

June 18, 2011

# CURRICULUM VITAE

Grigore Roşu

Born on 12 December 1971, Bucharest, Romania.

Married (Luisa Maria Roşu), two children (Ana Cătălina Roşu and Dan Ilie Roşu).

*Current Position:* Associate Professor

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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

- 2008 to present. Associate Professor. Department of Computer Science, University of Illinois at Urbana-Champaign, USA.
- 2008, August to December. Microsoft Research, Redmond, Washington. Visiting researcher 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:

- ACM SIGSOFT distinguished paper award at ASE 2008.
- UIUC’s “Spring 2008 List of Teachers Ranked as Excellent by Their Students”.
- “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 and teaching accomplishments.
- “CAREER” award, under the program “Software Engineering and Languages” 2005, offered by the National Science Foundation (NSF).
- UIUC’s “Fall 2004 List of Teachers Ranked as Excellent by Their Students”.
- “European Association for the Study of Science and Technology” award winner for the best software science paper at ETAPS 2002.
- “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**

In reverse chronological order (PI = Principal Investigator, co-PI = co-Principal Investigator):

- (PI) UIUC Campus Research Board Award, 2010, \$9,250.
- (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.
- (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).
- (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.
- (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.
- (PI) “CAREER: Runtime Verification and Monitoring”. National Science Foundation (NSF), Proposal Number CCF-0448501. \$400,000 for the period 2005-2010.
- (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.

## Visiting Positions

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

## Publications

All papers are available on line from <http://fsl.cs.uiuc.edu/grosu>.

## Journal Papers

- 1) Patrick Meredith, Dongyun Jin, Dennis Griffith, Feng Chen and Grigore Roşu. “An Overview of Monitoring Oriented Programming”, *Software Tools for Technology Transfer*, to appear, 2011.
- 2) Grigore Roşu and Feng Chen. “Semantics and Algorithms for Parametric Monitoring”, *Logical Methods in Computer Science*, to appear, 2011.
- 3) 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.
- 4) 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.
- 5) 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.
- 6) 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.
- 7) José Meseguer and Grigore Roşu. “The Rewriting Logic Semantics Project”. *Theoretical Computer Science*, Volume 373, Number 3, 2007, pages 213-237.
- 8) 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.
- 9) 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.

- 10) Marcelo d'Amorim and Grigore Roşu. "An Equational Specification for the Scheme Language". *Universal Computer Science*, Volume 11, Number 7, 2005, pages 1327-1348.
- 11) 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.
- 12) 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.
- 13) Grigore Roşu. "Behavioral Abstraction is Hiding Information". *Theoretical Computer Science*, Volume 327, Number 1-2, 2004, pages 197-221.
- 14) Klaus Havelund and Grigore Roşu. "Efficient Monitoring of Safety Properties". *Software Tools and Technology Transfer*, Volume 6, Number 2, 2004, pages 158-173.
- 15) 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.
- 16) Joseph Goguen and Grigore Roşu. "Institution Morphisms". *Formal Aspects of Computing*, Volume 13, Numbers 3-5, 2002, pages 274-307.
- 17) Grigore Roşu. "Axiomatizability in Inclusive Equational Logic". *Mathematical Structures in Computer Science*, Volume 12, Number 5, 2002.
- 18) Grigore Roşu. "Equational Axiomatizability for Coalgebra". *Theoretical Computer Science*, Volume 260, Numbers 1-2, 2001, pages 229-247.
- 19) Virgil Emil Căzănescu and Grigore Roşu. "Weak Inclusion Systems; Part Two". *Universal Computer Science*, Volume 6, Number 1, 2000, pages 5-21.
- 20) Grigore Roşu and Joseph Goguen. "On Equational Craig Interpolation". *Universal Computer Science*, Volume 6, Number 1, 2000, pages 194-200.
- 21) Grigore Roşu. "Kan Extensions of Institutions". *Universal Computer Science*, Volume 5, Number 8, 1999, pages 482-493.
- 22) 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, Special Issues of Journals**

- 23) 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.

- 24) 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.
- 25) 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.
- 26) 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.
- 27) 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.
- 28) 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.
- 29) 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.
- 30) 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.
- 31) 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.
- 32) 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.
- 33) 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.

### **Invited Book Contributions**

- 34) 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.

- 35) 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.
- 36) 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.
- 37) 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

- 38) José Meseguer and GR. “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*, to appear. Springer 2011.
- 39) 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.
- 40) 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 (submitted only a one-page abstract). *Electronic Notes in Theoretical Computer Science*, to appear.
- 41) 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.
- 42) José Meseguer and Grigore Roşu. “Rewriting Logic Semantics: From Language Specifications to Formal Analysis Tools”. Proceedings of the <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.
- 43) 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.
- 44) 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.
- 45) 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, 2001.

- 46) 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

- 47) **[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, to appear 2011. Acceptance rate 34/203 (17%).
- 48) **[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%).
- 49) **[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%).
- 50) **[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%).
- 51) **[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%).
- 52) **[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%).
- 53) **[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%).
- 54) **[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%).
- 55) **[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%).
- 56) **[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%).
  - 57) **[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%).
  - 58) **[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, 2009. Acceptance rate 19/68 (28%).
  - 59) **[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%).
  - 60) **[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, 2008. ACM SIGSOFT **distinguished paper award**. Acceptance rate 34/280 (12%).
  - 61) **[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%).
  - 62) **[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%).
  - 63) **[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%).
  - 64) **[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%).
  - 65) **[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%).
- 66) [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%).
  - 67) [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%).
  - 68) [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%).
  - 69) [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%).
  - 70) [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%).
  - 71) [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%).
  - 72) [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%).
  - 73) [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%).
  - 74) [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%).
  - 75) [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%).
- 76) **[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%).
- 77) **[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%).
- 78) **[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%).
- