 52/227 (22.9%).
- 87) **[RTA-TLCA'14]** Andrei Ştefănescu, Ştefan Ciobăcă, Radu Mereuţă, Brandon M. Moore, Traian Florin Şerbănuţă and Grigore Roşu. “All-Path Reachability Logic”. Proceedings of the 25<sup>th</sup> International Conference on *Rewriting Techniques and Applications, RTA'14*, and 12<sup>th</sup> International Conference on *Typed Lambda Calculus and Applications, TLCA'14*, Vienna, Austria, 14-17 July 2014. *Lecture Notes in Computer Science*, Volume 8560, 2014, pages 425-440. Acceptance rate 31/87 (35.6%).
- 88) **[ICFEM'14]** Ştefan Ciobăcă, Dorel Lucanu, Vlad Rusu and Grigore Roşu. “A Language-Independent Proof System for Mutual Program Equivalence”. Proceedings of the 16<sup>th</sup> International Conference on *Formal Engineering Methods, ICFEM'14*, Luxembourg, 3-7 November 2014. *Lecture Notes in Computer Science*, Volume 8829, 2014, pages 75-90. Acceptance rate 28/73 (38.4%).
- 89) **[RV'14]** Qingzhou Luo, Yi Zhang, Choongwan Lee, Dongyun Jin, Patrick Meredith, Traian Florin Şerbănuţă and Grigore Roşu. “RV-Monitor: Efficient Parametric Runtime Verification with Simultaneous Properties”. Proceedings of the 14<sup>th</sup> International Conference on *Runtime Verification, RV'14*, Toronto, Canada, 22-25 September 2014. *Lecture Notes in Computer Science*, Volume 8732, 2014, pages 285-300. Acceptance rate for regular papers 17/57 (29.8%).
- 90) **[PLDI'14]** Jeff Huang, Patrick Meredith, and Grigore Roşu. “Maximal Sound Predictive Race Detection with Control Flow Abstraction”. Proceedings of the 35<sup>th</sup> annual ACM SIGPLAN conference on *Programming Language Design and Implementation, PLDI'14*, Edinburgh, UK, ACM, 9-11 June 2014. Acceptance rate 52/287 (18.1%).
- 91) **[ASE'13]** Patrick Meredith and Grigore Roşu. “Efficient Parametric Runtime Verification with Deterministic String Rewriting”. Proceedings of the 28<sup>th</sup> IEEE/ACM International Conference on *Automated Software Engineering, ASE'13*, Palo Alto, California, USA, 11-15 November 2013. IEEE/ACM, pages 70-80. Acceptance rate 74/317 (23.3%).

- 92) **[ISSTA'13]** Qingzhou Luo and Grigore Roşu. “EnforceMOP: A Runtime Property Enforcement System for Multithreaded Programs”. Proceedings of the *International Symposium in Software Testing and Analysis, ISSTA 2013*, Lugano, Switzerland, 15-20 July 2013. ACM, pages 156-166. Acceptance rate 32/124 (25.8%).
- 93) **[LICS'13]** Grigore Roşu, Andrei Ştefănescu, Ştefan Ciobăcă, and Brandon M. Moore. “One-Path Reachability Logic”. Proceedings of the 28<sup>th</sup> Annual ACM/IEEE Symposium on *Logic In Computer Science, LICS 2013*, New Orleans, USA, 25-28 June 2013. ACM/IEEE, pages 358-367, 2013. Acceptance rate 57/165 (34.5%).
- 94) **[OOPSLA'12]** Grigore Roşu and Andrei Ştefănescu. “Checking reachability using matching logic”. Proceedings of the 27<sup>th</sup> Annual ACM SIGPLAN Conference on *Object-Oriented Programming, Systems, Languages, and Applications, OOPSLA 2012*, part of SPLASH 2012, Tucson, AZ, USA, 21-25 October 2012. ACM, pages 555-574, 2012. Acceptance rate 57/228 (25%).
- 95) **[FM'12]** Grigore Roşu and Andrei Ştefănescu. “From Hoare Logic to Matching Logic”. Proceedings of the 18<sup>th</sup> International Symposium on *Formal Methods, FM'12*, Paris, France, 27-31 August 2012. *Lecture Notes in Computer Science*, Volume 7436, 2012, pages 387-402. Acceptance rate 35/132 (26.5%).
- 96) **[FM'12]** David Lazar, Andrei Arusoaie, Traian Florin Şerbănuţă, Chucky Ellison, Dorel Lucanu, and Grigore Roşu. “Executing Formal Semantics with the K Tool” Proceedings of the 18<sup>th</sup> International Symposium on *Formal Methods, FM'12*, Paris, France, 27-31 August 2012. *Lecture Notes in Computer Science*, Volume 7436, 2012, pages 267-271. Acceptance rate 35/132 (26.5%).
- 97) **[ICALP'12]** Grigore Roşu and Andrei Ştefănescu. “Towards a Unified Theory of Operational and Axiomatic Semantics”. Proceedings of the 39<sup>th</sup> *International Colloquium on Automata, Languages and Programming, ICALP'12*, Warwick, U.K., 9-13 July 2012. *Lecture Notes in Computer Science*, Volume 7392, 2012, pages 351-363. Acceptance rate 30/105 (28.6%).
- 98) **[ICSE/TOOL'12]** Dongyun Jin, Patrick Meredith, Choonghwan Lee, and Grigore Roşu. “JavaMOP: Efficient Parametric Runtime Monitoring Framework” Proceedings of the 34<sup>th</sup> *International Conference on Software Engineering, ICSE'12*, Zurich, Switzerland, 2-9 June 2012. ACM/IEEE, pages 1427-1430, 2012. Acceptance rate for tool demo papers 16/52 (31%).
- 99) **[POPL'12]** Chucky Ellison and Grigore Roşu. “An Executable Formal Semantics of C with Applications”. Proceedings of the 39<sup>th</sup> ACM SIGPLAN-SIGACT Symposium on *Principles of Programming Languages, POPL'12*, Philadelphia, USA, 25-27 January, 2012. ACM, pages 533-544, 2012. Acceptance rate 44/205 (21.5%).
- 100) **[ESEC/FSE'11]** Vilas Jagannath, Milos Gligoric, Dongyun Jin, Qingzhou Luo, Grigore Roşu, Darko Marinov. “Improved Multithreaded Unit Testing”. Proceedings of the 8<sup>th</sup> joint meeting of the *European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering, ESEC/FSE 2011*, Szeged, Hungary, 5-9 September 2011. ACM, pages 223-233, 2011. Acceptance rate 34/203 (17%).
- 101) **[PLDI'11]** Dongyun Jin, Patrick Meredith, Dennis Griffith and Grigore Roşu. “Garbage Collection for Monitoring Parametric Properties”. Proceedings of the 32<sup>nd</sup> *ACM SIGPLAN Conference on*

- Programming Language Design and Implementation, PLDI'11*, San Jose, California, 4-8 June 2011. ACM, pages 415-424, 2011. Acceptance rate 55/236 (23%).
- 102) **[ICSE/NIER'11]** Grigore Roşu and Andrei Ştefănescu. “Matching Logic: A New Program Verification Approach”. Proceedings of the 33<sup>rd</sup> *International Conference on Software Engineering, ICSE'11 (New Ideas and Emerging Results Track)*, Honolulu, Hawaii, 21-28 May 2011. ACM, pages 868-871, 2011. Acceptance rate for the NIER track 46/198 (23%).
  - 103) **[ICSE'11]** Choonghwan Lee, Feng Chen and Grigore Roşu. “Mining Parametric Specifications”. Proceedings of the 33<sup>rd</sup> *International Conference on Software Engineering, ICSE'11*, Honolulu, Hawaii, 21-28 May 2011. ACM, pages 591-600, 2011. Acceptance rate for regular papers 62/441 (14%).
  - 104) **[ICFEM'10]** Eugen-Ioan Goriac, Dorel Lucanu and Grigore Roşu. “Automating Coinduction with Case Analysis”. Proceedings of the 12<sup>th</sup> *International Conference on Formal Engineering Methods, ICFEM'10*, Shanghai, China, 17-19 November 2010. *Lecture Notes in Computer Science*, Volume 6447, 2010, pages 220-236. Acceptance rate 42/114 (37%).
  - 105) **[AMAST'10]** Grigore Roşu, Chucky Ellison and Wolfram Schulte. “Matching Logic: An Alternative to Hoare/Floyd Logic”. Proceedings of the 13<sup>th</sup> *International Conference on Algebraic Methodology and Software Technology, AMAST'10*, Québec, Canada, 23-25 June 2010. *Lecture Notes in Computer Science*, Volume 6486, 2011, pages 142-162. Acceptance rate 14/33 (42%).
  - 106) **[MEMOCODE'10]** Patrick Meredith, Michael Katelman, José Meseguer and Grigore Roşu. “A Formal Executable Semantics of Verilog”. Proceedings of the 8<sup>th</sup> *International Conference on Formal Methods and Models for Codesign, MEMOCODE'10*, Grenoble, France, 26-28 July 2010. IEEE, pages 179-188, 2010. Acceptance rate 15/45 (30%).
  - 107) **[ASE'09]** Feng Chen, Patrick Meredith, Dongyun Jin and Grigore Roşu. “Efficient Formalism-Independent Monitoring of Parametric Properties”. Proceedings of the 24<sup>th</sup> *IEEE/ACM International Conference on Automated Software Engineering, ASE'09*, Auckland, New Zealand, 16-20 November 2009. IEEE/ACM, pages 383-394, 2010. Acceptance rate 38/222 (17%).
  - 108) **[ICFEM'09]** Dorel Lucanu and Grigore Roşu. “Circular Coinduction with Special Contexts”. Proceedings of the 11<sup>th</sup> *International Conference on Formal Engineering Methods, ICFEM'09*, Rio de Janeiro, Brazil, 8-11 December 2009. *Lecture Notes in Computer Science*, Volume 5885, 2009, pages 639-659. Acceptance rate 36/121 (29%).
  - 109) **[CALCO'09]** Grigore Roşu and Dorel Lucanu. “Circular Coinduction - A Proof Theoretical Foundation”. Proceedings of the 3<sup>rd</sup> *International Conference on Algebra and Coalgebra in Computer Science, CALCO'09*, Udine, Italy, 6-12 September 2009. *Lecture Notes in Computer Science*, Volume 5728, 2009, pages 127-144. Acceptance rate 23/42 (55%).
  - 110) **[TACAS'09]** Feng Chen and Grigore Roşu. “Parametric Trace Slicing and Monitoring”. Proceedings of the 15<sup>th</sup> *International Conference on Tools and Algorithms for the Construction and Analysis of Systems, TACAS'09*, York, UK, 22-29 March 2009. *Lecture Notes in Computer Science*, Volume 5505, 2009, pages 246-261. Acceptance rate 21/109 (25%).

- 111) [AOSD'09] Eric Bodden, Feng Chen and Grigore Roşu. "Dependent advice: A general approach to optimizing history-based Aspects". Proceedings of the 8<sup>th</sup> International Conference on *Aspect-Oriented Software Development, AOSD'09*, Charlottesville, Virginia, USA, 2-6 March 2009. ACM SIGSOFT/SIGPLAN, pages 3-14, 2009. Acceptance rate 19/68 (28%).
- 112) [RTSS'08] Rodolfo Pellizzoni, Patrick Meredith, Marco Caccamo and Grigore Roşu. "Hardware Runtime Monitoring for Dependable COTS-based Real-Time Embedded Systems". Proceedings of the 29<sup>th</sup> *IEEE Real-Time System Symposium, RTSS'08*, Barcelona, Spain, 30 November - 3 December 2008. IEEE, 2008, pages 481-491. Acceptance rate 44/189 (23%).
- 113) [ASE'08] Patrick Meredith, Feng Chen, Dongyun Jin and Grigore Roşu. "Efficient Monitoring of Parametric Context-Free Patterns". Proceedings of the 23<sup>rd</sup> *IEEE/ACM International Conference on Automated Software Engineering, ASE'08*, L'Aquila, Italy, 15-19 September 2008. IEEE, pages 148-157, 2008. ACM SIGSOFT **distinguished paper award**. Acceptance rate 34/280 (12%).
- 114) [ICSE'08] Feng Chen, Traian Florin Şerbănuţă and Grigore Roşu. "jPredictor: A Predictive Runtime Analysis Tool for Java". Proceedings of the 30<sup>th</sup> *International Conference on Software Engineering, ICSE'08*, 10-18 May 2008, Leipzig, Germany, ACM, 2008. Acceptance rate 56/371 (15%).
- 115) [CALCO'07] Dorel Lucanu and Grigore Roşu. "CIRC: A Circular Coinductive Prover". Proceedings of the 2<sup>nd</sup> International Conference on *Algebra and Coalgebra in Computer Science, CALCO'07*, Bergen, Norway, 20-24 August 2007. *Lecture Notes in Computer Science*, Volume 4624, 2007, pages 372-378. Acceptance rate 26/57 (46%).
- 116) [OOPSLA'07] Feng Chen and Grigore Roşu. "MOP: A Generic and Efficient Runtime Verification Framework". Proceedings of the 22<sup>nd</sup> SIGPLAN International Conference on *Object-Oriented Programming, Systems, Languages and Applications, OOPSLA'07*, Montreal, Canada, 21-25 October 2007. ACM, pages 569-588. Acceptance rate 33/156 (21%).
- 117) [CAV'07] Feng Chen and Grigore Roşu. "Parametric and Sliced Causality". Proceedings of the 19<sup>th</sup> International Conference on *Computer Aided Verification, CAV'07*, Berlin, Germany, 3-7 July, 2007. *Lecture Notes in Computer Science*, Volume 4590, 2007, pages 240-253. Acceptance rate 47/174 (27%).
- 118) [RTA'07] Mark Hills and Grigore Roşu. "KOOL: An Application of Rewriting Logic to Language Prototyping and Analysis". Proceedings of the 18<sup>th</sup> International Conference on *Rewriting Techniques and Applications, RTA'07*, Paris, France, 26-28 June 2007. *Lecture Notes in Computer Science*, Volume 4533, 2007, pages 246-256. Acceptance rate 27/69 (39%).
- 119) [FMOODS'07] Mark Hills and Grigore Roşu. "On Formal Analysis of OO Languages using Rewriting Logic: Designing for Performance". Proceedings of the 9<sup>th</sup> IFIP International Conference on *Formal Methods for Open Object-Based Distributed Systems, FMOODS'07*, Paphos, Cyprus, June 5-8, 2007. *Lecture Notes in Computer Science*, Volume 4468, 2007, pages 107-121. Acceptance rate 17/45 (38%).
- 120) [FOSSACS'07] Grigore Roşu. "An Effective Algorithm for the Membership Problem for Extended Regular Expressions". Proceedings of *Foundations of Software Science and Computation Structures, FOSSACS'07*, Braga, Portugal, March 24 - April 1, 2007. *Lecture Notes in Computer Science*, Volume 4423, 2007, pages 332-345. Acceptance rate 25/103 (24%).



- 121) **[SAS'06]** Feng Chen and Grigore Roşu. “Parametric and Termination-Sensitive Control Dependence”. Proceedings of *Static Analysis Symposium, SAS'06*, Seoul, Korea, 29-31 August 2006. *Lecture Notes in Computer Science*, Volume 4134, 2006, pages 487-404. Acceptance rate 23/80 (29%).
- 122) **[ICFP'06]** Grigore Roşu. “Equality of Streams is a  $\Pi_2^0$ -Complete Problem”. Proceedings of the *International Conference on Functional Programming, ICFP'06*, Portland, Oregon, USA, 18-20 September 2006. *ACM*, 2006, pages 184-191. Acceptance rate 24/76 (32%).
- 123) **[RTA'06]** Traian Florin Şerbănuţă and Grigore Roşu. “Computationally Equivalent Elimination of Conditions – extended abstract”. Proceedings of *Rewriting Techniques and Applications, RTA'06*, Seattle, USA, 12-14 August 2006. *Lecture Notes in Computer Science*, Volume 4098, 2006, pages 19-34. Acceptance rate 23/52 (44%).
- 124) **[CAV'06]** Grigore Roşu and Saddek Bensalem. “Allen Linear (Interval) Temporal Logic – Translation to LTL and Monitor Synthesis”. Proceedings of *Computer Aided Verification, CAV'06*, Seattle, USA, 17-20 August 2006. *Lecture Notes in Computer Science*, Volume 4144, 2006, pages 263-277. Acceptance rate 35/121 (29%).
- 125) **[DSN'06]** Sumant Kowshik, Grigore Roşu and Lui Sha. “Static Analysis to Enforce Safe Value Flow in Embedded Control Systems”. Proceedings of the *International Conference on Dependable Systems and Networks, DSN'06*, Philadelphia, PA, USA, 25-28 June 2006. *IEEE Computer Society*, pages 23-34. Acceptance rate 34/187 (18%).
- 126) **[FOSSACS'06]** Andrei Popescu, Traian Florin Şerbănuţă and Grigore Roşu. “A Semantic Approach to Interpolation”. Proceedings of *Foundations of Software Science and Computation Structures, FOSSACS'06*, Vienna, Austria, 25-31 March 2006. *Lecture Notes in Computer Science*, Volume 3921, 2006, pages 307-321. Acceptance rate 28/107 (26%).
- 127) **[FM'05]** Pierre Salverda, Grigore Roşu and Craig Zilles. “Towards Formally Defining and Verifying Master/Slave Speculative Parallelization”. Proceedings of the *International Conference on Formal Methods, FM'05*, University of Newcastle upon Tyne, UK, 18-22 July 2005. *Lecture Notes in Computer Science*, Volume 3582, 2005, pages 123-138. Acceptance rate 31/129 (24%).
- 128) **[CALCO'05]** Andrei Popescu and Grigore Roşu. “Behavioral Extensions of Institutions”. Proceedings of the 1<sup>st</sup> *Conference on Algebra and Coalgebra in Computer Science, CALCO'05*, University of Wales Swansea, UK, 3-6 September 2005. *Lecture Notes in Computer Science*, Volume 3629, 2005, pages 331-347. Acceptance rate 25/62 (40%).
- 129) **[CAV'05]** Marcelo d'Amorim and Grigore Roşu. “Efficient Monitoring of Omega-Languages”. Proceedings of the 17<sup>th</sup> *International Conference on Computer Aided Verification, CAV'05*, Edinburgh, Scotland, UK, 6-10 July 2005. *Lecture Notes in Computer Science*, Volume 3576, 2005, pages 364-378. Acceptance rate 32/125 (26%).
- 130) **[FMOODS'05]** Koushik Sen, Grigore Roşu and Gul Agha. “Detecting Errors in Multithreaded Programs by Generalized Predictive Analysis of Executions”. Proceedings of the 7<sup>th</sup> *International Conference on Formal Methods for Open Object-based Distributed Systems, FMOODS'05*, Athens, Greece, 15-17 June 2005. *Lecture Notes in Computer Science*, Volume 3535, 2005, pages 211-226. Acceptance rate 19/42 (45%).

- 131) **[ISCA'05]** Florin Baboescu, Grigore Roşu, Sumeet Singh, Dean M. Tullsen. “A Tree Based Router Search Engine Architecture with Single Port Memories”. Proceedings of the 32<sup>nd</sup> *International Symposium on Computer Architecture, ISCA'05*, Madison, Wisconsin, USA, 4-8 June 2005. *IEEE*, pages 123-133. Acceptance rate 45/194 (23%).
- 132) **[TACAS'05]** Feng Chen and Grigore Roşu. “Java-MOP: A Monitoring Oriented Programming Environment for Java”. Proceedings of the 11<sup>th</sup> *International Conference on Tools and Algorithm for the Construction and Analysis of Systems, TACAS'05*, Edinburgh, U.K., 4-8 April 2005. *Lecture Notes in Computer Science*, Volume 3440, 2005, pages 546-550. Tool paper. Acceptance rate for tool papers 8/20 (40%).
- 133) **[ICFEM'04]** Feng Chen, Marcelo d' Amorim and Grigore Roşu. “A Formal Monitoring-based Framework for Software Development and Analysis”. Proceedings of the 6<sup>th</sup> *International Conference on Formal Engineering Methods, ICFEM'04*, Seattle, USA, 8-12 November 2004. *Lecture Notes in Computer Science*, Volume 3308, 2004, pages 357-372. Acceptance rate 30/110 (27%).
- 134) **[ICALP'04]** Grigore Roşu. “Extensional Theories and Rewriting”. Proceeding of the 31<sup>st</sup> *International Colloquium on Automata, Languages and Programming, ICALP'04*, Turku, Finland, 12-16 July 2004. *Lecture Notes in Computer Science*, Volume 3142, 2004, pages 1066-1079. Acceptance rate 28/107 (26%).
- 135) **[CAV'04]** Azadeh Farzan, Feng Chen, José Meseguer and Grigore Roşu. “Formal Analysis of Java Programs in JavaFAN”. Proceedings of the 16<sup>th</sup> *International Conference on Computer Aided Verification, CAV'04*, Boston, Massachusetts, USA, 13-17 July 2004. *Lecture Notes in Computer Science*, Volume 3114, 2004, pages 501-505. Acceptance rate 48/144 (33%).
- 136) **[AMAST'04]** Azadeh Farzan, José Meseguer and Grigore Roşu. “Formal JVM Code Analysis in JavaFAN”. Proceedings of 10<sup>th</sup> *International Conference on Algebraic Methodology And Software Technology, AMAST'04*, Stirling, Scotland, UK, 12-16 July 2004. *Lecture Notes in Computer Science*, Volume 3116, 2004, pages 132-147. Acceptance rate 35/63 (55%).
- 137) **[ICSE'04]** Koushik Sen, Abhay Vardan, Gul Agha and Grigore Roşu. “Efficient Decentralized Monitoring of Safety in Distributed Systems”. Proceedings of the 26<sup>th</sup> *International Conference on Software Engineering, ICSE'04*, Edinburgh, Scotland, UK, 23-28 May 2004. *IEEE*, 2004, pages 418-427. Acceptance rate 58/436 (13%).
- 138) **[TACAS'04]** Koushik Sen, Grigore Roşu and Gul Agha. “Online Efficient Predictive Safety Analysis of Multithreaded Programs”. Proceedings of the 10<sup>th</sup> *International Conference on Tools and Algorithm for the Construction and Analysis of Systems, TACAS'04*, Barcelona, Spain, 29 March - 2 April, 2004. *Lecture Notes in Computer Science*, Volume 2988, 2004, pages 123-138. Acceptance rate 37/145 (26%).
- 139) **[ASIAN'03]** Koushik Sen, Grigore Roşu and Gul Agha. “Generating Optimal Linear Temporal Logic Monitors by Coinduction”. Proceedings of the 8<sup>th</sup> *Asian Computing Science Conference, ASIAN'03*, Mumbai, India, 10-13 December 2003. *Lecture Notes in Computer Science*, Volume 2896, 2003, pages 260-275. Acceptance rate 16/53 (30%).
- 140) **[ASE'03]** Grigore Roşu and Feng Chen. “Certifying Measurement Unit Safety Policy”. Proceedings of the *IEEE International Conference on Automated Software Engineering, ASE'03*, Helsinki, Finland, September 2003. *IEEE*, 2003, pages 304-309. Short paper. Acceptance rate 48/170 (28%).

- 141) **[FME'03]** Grigore Roşu, Steven Eker, Patrick Lincoln and José Meseguer. “Certifying and Synthesizing Membership Equational Proofs”. Proceedings of the 12<sup>th</sup> International *Formal Methods* Symposium, FME'03, Pisa, Italy, 8-14 September 2003. *Lecture Notes in Computer Science*, Volume 2805, 2003, pages 359-380. Acceptance rate 44/144 (31%).
- 142) **[ESEC/FSE'03]** Koushik Sen, Grigore Roşu and Gul Agha. “Runtime Safety Analysis of Multithreaded Programs”. Proceedings of *European Software Engineering Conference* and ACM SIGSOFT Symposium on the *Foundations of Software Engineering*, ESEC/FSE'03, Helsinki, Finland, 1-5 September 2003. *ACM*, 2003, pages 337-346. Acceptance rate 42/168 (25%).
- 143) **[CAV'03]** Grigore Roşu, Ram Prasad Venkatesan, Jon Whittle and Laurenţiu Leuştean. “Certifying Optimality of State Estimation Programs”. Proceedings of the 15<sup>th</sup> International conference on *Computer Aided Verification*, CAV'03, Boulder, Colorado, USA, 8-12 July 2003. *Lecture Notes in Computer Science*, Volume 2725, 2003, pages 301-314. Parts of this paper have been also published as “Certifying Kalman Filters”, with Laurenţiu Leuştean, *RIACS* Technical Report TR 03-02, January 2003. Acceptance rate 32/87 (37%).
- 144) **[RTA'03]** Grigore Roşu and Mahesh Viswanathan. “Testing Extended Regular Language Membership Incrementally by Rewriting”. Proceedings of the 14<sup>th</sup> International Conference on *Rewriting Techniques and Applications*, RTA'03, Valencia, Spain, 9-11 June 2003. *Lecture Notes in Computer Science*, Volume 2706, 2003, pages 499-514. Acceptance rate 32/61 (52%).
- 145) **[RTA'03]** Feng Chen, Grigore Roşu and Ram Prasad Venkatesan. “Rule-Based Analysis of Dimensional Safety”. Proceedings of the 14<sup>th</sup> International Conference on *Rewriting Techniques and Applications*, RTA'03, Valencia, Spain, 9-11 June 2003. *Lecture Notes in Computer Science*, Volume 2706, 2003, pages 197-207. Acceptance rate 32/61 (52%).
- 146) **[ASE'02]** Grigore Roşu and Jon Whittle. “Towards Certifying Domain-Specific Properties of Synthesized Code - Extended Abstract”. Proceedings of the 17<sup>th</sup> IEEE International Conference on *Automated Software Engineering*, ASE'02, Edinburgh, UK, 23-27 September 2002. *IEEE Computer Society*, pages 289-194. Acceptance rate 38/94 (40%).
- 147) **[ICALP'02]** José Meseguer and Grigore Roşu. “A Total Approach to Partial Algebraic Specification”. Proceedings of the 29<sup>th</sup> *International Colloquium on Automata, Languages, and Programming*, ICALP'02, Málaga, Spain, 8-13 July 2002. *Lecture Notes in Computer Science*, Volume 2380, 2002, pages 572-584. Acceptance rate 19/65 (29%).
- 148) **[TACAS'02]** Klaus Havelund and Grigore Roşu. “Synthesizing Monitors for Safety Properties”. Proceedings of the 8<sup>th</sup> International Conference on *Tools and Algorithms for Construction and Analysis of Systems*, TACAS'02, Grenoble, France, 8-12 April 2002. *Lecture Notes in Computer Science*, Volume 2280, 2002, pages 342-356. **EASST best paper award** at ETAPS'02. Acceptance rate 29/95 (31%).
- 149) **[ASE'01]** Michael Lowry, Thomas Pressburger and Grigore Roşu. “Certifying Domain Specific Policies”. Proceedings of the 16<sup>th</sup> IEEE International Conference on *Automated Software Engineering*, ASE'01, San Diego, California, USA, 26-29 November 2001. *IEEE Computer Society*, pages 81-90. Acceptance rate 32/164 (20%).

- 150) [ASE'01] Klaus Havelund and Grigore Roşu. "Monitoring Programs using Rewriting". Proceedings of the 16<sup>th</sup> IEEE International Conference on *Automated Software Engineering, ASE'01*, San Diego, California, USA, 26-29 November 2001. *IEEE Computer Society*, pages 135-143. Also *RIACS Technical Report TR 01-19*, June 2001. Acceptance rate 32/164 (20%).
- 151) [CSL'01] Grigore Roşu. "Complete Categorical Equational Deduction". Proceedings of the 10<sup>th</sup> Annual Conference of the European Association for *Computer Science Logic, CSL'01*, Paris, France, 10-13 September 2001. *Lecture Notes in Computer Science*, Volume 2142, 2001, pages 528-538. Acceptance rate 39/91 (43%).
- 152) [ASE'00] Joseph Goguen, Kai Lin and Grigore Roşu. "Circular Coinductive Rewriting". Proceedings of *Automated Software Engineering, ASE'00*, Grenoble, France, 11-15 September 2000. *IEEE* 2000, pages 123-132. Acceptance rate 23/100 (23%).
- 153) [FM'99] Joseph Goguen and Grigore Roşu. "Hiding More of Hidden Algebra". Proceedings of *World Congress on Formal Methods, FM'99*, Toulouse, France, 20-24 September 1999. *Lecture Notes in Computer Science*, Volume 1709, 1999, pages 1704-1719. Acceptance rate 92/259 (36%).
- 154) [ASE'97] Joseph Goguen, Kai Lin, Akira Mori, Grigore Roşu and Akiyoshi Sato. "Distributed Co-operative Formal Methods Tools". Proceedings of *Automated Software Engineering, ASE'97*, Lake Tahoe, Nevada, USA, 3-5 November 1997. *IEEE*, pages 55-62. Acceptance rate 32/108 (30%).

### **Smaller Conference, Workshop, Symposium, Tutorial, Position, Poster and Bulletin Papers**

- 155) Xiaohong Chen and Grigore Roşu. "A Language-Independent Program Verification Framework" Leveraging Applications of Formal Methods, Verification and Validation. Verification - 8th International Symposium, ISoLA 2018, Limassol, Cyprus, November 5-9, 2018, Proceedings, Part II. *Lecture Notes in Computer Science*, Volume 11245, Springer 2018, pages 92-102.
- 156) Xiaohong Chen, Daejun Park and Grigore Roşu. "A Language-Independent Approach to Smart Contract Verification". Leveraging Applications of Formal Methods, Verification and Validation. Industrial Practice - 8th International Symposium, ISoLA 2018, Limassol, Cyprus, November 5-9, 2018, Proceedings, Part IV. *Lecture Notes in Computer Science*, Volume 11247, Springer 2018, pages 405-413.
- 157) Philip Daian, Dwight Guth, Chris Hathhorn, Yilong Li, Edgar Pek, Manasvi Saxena, Traian Florin Şerbănuţă and Grigore Roşu. "Runtime Verification at Work: A Tutorial". Proceedings of the 16<sup>th</sup> International Conference on *Runtime Verification, RV'16*, Madrid, Spain, 23-30 September 2016. *Lecture Notes in Computer Science*, Volume 10012, 2016, pages 46-67.
- 158) Philip Daian, Yliès Falcone, Patrick Meredith, Traian Florin Şerbănuţă, Shinichi Shiraishi, Akihito Iwai and Grigore Roşu. "RV-Android: Efficient Parametric Android Runtime Verification, a Brief Tutorial". Proceedings of the 15<sup>th</sup> International Conference on *Runtime Verification, RV'15*, Vienna, Austria, 22-25 September 2015. *Lecture Notes in Computer Science*, Volume 9333, 2015, pages 342-357.
- 159) Andrei Arusoai, Dorel Lucanu, Vlad Rusu, Traian Florin Şerbănuţă, Andrei Ştefănescu and Grigore Roşu. "Language Definitions as Rewrite Theories". Proceedings of the 10<sup>th</sup> International *Workshop*

- on Rewriting Logic and its Applications, WRLA'14*, Grenoble, France, 5-6 April 2014. *Lecture Notes in Computer Science*, Volume 8663, 2014, pages 97-112. Acceptance rate 13/21 (61.9%).
- 160) Jeff Huang, Brandon M. Moore, Qingzhou Luo, Cansu Erdogan, Yi Zhang, Aravind Sundaresan and Grigore Roşu. “ROSRV: Runtime Verification for Robots”. Proceedings of the 14<sup>th</sup> International Conference on *Runtime Verification, RV'14*, Toronto, Canada, 22-25 September 2014. *Lecture Notes in Computer Science*, Volume 8732, 2014, pages 247-254. Acceptance rate for short papers 5/10 (50.0%).
  - 161) Dwight Guth, Andrei Ştefănescu and Grigore Roşu. “Low-Level Program Verification using Matching Logic Reachability”. Proceedings of the LICS'13 Workshop on Syntax and Semantics of *Low-Level Languages (LOLA'13)*, New Orleans, USA, 29 June 2013.
  - 162) Traian Florin Şerbănuţă and Grigore Roşu. “Maximal Causal Models for Sequentially Consistent Systems”. Proceedings of the 3<sup>rd</sup> International Conference on *Runtime Verification, (RV'12)*, Istanbul, Turkey, 25-28 September, 2012. *Lecture Notes in Computer Science*, Volume 7687, 2013, pages 136-150. Acceptance rate 25/50 (50%).
  - 163) Traian Florin Şerbănuţă and Grigore Roşu. “A Truly Concurrent Semantics for the K Framework Based on Graph Transformations”. Proceedings of the 6<sup>th</sup> *International Conference on Graph Transformation (ICGT'12)*, Bremen, Germany, 24-29 September, 2012. *Lecture Notes in Computer Science*, Volume 7562, 2012, pages 294-310. Acceptance rate 24/37 (64.9%).
  - 164) Soha Hussein, Patrick Meredith, and Grigore Roşu. “Security-Policy Monitoring and Enforcement with JavaMOP”. Proceeding of the 7<sup>th</sup> Workshop on Programming Languages and Analysis for Security (PLAS'12), Beijing, China, 15 June, 2012. *ACM Digital Library*, pages 3:1-3:11.
  - 165) Dorel Lucanu, Traian Florin Şerbănuţă, and Grigore Roşu. “K Framework Distilled”. Proceedings of the 9<sup>th</sup> International *Workshop on Rewriting Logic and its Applications (WRLA'12)*, Tallinn, Estonia, 24-25 March 2012. *Lecture Notes in Computer Science*, Volume 7571, 2012, pages 31-53.
  - 166) Andrei Arusoai, Traian Florin Şerbănuţă, Chucky Ellison, and Grigore Roşu. “Making Maude Definitions more Interactive”. Proceedings of the 9<sup>th</sup> International *Workshop on Rewriting Logic and its Applications (WRLA'12)*, Tallinn, Estonia, 24-25 March 2012. *Lecture Notes in Computer Science*, Volume 7571, 2012, pages 83-98.
  - 167) Grigore Roşu and Traian Florin Şerbănuţă. “K Overview and SIMPLE Case Study”, Proceedings of the International *K Workshop (K'11)*, Cheile Gradistei, Romania, 8-12 August 2011. *Electronic Notes in Theoretical Computer Science*, Volume 304, 2014, pages 3-56.
  - 168) Codruta Girlea and Grigore Roşu. “Abstract Semantics for K Module Composition”, Proceedings of the International *K Workshop (K'11)*, Cheile Gradistei, Romania, 8-12 August 2011. *Electronic Notes in Theoretical Computer Science*, Volume 304, 2014, pages 127-149.
  - 169) Traian Florin Şerbănuţă, Andrei Arusoai, David Lazar, Chucky Ellison, Dorel Lucanu and Grigore Roşu. “The K Primer (version 3.3)”, Proceedings of the International *K Workshop (K'11)*, Cheile Gradistei, Romania, 8-12 August 2011. *Electronic Notes in Theoretical Computer Science*, Volume 304, 2014, pages 57-80.

- 170) Grigore Roşu. “Matching Logic”, *High Confidence Software and Systems (HCSS’11)*, Annapolis, Maryland, USA, 1-6 May 2011. Invited position paper.
- 171) Grigore Roşu and Andrei Ştefănescu. “Matching Logic: A New Program Verification Approach”, *NSF/Microsoft workshop on Usable Verification (UV’10)*, Redmond, Washington, 15-16 November 2010. Position paper. There were no submissions to UV’10; all talks were invited.
- 172) Patrick Meredith and Grigore Roşu. “Runtime Verification with the RV System”. Proceedings of the 1<sup>st</sup> International Conference on *Runtime Verification (RV’10)*, Malta, 1-4 November 2010. *Lecture Notes in Computer Science*, Volume 6418, 2010, pages 136-152. Tutorial paper.
- 173) Traian Florin Şerbănuţă and Grigore Roşu. “K-Maude: A Rewriting-Based Tool for Semantics of Programming Languages”. Proceedings of the 8<sup>th</sup> International *Workshop on Rewriting Logic and its Applications (WRLA’10)*, Paphos, Cyprus, 20-21 March 2010. *Lecture Notes in Computer Science*, Volume 6381, 2010, pages 104-122. Acceptance rate 13/29 (45%).
- 174) Vilas Jagannath, Milos Gligoric, Dongyun Jin, Grigore Roşu and Darko Marinov. “IMUnit: Improved Multithreaded Unit Testing”, Proceedings of the 3<sup>rd</sup> *International Workshop on Multicore Software Engineering (IWMSE10)*, CapeTown, South Africa, 1 May 2010. IEEE, pages 48-49, 2010.
- 175) Dorel Lucanu, Eugen-Ioan Goriac, Georgiana Caltais and Grigore Roşu. “CIRC: A Behavioral Verification Tool based on Circular Coinduction”. Proceedings of the 3<sup>rd</sup> International Conference on *Algebra and Coalgebra in Computer Science (CALCO’09)*, Udine, Italy, 6-12 September 2009. *Lecture Notes in Computer Science*, Volume 5728, 2009, pages 433-442. Tool paper.
- 176) Grigore Roşu, Wolfram Schulte and Traian Florin Şerbănuţă. “Runtime Verification of C Memory Safety”, Proceedings of the 9<sup>th</sup> *Workshop on Runtime Verification, RV’09*, Grenoble, France, 26-28 June 2009. *Lecture Notes in Computer Science*, Volume 5779, 2009, pages 132-151. Acceptance rate 11/17 (65%).
- 177) Traian Florin Şerbănuţă, Gheorghe Ştefănescu and Grigore Roşu. “Defining and Executing P-systems with Structured Data in K”. Proceedings of the 9<sup>th</sup> *Workshop on Membrane Computing, WMC’08*, Edinburgh, United Kingdom, 28-31 July 2008. *Lecture Notes in Computer Science*, Volume 5391, 2009, pages 374-393.
- 178) Mark Hills, Feng Chen and Grigore Roşu. “A Rewriting Logic Approach to Static Checking of Units of Measurement in C”. Proceedings of the 9<sup>th</sup> International Workshop on *Rule-Based Programming, RULE’08*, Hagenberg, Austria, 18 July 2008. *Electronic Notes in Theoretical Computer Science*, Volume 290, 2012, pages 51-67.
- 179) Dorel Lucanu, Grigore Roşu and Gheorghe Grigoraş. “Regular Strategies as Proof Tactics for CIRC”. Proceedings of the 7<sup>th</sup> *Workshop on Reduction Strategies in Rewriting and Programming, WRS’07*, 25 June 2007, Paris, France. *Electronic Notes in Theoretical Computer Science*, Volume 204, 2008, pages 83-98.
- 180) Mark Hills and Grigore Roşu. “Towards a Module System for K”. *Recent Trends in Algebraic Development Techniques; Proceedings with selected papers presented at WADT’08*, Pisa, Italy, 13-16 June 2008. *Lecture Notes in Computer Science*, Volume 5486, 2009, pages 187-205.

- 181) Chucky Ellison, Traian Florin Șerbănuță and Grigore Roșu. “A Rewriting Logic Approach to Type Inference”. *Recent Trends in Algebraic Development Techniques; Proceedings with selected papers presented at WADT’08*, Pisa, Italy, 13-16 June 2008. *Lecture Notes in Computer Science*, Volume 5486, 2009, pages 135-151.
- 182) Andrei Popescu and Grigore Roșu. “Term-Generic Logic”. *Recent Trends in Algebraic Development Techniques; Proceedings with selected papers presented at WADT’08*, Pisa, Italy, 13-16 June 2008. *Lecture Notes in Computer Science*, Volume 5486, 2009, pages 290-307.
- 183) Sudipto Ghoshal, Solaiappan Manimaran, Traian Florin Șerbănuță, Grigore Roșu and Gheorghe Ștefănescu. “Monitoring IVHM Systems using a Monitor-Oriented Programming Framework”. Proceedings of the 6<sup>th</sup> *NASA Langley Formal Methods Workshop, LFM’08*, 30 April - 2 May, 2008, NASA Langley, Virginia, USA, 2008.
- 184) Grigore Roșu, Feng Chen and Thomas Ball. “Synthesizing Monitors for Safety Properties – This Time With Calls and Returns”. Proceedings of the 8<sup>th</sup> Workshop on *Runtime Verification, RV’08*, 30 March 2008, Budapest, Hungary. *Lecture Notes in Computer Science*, Volume 5289, 2008, pages 51-68. Acceptance rate 9/27 (33%).
- 185) Mark Hills and Grigore Roșu. “A rewriting approach to the design and evolution of object-oriented languages”. *OOPSLA Companion: Companion to the 22<sup>nd</sup> Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications, OOPSLA 2007*, October 21-25, 2007, Montreal, Quebec, Canada. ACM, pages 827-828. This was a poster at OOPSLA’07.
- 186) Patrick Meredith, Mark Hills and Grigore Roșu. “An Executable Rewriting Logic Semantics of K-Scheme”. Proceedings of the 8<sup>th</sup> Workshop on Scheme and Functional Programming, 30 September 2007, Freiburg, Germany. Université Laval 2007 Technical Report DIUL-RT-0701, pages 91-103.
- 187) Traian Florin Șerbănuță, Grigore Roșu and José Meseguer. “A Rewriting Logic Approach to Operational Semantics – Extended Abstract”. Proceedings of the 4<sup>nd</sup> International Workshop on *Structural Operational Semantics, SOS’07*, 9 July 2007, Wrocław, Poland. *Electronic Notes in Theoretical Computer Science*, Volume 192(1), 2007, pages 125-141.
- 188) Mark Hills, Traian Florin Șerbănuță and Grigore Roșu. “A Rewrite Framework for Language Definitions and for Generation of Efficient Interpreters”. Proceedings of the 6<sup>th</sup> International *Workshop on Rewriting Logic and its Applications, WRLA’06*, Vienna, Austria, 1-2 April 2006. *Electronic Notes in Theoretical Computer Science*, Volume 176.4, 28 July 2007, pages 215-231. Acceptance rate 13/20 (65%).
- 189) Grit Denker, Carolyn Talcott, Mark van den Brand, Steven Eker, Grigore Roșu and Traian Florin Șerbănuță. “Rewriting Logic Systems”. Proceedings of the 6<sup>th</sup> International *Workshop on Rewriting Logic and its Applications, WRLA’06*, Vienna, Austria, 1-2 April 2006. *Electronic Notes in Theoretical Computer Science*, Volume 176.4, 28 July 2007, pages 233-247. Acceptance rate 13/20 (65%).
- 190) Feng Chen, Marcelo d’Amorim and Grigore Roșu. “Checking and Correcting Behaviors of Java Programs at Runtime with Java-MOP”. Proceedings of the *International Workshop on Runtime Verification, RV’05*, Edinburgh, Scotland, UK, 12 July 2005. *Electronic Notes in Theoretical Computer Science*, Volume 144.4, 26 May 2006, pages 3-20. Acceptance rate 8/14 (57%).

- 191) Marcelo d'Amorim and Grigore Roşu. "An Equational Specification for the Scheme Language". Proceedings of the 9<sup>th</sup> *Brazilian Symposium on Programming Languages, SBLP'05*, Recife, PE, Brazil, 23-25 May 2005.
- 192) Koushik Sen, Abhay Vardan, Gul Agha and Grigore Roşu. "On Specifying and Monitoring Epistemic Properties of Distributed Systems". Proceedings of the 2<sup>nd</sup> *International Workshop on Dynamic Analysis, WODA'04*, Edinburgh, Scotland, UK, 25 May 2004. *British Institution of Electrical Engineers (IEE)*, 2004. Acceptance rate 11/22 (50%).
- 193) Prasanna Thati and Grigore Roşu. "Monitoring Algorithms for Metric Temporal Logic Specifications". Proceedings of the 4<sup>th</sup> *International Workshop on Runtime Verification, RV'04*, Barcelona, Spain, 3 April 2004. *Electronic Notes in Theoretical Computer Science*, Volume 113, 2005, pages 145-162.
- 194) Grigore Roşu and Koushik Sen. "An Instrumentation Technique for Online Analysis of Multithreaded Programs". Proceedings of *Parallel and Distributed Systems: Testing and Debugging PADTAD'04*, Santa Fe, New Mexico, USA, 26-30 April, 2004. *IEEE Digital Library*.
- 195) Grigore Roşu. "From Conditional to Unconditional Rewriting". *Recent Trends in Algebraic Development Techniques; Proceedings with selected papers presented at WADT'04*, Barcelona, Spain, 27-29 March 2004. *Lecture Notes in Computer Science*, Volume 3423, 2004, pages 218-233. Acceptance rate 14/33 (42%).
- 196) Koushik Sen and Grigore Roşu. "Generating Optimal Monitors for Extended Regular Expressions". Proceedings of the 3<sup>rd</sup> *International Workshop on Runtime Verification, RV'03*, Boulder, Colorado, USA, 13 July 2003. *Electronic Notes in Theoretical Computer Science*, Volume 89.2, 2003.
- 197) Feng Chen and Grigore Roşu. "Towards Monitoring-Oriented Programming: A Paradigm Combining Specification and Implementation". Proceedings of the 3<sup>rd</sup> *International Workshop on Runtime Verification, RV'03*, Boulder, Colorado, USA, 13 July 2003. *Electronic Notes in Theoretical Computer Science*, Volume 89.2, 2003.
- 198) Grigore Roşu. "Inductive Behavioral Proofs by Unhiding". Proceedings of the 6<sup>th</sup> *International Workshop on Coalgebraic Methods in Computer Science, CMCS'03*, Warsaw, Poland, 5-6 April 2003. *Electronic Notes in Theoretical Computer Science*, Volume 86, 2003.
- 199) Grigore Roşu. "On Implementing Behavioral Rewriting". Proceedings of the 3<sup>rd</sup> *ACM SIGPLAN International Workshop on Rule Based Programming, RULE'02*, Pittsburgh, Pennsylvania, USA, 5 October 2002. *ACM Digital Library*. Acceptance rate 8/13 (62%).
- 200) Grigore Roşu and Jon Whittle. "Towards Certifying Domain-Specific Properties of Synthesized Code". Proceedings of the 3<sup>rd</sup> *ACM International Workshop on Verification and Computational Logic, VCL'02*, Pittsburgh, Pennsylvania, USA, 5 October 2002.
- 201) Joseph Goguen, Kai Lin and Grigore Roşu. "Conditional Circular Coinductive Rewriting with Case Analysis". *Recent Trends in Algebraic Development Techniques; Proceedings with selected papers presented at WADT'02*, Frauenchiemsee, Germany, 24-27 September 2002. *Lecture Notes in Computer Science*, Volume 2755, 2003, pages 216-232. Acceptance rate 20/44 (45%).



- 202) Klaus Havelund, Scott Johnson and Grigore Roşu. “Specification and Error Pattern Based Program Monitoring”. Proceedings of the 1<sup>st</sup> *European Space Agency Workshop on On-Board Autonomy ESA-ESTEC*, Noordwijk, The Netherlands, 17-19 October 2001.
- 203) Bernd Fischer and Grigore Roşu. “Interpreting Abstract Interpretations in Membership Equational Logic”. Proceedings of the 2<sup>nd</sup> *International Workshop on Rule-Based Programming, RULE’01*, Florence, Italy, 4 September 2001. *Electronic Notes in Theoretical Computer Science*, Volume 59, Number 4. Also *RIACS TR 01-16*, May 2001.
- 204) Klaus Havelund and Grigore Roşu. “Monitoring Java programs with Java PathExplorer”. Proceedings of *Runtime Verification, RV’01*, Paris, France, 23 July 2001. *Electronic Notes in Theoretical Computer Science*, Volume 55, Number 2, pages 97-114. Acceptance rate 11/20 (55%).
- 205) Grigore Roşu and Joseph Goguen. “Circular Coinduction”. Proceedings of short papers at the *International Joint Conference on Automated Reasoning, IJCAR’01*, Siena, Italy, 18-23 June 2001, pages 140-149. Refines *UCSD TR CS-647*, March 2000.
- 206) Bernd Fischer, Thomas Pressburger, Grigore Roşu and Johann Schumann. “The AutoBayes Program Synthesis System - System Description”. Proceedings of the 9<sup>th</sup> *Symposium on the Integration of Symbolic Computation and Mechanized Reasoning, CALCULEMUS’01*, Siena, Italy, 21-22 June 2001. Also *RIACS TR 01-18*, 2001.
- 207) Klaus Havelund and Grigore Roşu. “Java PathExplorer - A Runtime Verification Tool”. Proceedings of the 6<sup>th</sup> *International Symposium on Artificial Intelligence, Robotics and Automation in Space: A New Space Odyssey, ISAIRAS’01*, Montreal, Canada, 18-22 June 2001.
- 208) Samuel Buss and Grigore Roşu. “Incompleteness of Behavioral Logics”. Proceedings of *Coalgebraic Methods in Computer Science, CMCS’00*, Berlin, Germany, 25-26 March 2000. *Electronic Notes in Theoretical Computer Science*, Volume 33, 2000, pages 61-79.
- 209) Grigore Roşu. “Behavioral Coinductive Rewriting”. Proceedings of the *OBJ/CafeOBJ/Maude Workshop at FM’99*, Toulouse, France, 20-22 September 1999.
- 210) Grigore Roşu and Joseph Goguen. “Hidden Congruent Deduction”. Proceedings of *First Order Theorem Proving, FTP’99*, Vienna, Austria, 23-25 November 1998. *Lecture Notes in Artificial Intelligence*, Volume 1761, 2000, pages 252-266, *Automated Deduction in Classical and Non-Classical Logics*.
- 211) Joseph Goguen, Kai Lin, Akira Mori, Grigore Roşu and Akiyoshi Sato. “Tools for Distributed Cooperative Design and Validation”. Proceedings of *CafeOBJ Symposium*, Numazu, Japan, 26-29 April 1998.
- 212) Grigore Roşu. “A Birkhoff-like Axiomatizability Result for Hidden Algebra and Coalgebra”. Proceedings of *Coalgebraic Methods in Computer Science, CMCS’98*, Lisbon, Portugal, 28-29 March 1998. *Electronic Notes in Theoretical Computer Science*, Volume 11, 1998.
- 213) Grigore Roşu. “The Institution of Order-Sorted Equational Logic”. *Bulletin of the European Association of Theoretical Computer Science*, Number 53, 1994, pages 250-255.

## PhD Thesis

214) Grigore Roşu. “Hidden Logic”. *Department of Computer Science and Engineering, University of California at San Diego*, 4 September 2000.

## Presentations

- “Formal Design, Implementation and Verification of Blockchain Languages”, Facebook, Menlo Park, California, 17 December 2019.
- “Formal Design, Implementation and Verification of Blockchain Languages”, Johns Hopkins University and NIST, Maryland, 25 October 2019.
- “Formal Verification for Blockchain: What, Why, How”, Devcon 5, Osaka, Japan, 8 October 2019.
- “Formal Design, Implementation and Verification of Blockchain Languages”, Blockchain and Security Workshop, Waterloo, Canada, 5-6 October 2019.
- “Run Your Tests Using KEVM”, Trufflecon, Seattle, Washington, 4 August 2019.
- “Formal Design, Implementation and Verification of Blockchain Languages”, Fintech Symposium, Copenhagen, Denmark, 17 June 2019. Invited talk.
- “Ultimate toolbox for blockchain”, Swiss Embassy in Bucharest, Romania, 10 June 2019.
- “Matching  $\mu$ -Logic: The Foundation of K”, CALCO’19, London, UK, 3 June 2019. Invited talk.
- “The K Approach to Software Safety and Security”, Lockheed Martin, 29 May 2019. Remote.
- “Formal Design, Implementation and Verification of Blockchain Languages”, IEEE International Conference on Blockchain and Cryptocurrency (ICBC’19), Seoul, Korea, 17 May 2019. Invited talk.
- “K: A Semantic Framework for Programming Languages and Formal Analysis Tools”, SETSS’19 Summer School, Chongqing, China, 21-22 April 2019.
- “Formal Design, Implementation and Verification of Blockchain Languages and Virtual Machines”, Peking University, Beijing, China, 19 April 2019.
- “KEVM, Jello Paper, IELE”, RunEVM’19, Berlin, Germany, 16 April 2019.
- “Formal Design, Implementation and Verification of Languages with K”, LangDev’19, Amsterdam, Netherlands, 21 March 2019.
- “Formal Design, Implementation and Verification of Blockchain Languages and Virtual Machines”, Microsoft Research, Redmond, USA, 11 March 2019.
- “K and Matching Logic”, PlutusFest’18, Edinburgh, UK, 12 December 2018.
- “Formal Design, Implementation and Verification of Blockchain Languages and Virtual Machines”, Jump Trading, Chicago, USA, 28 November 2018.

- “Formal Design, Implementation and Verification of Blockchain Languages and Virtual Machines”, FMCAD’18, Austin, USA, 2 November 2018. Invited talk.
- “Formal Design, Implementation and Verification of Blockchain Languages and Virtual Machines”, FACS’18, Pohang, Korea, 11 October 2018. Invited talk.
- “Formal Design, Implementation and Verification of Blockchain Languages and Virtual Machines”, East China Normal University, Shanghai, China, 7 October 2018.
- “Formal Design, Implementation and Verification of Blockchain Languages and Virtual Machines”: FSCD’18, Oxford, UK, 11 July 2018. Invited talk.
- “Why and How Does K work? The Logical Infrastructure Behind It”, LFMTP’18, Oxford, UK, 7 July 2018. Invited talk.
- “Formal Design, Implementation and Verification of Blockchain Languages and Virtual Machines”: Formal Methods Symposium, FROM’18, Iasi, Romania, 18 June 2018; University Alexandru Ioan-Cuza, Iasi, Romania, 21 June 2018; University of Bucharest, Bucharest, Romania, 22 June 2018; Polytechnic University, Bucharest, Romania, 5 July 2018.
- “K Framework – Overview”, IOHK Summit, Lisbon, Portugal, 18 January 2018. Remote.
- “K: A Logic-Based Framework for Program Semantics and Analysis”, 27<sup>th</sup> International Symposium on Logic-based Program Synthesis and Transformation (LOPSTR’17), Namur, Belgium, 12 October 2017. Invited talk.
- “Matching Logic”, Formal Methods Symposium, FROM’17, Iasi, Romania, 8 July 2017. Invited talk.
- “Matching Logic”, Zurich, Switzerland, 8 April 2017 (ECOOP PC meeting workshop).
- “K: A Semantic Framework for Programming Languages and Formal Analysis Tools”, Marktoberdorf NATO Summer School, August 2016.
- “Semantics-Based Program Verifiers for All Languages”, Microsoft Research, Redmond, USA, 9 June 2016.
- “Runtime Verification: Technology and Products”: NASA Goddard on 3 March 2016; NSA on 4 March 2016; NASA Ames on 5 May 2016; NASA JPL on 6 May 2016.
- “K: A Semantic Framework for Programming Languages and Formal Analysis Tools”, ETAPS 2016 Tutorial, Eindhoven, The Netherlands, 6 April 2016.
- “Program Verification using Reachability Logic”. WRLA 2016 Tutorial, Eindhoven, The Netherlands, 2 April 2016.
- “From Rewriting Logic, to Programming Language Semantics, to Program Verification”, Logic, Rewriting, and Concurrency: Festschrift Symposium in Honor of José Meseguer, Urbana, Illinois, USA, September 23-25, 2015.
- “Matching Logic—Extended Abstract”, the 26<sup>th</sup> International Conference on Rewriting Techniques and Applications (RTA’15), Warsaw, Poland, 29 June 2015. Invited talk.

- “RV-Monitor: Efficient Parametric Runtime Verification with Simultaneous Properties”, the 14<sup>th</sup> International Conference on Runtime Verification (RV’14), Toronto, Canada, 25 September 2014.
- “Behavioral Rewrite Systems and Behavioral Productivity”. Specification, Algebra, and Software: A Festschrift Symposium in Honor of Kokichi Futatsugi (SAS 2014), Kanazawa, Japan, 14-16 April 2014.
- “Specify and verify your language using K”, 15<sup>th</sup> Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC’13), Timisoara, Romania, 24 September 2013.
- “Specify and verify your language using K”, Workshop on Scalable Language Specification (SLS’13), Cambridge, U.K., 25 July 2013.
- “Certifiable Runtime Verification”, DARPA-HACMS, Stevenson, Washington, USA, 23 July 2013.
- “EnforceMOP: A Runtime Property Enforcement System for Multithreaded Programs”, the International Symposium in Software Testing and Analysis (ISSTA’13), Lugano, Switzerland, 17 July 2013.
- “One-Path Reachability Logic”, 28<sup>th</sup> ACM/IEEE Symposium on Logic In Computer Science (LICS’13), New Orleans, USA, 27 June 2013.
- “Design and Verify Your Programming Language using K”, the Scalable Language Specifications workshop, Cambridge, U.K., 25 June 2013. Invited talk.
- “Certifiable Runtime Verification and C Code Generation”, DARPA-HACMS, Los Angeles, California, USA, 7 February 2013.
- “K Tutorial”, 40<sup>th</sup> ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL’13), Rome, Italy, 21 January 2013.
- “Do We Really Need Axiomatic Semantics?”, IFIP W.G. 2.2, CWI, Amsterdam, Netherlands, 25 September 2012.
- “K Tutorial”, Summer School on Language Frameworks, Sinaia, Romania, 28 July 2012.
- “Towards a Unified Theory of Operational and Axiomatic Semantics”, 39<sup>th</sup> International Colloquium on Automata, Languages and Programming (ICALP’12), Warwick, UK, 12 July 2012.
- “K Tutorial”, 33<sup>rd</sup> ACM SIGPLAN International Conference on Programming Language Design and Implementation (PLDI’12), Beijing, China, 16 June 2012.
- “K and Matching Logic”, IFIP W.G. 1.3, Salamanca, Spain, 12 June 2012.
- “JavaMOP: An Efficient Parametric Runtime Monitoring Framework”, formal tool demo at the 34<sup>th</sup> International Conference on Software Engineering, Zurich, Switzerland, 2-9 June 2012.
- “K and Matching Logic”, Northeastern University, Boston, Massachusetts, USA, 16 November 2011.
- “K and Matching Logic”, the Midwest Verification Day, University of Minnesota, USA, 30 September 2011. Invited talk.

- “RV: A Runtime Verification Framework for Monitoring, Prediction and Mining”, the Workshop on Assurances for Self-Adaptive Systems (ASAS’11), Budapest, Hungary, 4 September 2011. Invited talk.
- “The Art and Science of Program Verification”, interviewed by Wolfram Schulte on Channel 9 at ICSE’11, June 2011: <http://channel9.msdn.com/posts/ICSE-2011-Grigore-Rosu-The-Art-and-Science-of-Program-Verification>.
- “Matching Logic”, Stanford Research Institute, California, USA, 10 June 2011.
- “Matching Logic”, NASA Ames, California, USA, 9 June 2011.
- “Matching Logic”, the 11<sup>th</sup> conference on High Confidence Software and Systems (HCSS’11), Annapolis, Maryland, USA, 6 May 2011.
- “Matching Logic: A New Program Verification Approach”, Alexandru Ioan Cuza University, Iași, Romania, 15 January 2011.
- “An Overview of the K Framework”, Alexandru Ioan Cuza University, Iași, Romania, 14 January 2011.
- “An Overview of the K Framework”, University of Bucharest, Romania, 12 January 2011.
- “RV: A Runtime Verification Framework for Monitoring, Prediction and Mining”, ETH Zurich, Switzerland, 7 January 2011.
- “Matching Logic: A New Program Verification Approach”, the NSF/Microsoft workshop on Usable Verification (UV’10), Redmond, Washington, 16 November 2010.
- “Runtime Verification with the RV System”, the 1<sup>st</sup> International Conference on Runtime Verification (RV’10), Malta, 1 November 2010. Tutorial.
- “Matching Logic: An Alternative to Hoare/Floyd Logic”, the 13<sup>th</sup> International Conference on Algebraic Methodology and Software Technology, AMAST’10, Québec, Canada, 24 June 2010.
- “Runtime Verification with Monitoring Oriented Programming”, the 24<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering (ASE’09), Auckland, New Zealand, 17 November 2009. Tutorial.
- “Runtime Verification using MOP”, the 9<sup>th</sup> Workshop on Runtime Verification (RV’09), Grenoble, France, 26 June 2009. Tutorial.
- “Runtime Verification of C Memory Safety”, the 9<sup>th</sup> Workshop on Runtime Verification (RV’09), Grenoble, France, 27 June 2009.
- “Monitoring-Oriented Programming: A Project Overview”, the 4<sup>th</sup> International Conference on Intelligent Computing and Information Systems (ICICIS’09), Cairo, Egypt, 19 March 2009.
- “Parametric Trace Slicing and Monitoring”, the 15<sup>th</sup> International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS’09), York, UK, 25 March 2009.
- “A Matching Logic Program Verifier”, Microsoft Research, Redmond, Seattle, USA, November 2008. Verification seminar.

- “An Integrated Tool-Supported Framework for IVHM Monitoring, Control and Verification”, NASA Aviation Safety Technical Conference, Denver, Colorado, USA, 22 October 2008. Panel talk.
- “jPredictor: A Predictive Runtime Analysis Tool for Java”, Microsoft Research, Redmond, Seattle, USA, October 2008. Verification seminar.
- “Monitoring Oriented Programming”, Microsoft Research, Redmond, Seattle, USA, October 2008. Testing seminar.
- “K: a Rewrite-based Framework for Modular Language Design, Semantics, Analysis and Implementation”, the 8<sup>th</sup> Spanish Conference on Programming and Computer Languages (PROLE’08), Gijón, Spain, 9 October 2008.
- “jPredictor: A Predictive Runtime Analysis Tool for Java”, Microsoft Research, Redmond, Seattle, USA, September 2008. Testing seminar.
- “K: the Concurrent Rewrite Abstract Machine”, the IFIP WG1.3 meeting, Urbana, Illinois, 2 August 2008.
- “Term Logic”, the 19<sup>th</sup> International Workshop on Algebraic Development Techniques (WADT’08), Pisa, Italy, 14 June 2008.
- “A Rewriting Approach to Type Inference”, the 19<sup>th</sup> International Workshop on Algebraic Development Techniques (WADT’08), Pisa, Italy, 14 June 2008.
- “Monitoring IVHM Systems using a Monitor-Oriented Programming Framework”, NASA Langley Formal Methods Workshop (LFM’08), NASA Langley, Virginia, USA, 30 April 2008.
- “Synthesizing Monitors for Safety Properties - This Time With Calls and Returns”, the 8<sup>th</sup> Workshop on Runtime Verification (RV’08), Budapest, Hungary, 30 March 2008.
- “MOP: An Efficient and Generic Runtime Verification Framework”, the 22<sup>nd</sup> SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA’07), Montreal, Canada, 25 October 2007.
- “MOP: A Generic and Efficient Runtime Verification Framework”, Microsoft Research, Redmond, Seattle, USA, 27 April 2007.
- “MOP: A Generic and Efficient Runtime Verification Framework”, Carnegie Mellon University, Pittsburgh, USA, 23 April 2007.
- “Monitoring-based Programming and Analysis”, Stanford Research Institute, Menlo Park, USA, 7 March 2007.
- “Monitoring-based Programming and Analysis”, Stanford University, Stanford, USA, 6 March 2007.
- “Monitoring-based Programming and Analysis”, University of California at Berkeley, Berkeley, USA, 5 March 2007.
- “Monitoring-based Programming and Analysis”, University of Texas at Austin, Texas, USA, 1 February 2007.

- “MOP: A Monitoring-based Framework for Reliable Software Development”, Dagstuhl, Germany, 5 January 2007.
- “Monitoring-Oriented Programming and Analysis”, VERIMAG, Grenoble, France, 21 December 2006.
- “Equality of Streams is a  $\Pi_2^0$ -Complete Problem”, FM Seminar at UIUC, Urbana, 22 September 2006.
- “Equality of Streams is a  $\Pi_2^0$ -Complete Problem”, International Conference on Functional Programming (ICFP’06), Portland, Oregon, 19 September 2006.
- “Allen Linear Temporal Logic – Translation to LTL and Monitor Synthesis”, Computer-Aided Verification (CAV’06), Seattle, Washington, USA, 18 August 2006.
- “Computationally Equivalent Elimination of Conditions”, Rewriting Techniques and Applications (RTA’06), Seattle, Washington, USA, 11 August 2006.
- “K: A Rewrite-based Framework for Modular Language Design, Semantics, Analysis and Implementation”, IFIP W.G.1.3, San Diego, California, USA, 30 June 2006.
- “Complete Categorical Deduction for Satisfaction as Injectivity”, Algebra, Meaning, and Computation: A Festschrift Symposium in Honor of Joseph Goguen, San Diego, California, USA, 27 June 2006.
- “It’s Not Too Much To Ask: Ensuring software reliability through Formal Methods”, Panel presentation jointly with Byron Cook, Darko Marinov, Dan Morris, and Ben Watson, moderator José Meseguer, Urbana, Illinois, USA, 28 April 2006.
- “Rewrite Engines Competition”, Workshop on Rewriting Logic and its Applications (WRLA’06), Vienna, Austria, 2 April 2006.
- “A Rewrite Framework for Language Definitions and for Generation of Efficient Interpreters”, Workshop on Rewriting Logic and its Applications (WRLA’06), Vienna, Austria, 1 April 2006.
- “Computational Logical Frameworks and Generic Program Analysis Technologies”, Verified Software: Theories, Tools, Experiments (VSTTE’05), ETH Zurich, 12 October 2005. A meeting to address a challenge by Tony Hoare, based on invitations only.
- “Design and Semantics of Programming Languages using Rewriting Logic”, IFIP W.G.1.3, Swansea, Wales, UK, 7 September 2005.
- “Behavioral Extensions of Institutions”, 1<sup>st</sup> Conference on Algebra and Coalgebra in Computer Science (CALCO’05) Swansea, Wales, UK, 5 September 2005.
- “Runtime Verification and Monitoring”, IRISA, Rennes, France, 13 July 2005.
- “Checking and Correcting Behaviors of Java Programs at Runtime with Java-MOP”, the 5<sup>th</sup> Workshop on Runtime Verification (RV’05), Edinburgh, Scotland, UK, 12 July 2005.
- “Efficient Monitoring of  $\Omega$ -Languages”, the 17<sup>th</sup> International Conference on Computer Aided Verification (CAV’05), Edinburgh, Scotland, UK, 9 July 2005.

- “Runtime Verification and Monitoring”, ETH Zurich, Switzerland, 21 June 2005.
- “Detecting Errors in Multithreaded Programs by Generalized Predictive Analysis of Executions”, the 7<sup>th</sup> International Conference on Formal Methods for Open Object-based Distributed Systems (FMOODS’05), Athens, Greece, 16 June 2005.
- “A Formal Monitoring-based Framework for Software Development and Analysis”, the 6<sup>th</sup> International Conference on Formal Engineering Methods (ICFEM’04), Seattle, USA, 12 November 2004.
- “Formal Systems and Tools”, Lockheed-Martin & UIUC Workshop on System Integration, Urbana, Illinois, USA, 13 April 2004.
- “Monitoring Algorithms for Metric Temporal Logic Specifications”, Runtime Verification (RV’04), Barcelona, Spain, 3 April 2004.
- “Towards Eliminating Conditional Rewrite Rules”, Workshop on Algebraic Development Techniques (WADT’04), Barcelona, Spain, 27 March 2004.
- “Formal Methods Research at UIUC”, with José Meseguer, Microsoft Research, Redmond, USA, 20 January 2004.
- “Generating Optimal Monitors for Extended Regular Expressions”, Runtime Verification (RV’03), Boulder, Colorado, USA, 13 July 2003.
- “Towards Monitoring-Oriented Programming: A Paradigm Combining Specification and Implementation”, Runtime Verification (RV’03), Boulder, Colorado, USA, 13 July 2003.
- “Certifying Optimality of State Estimation Programs”, Computer Aided Verification (CAV’03), Boulder, Colorado, USA, 8-12 July 2003.
- “Runtime Analysis of Multithreaded Programs”, Laboratoire Spécification et Vérification, Ecole Normale Supérieure de Cachan, France, 24 June 2003.
- “Domain Specific Certification”, Université de Paris-Sud, Paris, France, 23 June 2003.
- “Runtime Analysis of Multithreaded Programs”, VERIMAG, Grenoble, France, 17 June 2003.
- “On Scalable Software Formal Analysis Techniques”, Departament de Llenguatges i Sistemes Informàtics and Universitat Politècnica de Catalunya, Barcelona, Spain, 13 June 2003.
- “Testing Extended Regular Language Membership Incrementally by Rewriting”, Rewriting Techniques and Applications (RTA’03), Valencia, Spain, 11 June 2003.
- “Rule-based Analysis of Dimensional Safety”, Rewriting Techniques and Applications (RTA’03), Valencia, Spain, 9 June 2003.
- “Monitoring Extended Regular Expressions”, IFIP W.G.1.3, Menorca Island, Spain, 4 June 2003.
- “On Scalable Software Formal Analysis Techniques”, Universidad Complutense Madrid, Spain, 30 May 2003.
- “On Scalable Formal Methods”, University of Illinois at Urbana-Champaign, USA, 31 March 2003.



- “Hidden Logic - Circular Coinductive Rewriting -”, Indiana University, USA, 24 October 2002.
- “Increasing Mission Critical Software Reliability using Algebraic Specification”, Indiana University, USA, 23 October 2002.
- “Towards Certifying Domain-Specific Properties of Synthesized Code”, Verification and Computational Logic (VCL’02), Pittsburgh, PA, USA, 5 October 2002.
- “On Implementing Behavioral Rewriting”, ACM SIGPLAN Workshop on Rule-Based Programming (RULE’02), Pittsburgh, PA, USA, 5 October 2002.
- “On Lightweight Formal Methods in System Specification and Verification”, IFIP W.G.1.3, 16<sup>th</sup> International Workshop on Algebraic Development Techniques, Frauenchiemsee, Germany, 23 September 2002.
- “Experiments and Methods in Dynamic Analysis of Programs”, Los Alamos National Laboratory, USA, 23 May 2002.
- “Synthesizing Monitors for Safety Properties”, Tools and Algorithms for Construction and Analysis of Systems (TACAS’02), Grenoble, France, 10 April 2002. Best software science presentation award winner at ETAPS’02 (offered by EASST).
- “Experiments and Methods in Dynamic Analysis of Programs”, University of Illinois at Urbana-Champaign, USA, 28 February 2002.
- “Monitoring Programs using Rewriting”, with Klaus Havelund, Automated Software Engineering (ASE’01), San Diego, California, USA. 28 November 2001.
- “Certifying Domain-Specific Policies”, with Michael Lowry, Automated Software Engineering (ASE’01), San Diego, California, USA. 27 November 2001.
- “Behavioral Verification with BOBJ and Kumo”, with Joseph Goguen and Kai Lin, Automated Software Engineering (ASE’01), San Diego, California, USA. 26 November 2001. Tutorial.
- “Complete Categorical Equational Deduction”, Annual Conference on Computer Science Logic (CSL’01), Paris, France, 10-13 September 2001.
- “Interpreting Abstract Interpretations in Membership Equational Logic”, Workshop on Rule-Based Programming (RULE’01), Florence, Italy, 4 September 2001.
- “Monitoring Java programs with Java PathExplorer”, with Klaus Havelund, Runtime Verification (RV’01), Paris, France, 23 July 2001.
- “Hidden Logic”, Stanford University, California, USA, 19 January 2001.
- “BOBJ Behavioral Specification and Reasoning System”, Formal Methods for Open Object-Based Distributed Systems (FMOODS’00), Stanford University, California, USA, 7 September 2000.
- “Recent Results in Hidden Logic”, University of Bucharest, 29 August 2000.
- “Hidden Logic”, University of California at San Diego, California, USA, 8 June 2000. PhD Thesis Defense.

- “Some Hidden Logic Gems”, SRI International, California, USA, 18 May 2000.
- “Some Hidden Logic Gems”, National University of Singapore, 4 April 2000.
- “Incompleteness of Behavioral Logics”, Workshop on Coalgebraic Methods in Computer Science (CMCS’00), Berlin, Germany, 26 March 2000.
- “Hidden Logic Gems”, Microsoft Research, Seattle, USA, 28 February 2000.
- “Hidden Logic Gems”, NASA Ames, California, USA, 23 February 2000.
- “Hiding More of Hidden Algebra”, with Joseph Goguen, World Congress on Formal Methods (FM’99), Toulouse, France, 23 September 1999.
- “Behavioral Coinductive Rewriting”, OBJ/CafeOBJ/Maude Workshop at Formal Methods 1999 (FM’99), Toulouse, France, 22 September 1999.
- “Abstract Semantics for Module Composition”, 14<sup>th</sup> International Workshop on Algebraic Development Techniques (WADT’99), Bonas, France, 17 Sept 1999.
- “A Protocol for Distributed Cooperative Work”, with Joseph Goguen, Workshop on Distributed Systems, Iași, Romania, 2 September 1999. Invited lecture.
- “Injectivity and Projectivity in Axiomatizability and Co-Axiomatizability”, 9<sup>th</sup> Workshop on Foundational Methods in Computer Science (FMCS’99), University of Alberta, Calgary, Canada, 5 June 1999.
- “Hidden Congruent Deduction”, Hidden Algebra Day in Bucharest (HADIB’98), Bucharest, Romania, 17 December 1998.
- “Institution-based Semantics for Horizontal Module Composition”, 8<sup>th</sup> Workshop on Foundational Methods in Computer Science (FMCS’98), Portland, Oregon, USA, 30 May 1998.
- “Support for Distributed Cooperative Software Engineering”, 13<sup>th</sup> Workshop on Algebraic Development Techniques (WADT’98), Lisbon, Portugal, 4 April 1998.
- “A Birkhoff-like Axiomatizability Result for Hidden Algebra and Coalgebra”, First Workshop on Coalgebraic Methods in Computer Science (CMCS’98), Lisbon, Portugal, 19 March 1998.
- “Inclusive Equational Logics”, National Symposium “Info-Junior”, Iași, Romania, 1995.
- “Knuth-Bendix Completion in Prolog”, National Symposium “Info-Junior”, Iași, Romania, 1993.

## **Mentored Students**

### **Students I currently supervise**

I am currently the advisor of the following graduate students (ordered by when they became my students):

Owolabi Legunsen - PhD - Started in 2013. (Owolabi is coadvised jointly with Darko Marinov)  
Yi Zhang - PhD - Started in 2013.  
Ali Kheradmand - PhD - Started in 2014.  
Lucas Pena - PhD - Started in 2015.  
Xiaohong Chen - PhD - Started in 2016.  
Manasvi Saxena - PhD - Started in 2018.  
Nishant Rodrigues - PhD - Started in 2018.  
Andrew Miranti - MS - Started in 2018.  
Michael Abir - MS - Started in 2019.

## **Students who graduated under my supervision**

The following students graduated under my supervision, in reverse chronological order by graduation date (note: please let me know if you have more recent information about my former students):

Daejun Park (UIUC 2013-2019, PhD). Runtime Verification, USA.  
Cosmin Rădoi (UIUC 2013-2018, PhD). Startup Silicon Valey, USA.  
Manasvi Saxena (UIUC 2017-2018, MS). UIUC, PhD program.  
Brandon M. Moore (UIUC 2012-2017, PhD). Runtime Verification, USA.  
Andrei Ștefănescu (UIUC 2009-2016, PhD). Galois, USA.  
Qingzhou Luo (UIUC 2010-2015, PhD; coadvised jointly with Darko Marinov). Google, USA.  
Cansu Erdogan (UIUC 2012-2014, M.S.). Chicago software company, USA.  
Choonghwan Lee (UIUC 2008-2013, PhD). New York software company, USA.  
Dwight Guth (UIUC 2012-2013, M.S.). Runtime Verification, USA.  
Patrick Meredith (UIUC 2007-2012, PhD). New York financial company, USA.  
Dongyun Jin (UIUC 2007-2012, PhD). Samsung, South Korea & Silicon Valley, USA.  
Chucky Ellison (UIUC 2007-2012, PhD). New York software company, USA.  
Traian Florin Șerbănuță (UIUC 2004-2010, PhD). University of Bucharest, Romania, and RV, USA.  
Mark Hills (UIUC 2004-2009, Ph.D.). East Carolina University, USA.  
Feng Chen (UIUC 2002-2009, Ph.D.). Iowa State University, USA, but passed away in August 2009.  
Andrew Bennett (UIUC 2005-2006, M.S.). Boston software company, USA.  
Ram Prasad Venkatesan (UIUC 2002-2004, M.S.). Microsoft in Redmond, USA.

## **Former/Visiting students or researchers**

I supervised the following graduate students for some period of time, specified in parentheses (reverse chronological order by leaving date):

Minh Thai Trinh (NUS/ADSC Singapore, 2018-????; postdoc).  
He Xiao (UIUC 2014-2016, left PhD program).  
Shijiao Yuwen (UIUC 2014-2016, left PhD program).  
Jeff Huang (UIUC 2013-2014). Postdoc. He got his PhD from the Hong Kong UST in 2012.  
Michael D. Adams (UIUC 2013-2014). Postdoc. He got his PhD from Indiana University in 2011.  
Francisco Rios (UIUC 2008-2012, Mathematics Department at UIUC).  
Codruța Gârlea (UIUC 2010-2012, coadvised jointly with Eyal Amir). Advised by Eyal after 2012.  
Soha Hussein (UIUC 2009-2011, visiting student from University of Ain Shams, Egypt).

Elena Naum (UIUC 2010, visiting student from University Alexandru Ioan Cuza, Iasi, Romania).  
Dennis Griffith (UIUC 2009-2010). Advised by Elsa Gunter after 2010.  
Yaniv Eytani (UIUC 2006-2008).  
Andrei Popescu (UIUC 2004-2006). Advised by Elsa Gunter after 2006.  
Sanjit Saluja (UIUC 2004-2005).  
Marcelo d' Amorim (UIUC 2004-2005). Advised by Darko Marinov after 2005.  
Sophie Quinton (UIUC 2004 and 2005 summer internships, from ENS Cachan, France).  
Laurențiu Leuștean (NASA 2002 summer internship, from the University of Bucharest, Romania).  
Scott Johnson (NASA 2001 summer internship, from the University of Wyoming, USA).

I also supervised several undergraduate students: David Lazar (2009-2012); Michael Ilseman (2009-2010); Philip Daian (2012-2015); Manasvi Saxena (2014-2105).

### **Thesis committee**

I was or still am in the PhD thesis committees of the following students, in addition to those who I directly supervise (reverse chronological order by thesis defense date):

Theodoros Kasampalis (UIUC ????.; adviser Vikram S. Adve)  
Stephen Skeirik (UIUC ????.; adviser José Meseguer)  
Liyi Li (UIUC ????.; adviser Elsa Gunter)  
Umang Mathur (UIUC ????.; Madhusudan Parthasarathy)  
Sandeep Dasgupta (UIUC ????.; adviser Vikram S. Adve)  
Susannah Elizabeth Mansky (UIUC ????.; adviser Elsa Gunter)  
Fan Yang (UIUC 2019; adviser José Meseguer)  
Jiho Choi (UIUC 2018; adviser Joseph Torellas)  
Chris Hathhorn (U of Missouri 2017; adviser William L. Harrison)  
Edgar Pek (UIUC 2015; adviser Madhusudan Parthasarathy)  
Milos Gligoric (UIUC 2015; adviser Darko Marinov)  
Francesco Sorrentino (UIUC 2014; adviser Madhusudan Parthasarathy)  
Kyungmin Bae (UIUC 2014; adviser Jose Meseguer)  
William Mansky (UIUC 2014; adviser Elsa Gunter)  
Măriuca Irina Asăvoae (Iași, Romania, 2012; adviser Dorel Lucanu)  
Mihai Asăvoae (Iași, Romania, 2012; adviser Dorel Lucanu)  
Michael Katelman (UIUC 2011; adviser Jose Meseguer)  
Nicholas Rizzolo (UIUC 2011; adviser Dan Roth)  
Ayesha Yasmeen (UIUC 2011; adviser Elsa Gunter)  
Musab Ahmad AlTurki (UIUC 2011; adviser Jose Meseguer)  
Robert Bocchino (UIUC 2010; adviser Vikram Adve)  
Andrei Popescu (UIUC 2010; adviser Elsa Gunter)  
Sameer Sundresh (UIUC 2009; adviser Gul Agha)  
Tankut Baris Aktemur (UIUC 2009; adviser Sam Kamin).  
Karthik Pattabiraman (UIUC 2008; adviser Ravishankar Iyer).  
Azadeh Farzan (UIUC 2006; adviser José Meseguer).  
Hui Ding (UIUC 2006; adviser Lui Sha).  
Ajay Sudarshan Tirumala (UIUC 2006; adviser Lui Sha).

Sumant Kowshik (UIUC 2006; adviser Lui Sha).  
Koushik Sen (UIUC 2006; adviser Gul Agha).  
Clemens Kupke (Amsterdam 2006; adviser Jan Rutten).  
Abhay Vardhan (UIUC 2005; adviser Mahesh Viswanathan).  
Yixin Chen (UIUC 2005; adviser Benjamin W. Wah).  
Girish Baliga (UIUC 2005; P.R. Kumar).  
Hong-Seok Kim (UIUC 2004; adviser Wen-Mei W. Hwu).

## **Professional Activities**

### **General Chair**

- SPIN'20, location to be determined, USA. Co-chaired with Owolabi Legunsen.
- ASE'17, Urbana, Illinois, USA.

### **Program Chair**

- 14<sup>th</sup> International Conference on Formal Techniques for Distributed Systems, and 32<sup>nd</sup> Formal Techniques for Networked and Distributed Systems, FMOODS&FORTE 2012, 13-16 June 2012, Stockholm, Sweden. With Holger Giese.
- 1<sup>st</sup> International Conference on Runtime Verification, RV'10, 1-5 November 2010, Malta. With Oleg Sokolsky.
- 12<sup>th</sup> International Conference on Algebraic Methodology and Software Technology, AMAST '08, 28-31 July 2008, Urbana, Illinois, USA. With José Meseguer.
- 7<sup>th</sup> International Workshop on Rewriting Logic and its Applications, WRLA'08, 29-30 March 2008, Budapest, Hungary. Satellite to European Joint Conferences on Theory and Practice of Software 2008 (ETAPS'08).
- 1<sup>st</sup> Joint International Workshop on Formal Aspects of Testing and Runtime Verification, FATES/RV 2006, 16 August 2006, Seattle, Washington, USA. With Klaus Havelund, Manuel Nunez, and Burkhart Wolff. Held in conjunction with the 2006 Federated Logic Conference (FLoC 2006).
- 4<sup>th</sup> Runtime Verification workshop, RV'04, 3 April 2004, Barcelona, Spain. With Klaus Havelund. Satellite workshop to European Joint Conferences on Theory and Practice of Software 2004 (ETAPS'04).
- 2<sup>nd</sup> Runtime Verification workshop, RV'02, 26 July 2002, Copenhagen, Denmark. With Klaus Havelund. Satellite workshop to Computer Aided Verification 2002 (CAV'02).
- 1<sup>st</sup> Runtime Verification workshop, RV'01, 23 July 2001, Paris, France. With Klaus Havelund. Satellite workshop to Computer Aided Verification 2001 (CAV'01).

## Steering Committee Member

- ASE'20
- WRLA'20
- RV'20
- ASE'19
- RV'19
- ASE'18
- RV'18
- WADT'18
- WRLA'18
- 7<sup>th</sup> International Conference on Algebra and Coalgebra in Computer Science, 12–16 June 2017, Ljubljana, Slovenia.
- 16<sup>th</sup> International Conference on Runtime Verification, 23-30 September 2016, Madrid, Spain.
- 23<sup>rd</sup> International Workshop on Algebraic Development Techniques, WADT 2016, 21-24 September 2016, Gregynnog, Wales.
- 11<sup>th</sup> International Workshop on Rewriting Logic and its Applications, WRLA'16, April 2-3, 2016, Eindhoven, Netherlands.
- 15<sup>th</sup> International Conference on Runtime Verification, RV'15, 22-25 September 2015 Vienna, Austria.
- 35<sup>th</sup> Formal Techniques for Networked and Distributed Systems, FORTE'15, 3-5 June 2015, Rhone-Alpes, FRANCE.
- 34<sup>th</sup> Formal Techniques for Networked and Distributed Systems, FORTE'14, 3-6 June 2014, Berlin, Germany.
- 22<sup>nd</sup> International Workshop on Algebraic Development Techniques, WADT'14, 4-7 September 2014, Sinaia, Romania.
- 10<sup>th</sup> International Workshop on Rewriting Logic and its Applications, WRLA'14, 5-6 April 2014, Grenoble, France. Satellite to European Joint Conferences on Theory and Practice of Software 2014 (ETAPS'14).
- 4<sup>th</sup> International Conference on Runtime Verification, RV'13, 24-27 September 2013, Rennes, France.
- 15<sup>th</sup> International Conference on Formal Techniques for Distributed Systems, and 33<sup>rd</sup> Formal Techniques for Networked and Distributed Systems, FMOODS&FORTE'13, 3-6 June 2013, Florence, Italy.

- 3<sup>rd</sup> International Conference on Runtime Verification, RV'12, 25-28 September 2012, Istanbul, Turkey.
- 21<sup>st</sup> International Workshop on Algebraic Development Techniques, WADT'12, 7-10 June, 2012, Salamanca, Spain.
- 9<sup>th</sup> International Workshop on Rewriting Logic and its Applications, WRLA'12, 24-25 March 2012, Tallinn, Estonia. Satellite to European Joint Conferences on Theory and Practice of Software 2012 (ETAPS'12).
- 2<sup>nd</sup> International Conference on Runtime Verification, RV'11, 27-30 September 2011, San Francisco, USA.
- 2<sup>nd</sup> International K Workshop, K'11, 8-12 August 2011, Cheile Gradistei, Romania.
- 1<sup>st</sup> International Conference on Runtime Verification, RV'10, 1-5 November 2010, Malta.
- 20<sup>th</sup> International Workshop on Algebraic Development Techniques, WADT'10, Schloss Etelsen, Germany, 1-4 July 2010.
- 8<sup>th</sup> International Workshop on Rewriting Logic and its Applications, WRLA'10, Paphos, Cyprus. Satellite to European Joint Conferences on Theory and Practice of Software 2010 (ETAPS'10).
- 9<sup>th</sup> Runtime Verification workshop, RV'09, 26-28 June 2009, Grenoble, France. Satellite workshop to Computer Aided Verification 2009 (CAV'09).
- 7<sup>th</sup> Runtime Verification workshop, RV'07, 13 March 2007, Vancouver, Canada. Satellite workshop to the International Conference on Aspect-Oriented System Development 2007 (AOSD'07).
- 5<sup>th</sup> Runtime Verification workshop, RV'05, 12 July 2005, Edinburgh, Scotland, UK. Satellite workshop to Computer Aided Verification 2005 (CAV'05).
- 4<sup>th</sup> Runtime Verification workshop, RV'04, 3 April 2004, Barcelona, Spain. Satellite workshop to European Joint Conferences on Theory and Practice of Software 2004 (ETAPS'04).
- 3<sup>rd</sup> Runtime Verification workshop, RV'03, 13 July 2003, Boulder, Colorado, USA. Satellite workshop to Computer Aided Verification 2003 (CAV'03).

## Organizer

- Dagstuhl Seminar of Rigorous Methods for Smart Contracts, 2-5 June 2020, Dagstuhl, Germany. With Maria Christakis, Nikolaj Bjorner, Maffei Matteo.
- Summer School on Language Frameworks, 23-31 July 2012, Sinaia, Romania. With Dorel Lucanu.
- CALCO'09 Tools Day, 6 September 2009, Bergen, Norway. With Luigi Liquori.
- 12<sup>th</sup> International Conference on Algebraic Methodology and Software Technology, AMAST '08, 28-31 July 2008. With Mark Hills, José Meseguer, and Ralf Sasse.
- 7<sup>th</sup> International Workshop on Rewriting Logic and its Applications, WRLA'08, 29-30 March 2008, Budapest, Hungary. Satellite to European Joint Conferences on Theory and Practice of Software 2008 (ETAPS'08).

- CALCO'07 Tools Day, 20 August 2007, Bergen, Norway. With Narciso Marti-Oliet.
- Dagstuhl seminar on Runtime Verification, 2-6 January 2007. With Bernd Finkbeiner, Klaus Havelund, and Oleg Sokolsky.
- 1<sup>st</sup> Joint International Workshop on Formal Aspects of Testing and Runtime Verification, FATES/RV 2006, 16 August 2006, Seattle, Washington, USA. With Klaus Havelund, Manuel Nunez, and Burkhart Wolff. Held in conjunction with the 2006 Federated Logic Conference (FLoC 2006).
- Rewrite engine competition at WRLA'06, 2 April 2006, Vienna, Austria. WRLA'06 was a satellite workshop to the European Joint Conferences on Theory and Practice of Software 2006 (ETAPS'06).
- 4<sup>th</sup> Runtime Verification workshop, RV'04, 3 April 2004, Barcelona, Spain. With Klaus Havelund. Satellite workshop to European Joint Conferences on Theory and Practice of Software 2004 (ETAPS'04).
- 2<sup>nd</sup> Runtime Verification workshop, RV'02, 26 July 2002, Copenhagen, Denmark. With Klaus Havelund. Satellite workshop to Computer Aided Verification 2002 (CAV'02).
- 1<sup>st</sup> Runtime Verification workshop, RV'01, 23 July 2001, Paris, France. With Klaus Havelund. Satellite workshop to Computer Aided Verification 2001 (CAV'01).

### **Program Committee Member**

- PLDI'20 EPC
- SEFM'20
- ICBC'20
- ICSE SEIP'20
- WRLA'20
- RV'20
- FSCD'20
- SPISA'19
- RV'19
- SEFM'19
- CONCUR'19,
- OOPSLA'19
- CAV'19
- DATE'18
- FSCD'18



- RV'18
- FM'18 Industry Day
- FM'18
- PADL'18
- PLDI'18
- FSCD'18,
- WRLA'18
- POPL'18
- RV'17
- FSCD'17
- ECOOP'17,
- CALCO'17
- HSCC'17
- 39<sup>th</sup> International Conference on Software Engineering, ICSE'17, May 2017, Buenos Aires, Argentina.
- 21<sup>st</sup> International Symposium on Formal Methods, FM'16, 7-11 November, Limassol, Cyprus.
- The 16<sup>th</sup> International Conference on Runtime Verification, RV'16, 23-30 September 2016, Madrid, Spain.
- 31<sup>st</sup> IEEE/ACM International Conference on Automated Software Engineering, ASE'16, 3-7 September 2016, Singapore.
- 1<sup>st</sup> VORTEX Workshop on Runtime Verification, VORTEX'16, 18 July 2016, Rome Italy.
- 22<sup>nd</sup> International Conference on Tools and Algorithms for the Construction and Analysis of Systems, TACAS'16, 2-8 April 2016, Eindhoven, The Netherlands.
- WRLA'16
- The 30<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering, ASE'15, 9-13 November 2015, Lincoln, Nebraska, USA.
- The 30<sup>th</sup> Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications, OOPSLA'15, part of SPLASH'15, 25-30 October 2015, Pittsburgh, Pennsylvania, USA.
- The 15<sup>th</sup> International Conference on Runtime Verification, RV'15, 22-25 September 2015, Vienna, Austria.

- The 27<sup>th</sup> International Conference on Computer Aided Verification, CAV'15, 18-24 July 2015, San Francisco, California.
- The 20<sup>th</sup> International Symposium on Formal Methods, FM'15, 24-26 June 2015, Oslo, Norway.
- The 31<sup>st</sup> Mathematical Foundations of Programming Semantics, MFPS'15, 22-25 June 2015, Nijmegen, Netherlands.
- The 7<sup>th</sup> NASA Formal Methods Symposium, NFM'15, 27-29 April 2015, Pasadena, California, USA.
- Modularity Visions track at the 14<sup>th</sup> International Conference on Modularity, MV'15, 16-19 March 2015, Fort Collins, Colorado, USA.
- The 13<sup>th</sup> International Conference on Generative Programming: Concepts & Experiences, GPCE'14, 13-15 September, Vasteras, Sweden.
- The 22<sup>nd</sup> International Symposium on the Foundations of Software Engineering, FSE'14, 16-22 November 2014, Hong Kong, China.
- The 5<sup>th</sup> International Conference on Runtime Verification, RV'14, 22-25 September 2014, Toronto, Canada.
- The 11<sup>th</sup> International Colloquium on Theoretical Aspects of Computing, ICTAC'14, 17-20 September 2014, Bucharest, Romania.
- IFIP Theoretical Computer Science, TCS'14, 1-3 September 2014, Rome, Italy.
- The 35<sup>th</sup> ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI'14, 9-11 June 2014, Edinburgh, UK. External Review Committee member.
- The 17<sup>th</sup> International Conference on Foundations of Software Science and Computation Structures, FOSSACS'14, 6-13 April 2014, Grenoble, France.
- 10<sup>th</sup> International Workshop on Rewriting Logic and its Applications, WRLA'14, 5-6 April 2014, Grenoble, France.
- 12<sup>th</sup> International Workshop on Coalgebraic Methods in Computer Science, CMCS'14, 5-6 April 2014, Grenoble, France.
- The 19<sup>th</sup> International Conferences on Logic for Programming, Artificial Intelligence and Reasoning, LPAR'13, 15-19 December 2013, Stellenbosch, South Africa.
- The 28<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering, ASE'13, 11-15 November 2013, Palo Alto, California, USA.
- The 4<sup>th</sup> International Conference on Runtime Verification, RV'13, 24-27 September 2013, Rennes, France.
- The 8<sup>th</sup> ACM SIGPLAN Workshop on Programming Languages and Analysis for Security, PLAS'13, 20-21 June 2013, Seattle, USA.

- The 20<sup>th</sup> International Symposium on the Foundations of Software Engineering, FSE'12, 10-17 November 2012, Research Triangle Park, North Carolina, USA.
- The 27<sup>th</sup> International Conference on Automated Software Engineering, ASE'12, 3-7 September 2012, Essen, Germany.
- The 37<sup>th</sup> International Symposium on Mathematical Foundations of Computer Science, MFCS'12, 27-31 August 2012, Bratislava, Slovakia.
- The 10<sup>th</sup> Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging, PAD-TAD'12, 16 July 2012, Minneapolis, USA.
- The 10<sup>th</sup> International Workshop on Dynamic Analysis, WODA'12, 15 July 2012, Minneapolis, USA.
- The 6<sup>th</sup> International Joint Conference on Automated Reasoning, IJCAR'12, 26 June - 1 July 2012, Manchester, UK.
- 21<sup>st</sup> International Workshop on Algebraic Development Techniques, WADT'12, 7-10 June, 2012, Salamanca, Spain.
- The 23<sup>rd</sup> International Conference on Rewriting Techniques and Applications, RTA'12, 28 May - 2 June 2012, Nagoya, Japan.
- The 50<sup>th</sup> International Conference on Objects, Models, Components and Patterns, TOOLS'12, 29-31 May 2012, Prague, Czech Republic.
- The 11<sup>th</sup> International Workshop on Coalgebraic Methods in Computer Science, CMCS'12, 31 March - 1 April 2012, Tallinn, Estonia. Satellite to European Joint Conferences on Theory and Practice of Software 2012 (ETAPS'12).
- The 8<sup>th</sup> International Workshop on Rewriting Logic and its Applications, WRLA'12, 24-25 March 2012, Tallinn, Estonia. Satellite to European Joint Conferences on Theory and Practice of Software 2012 (ETAPS'12).
- The 18<sup>th</sup> International Conference on Logic for Programming, Artificial Intelligence and Programming, LPAR'12, 10 - 15 March 2012, Mérida, Venezuela.
- The 2<sup>nd</sup> International Conference on Runtime Verification, RV'11, 27-30 September 2011, San Francisco, USA.
- The 2<sup>nd</sup> International K Workshop, K'11, 8-12 August 2011, Cheile Gradistei, Romania.
- The 26<sup>th</sup> IEEE/ACM International Conference on Automated Software Engineering, ASE'11, 6-10 November 2011, Lawrence, Kansas, USA.
- The 32<sup>nd</sup> ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI'11, 4-8 June 2011, San Jose, California, USA. External Review Committee member.
- The 17<sup>th</sup> International Symposium on Formal Methods, FM'11, 20-24 June 2011, Lero Limerick, Ireland.

- The 27<sup>th</sup> Conference on Mathematical Foundations of Programming Semantics, MFPS'11, 25-28 May 2011, Pittsburgh, Pennsylvania, USA.
- The 22<sup>nd</sup> International Conference on Rewriting Techniques and Applications, RTA'11, 30 May - 1 June 2011, Novi Sad, Serbia.
- The 3<sup>rd</sup> NASA Formal Methods Symposium, NFM'11, 18-20 April 2011, Pasadena, California, USA.
- The 13<sup>th</sup> International Conference on Algebraic Methodology and Software Technology, AMAST'10, 23-25 June 2010, Québec, Canada.
- The 20<sup>th</sup> International Workshop on Algebraic Development Techniques, WADT'10, 1-4 July 2010, Schloss Etelsen, Germany.
- The 11<sup>th</sup> International ACM-SIGPLAN Symposium on Principles and Practice of Declarative Programming, PPDP'09, 7-9 September 2009, Coimbra, Portugal.
- The 3<sup>rd</sup> Conference on Algebra and Coalgebra in Computer Science, CALCO'09, 6-10 September 2009, Udine, Italy.
- The 6<sup>th</sup> workshop on Structural Operational Semantics, SOS'09, 31 August 2009, Bologna, Italy. Satellite workshop to the International Conference on Concurrency Theory (CONCURR'09).
- The 7<sup>th</sup> Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging, PAD-TAD'09, 19-20 July 2009, Chicago, USA. Satellite workshop to International Symposium on Software Testing and Analysis (ISSTA'09).
- The 9<sup>th</sup> Runtime Verification workshop, RV'09, 26-28 June 2009, Grenoble, France. Satellite workshop to Computer Aided Verification 2009 (CAV'09).
- The 12<sup>th</sup> International Conference on Foundations of Software Science and Computation Structures, FOSSACS'09, 22-29 March 2009, York, UK.
- The 10<sup>th</sup> International Conference on Distributed Computing and Networking, ICDCN 2009, 3-6 January 2009, Hyderabad, India.
- The 19<sup>th</sup> International Workshop on Algebraic Development Techniques, WADT'08, 13-16 June 2008, Pisa, Italy.
- The 12<sup>th</sup> International Conference on Algebraic Methodology and Software Technology, AMAST'08, 28-31 July 2008, Urbana, Illinois, USA.
- The 10<sup>th</sup> IFIP International Conference on Formal Methods for Open Object-Based Distributed Systems, FMOODS'08, June 2008, Oslo, Norway.
- The 1<sup>st</sup> workshop on Run Time Enforcement for Mobile and Distributed Systems (REM2007), 26-27 September 2007, Dresden, Germany.
- The 4<sup>th</sup> workshop on Structural Operational Semantics, SOS'07, 9 July 2007, Wroclaw, Poland.
- The 2<sup>nd</sup> Conference on Algebra and Coalgebra in Computer Science, CALCO'07, 20-24 August 2007, Bergen, Norway.

- CALCO'07 (see above) Tools Day, 20 August 2007, Bergen, Norway.
- The 5<sup>th</sup> workshop on Parallel and Distributed Systems: Testing and Debugging, PADTAD'06, 9 July 2007, London, England. Satellite workshop to the International Symposium on Software Testing and Analysis (ISSTA'07).
- The 9<sup>th</sup> IFIP International Conference on Formal Methods for Open Object-Based Distributed Systems, FMOODS'07, 6-8 June 2007, Paphos, Cyprus.
- The 7<sup>th</sup> Runtime Verification workshop, RV'07, 13 March 2007, Vancouver, Canada. Satellite workshop to the International Conference on Aspect-Oriented System Development 2007 (AOSD'07).
- The IEEE 2<sup>nd</sup> International Conference on Intelligent Computer Communication and Processing, ICCP'06, 1-2 September 2006, Cluj-Napoca, Romania.
- 1<sup>st</sup> Joint International Workshop on Formal Aspects of Testing and Runtime Verification, FATES/RV 2006, 16 August 2006, Seattle, Washington, USA. Held in conjunction with the 2006 Federated Logic Conference (FLoC 2006).
- The International Multi-Conference on Computing in the Global Information Technology –Challenges for the Next Generation of IT & C–, ICCGI'06, 1-3 August 2006, Bucharest, Romania.
- The 4<sup>th</sup> workshop on Parallel and Distributed Systems: Testing and Debugging, PADTAD'06, 17 July 2006, Portland, Maine, USA. Satellite workshop to the International Symposium on Software Testing and Analysis (ISSTA'06).
- The International Symposium on Logic-based Program Synthesis and Transformation, LOPSTR'06, 12-14 July 2006, Venice, Italy.
- 6<sup>th</sup> Workshop on Rewriting Logic and its Applications, WRLA'06, 1-2 April 2006, Vienna, Austria. Satellite workshop to European Joint Conferences on Theory and Practice of Software 2006 (ETAPS'06).
- The IBM Verification Conference 2005, November 13 - 16, 2005. Organized by IBM Research Lab in Haifa, Israel.
- 5<sup>th</sup> Runtime Verification workshop, RV'05, 12 July 2005, Edinburgh, Scotland, UK. Satellite workshop to Computer Aided Verification 2005 (CAV'05).
- 7<sup>th</sup> Coalgebraic Methods in Computer Science workshop, CMCS'04, 27 - 29 March, 2004, Barcelona, Spain. Satellite workshop to European Joint Conferences on Theory and Practice of Software 2004 (ETAPS'04).
- 5<sup>th</sup> Workshop on Rewriting Logic and its Applications, WRLA'04, Barcelona, Spain. Satellite workshop to European Joint Conferences on Theory and Practice of Software 2004 (ETAPS'04).
- 6<sup>th</sup> Coalgebraic Methods in Computer Science workshop, CMCS'03, 5-6 April 2003, Warsaw, Poland. Satellite workshop to European Joint Conferences on Theory and Practice of Software 2003 (ETAPS'03).
- 2<sup>nd</sup> Runtime Verification workshop, RV'02, 26 July 2002, Copenhagen, Denmark. Satellite workshop to Computer Aided Verification 2002 (CAV'02).

- 1<sup>st</sup> Runtime Verification workshop, RV'01, 23 July 2001, Paris, France. Satellite workshop to Computer Aided Verification 2001 (CAV'01).

### **Panelist, proposal evaluator**

- Fintech Symposium, Copenhagen, 2019. Panelist on “From Blockchain Infrastructure to Decentralised Applications – How?”.
- Israel Science Foundation (ISF), 2018.
- Runtime Verification Conference, panelist on the future of distributed systems monitoring, 2014.
- National Science Foundation (NSF), panelist for proposal evaluation: 2004, 2008, 2009, 2012, 2014.
- The Netherlands Organisation for Scientific Research (NWO), proposal evaluator, 2008, 2009, 2010, 2011, 2012.
- Swiss National Science Foundation (SNSF), proposal evaluator: 2010.
- NASA Safety Conference, 2008. Panelist on the “Software Health Management”.
- Air Force Office of Scientific Research, proposal evaluator, 2008.
- Engineering and Physical Sciences Research Council, United Kingdom, proposal evaluator, 2007.

### **Initiator and moderator of discussion lists**

- K USER: <http://mail.cs.uiuc.edu/mailman/listinfo/k-user>.
- RUNTIME VERIFICATION: <http://mail.cs.uiuc.edu/mailman/listinfo/rv>.
- PROGRAMMING LANGUAGES: <http://mail.cs.uiuc.edu/mailman/listinfo/prog-lang>.
- BEHAVIOR: <http://www.cs.ucsd.edu/groups/tatami/behavior>

### **Memberships**

- IFIP W.G. 1.3 (FOUNDATIONS OF SYSTEM SPECIFICATION).
- IFIP W.G. 2.2 (FORMAL DESCRIPTION OF PROGRAMMING CONCEPTS). Observer.
- Association for Computing Machinery (ACM).
- IEEE Computer Society.
- American Association for the Advancement of Science (AAAS).

### **Hobbies**

- Flying (private pilot, VFR certified).
- Go (1d+ on the Internet Go Server (IGS), username ‘Luta’).
- Outdoors. Archery. Fishing.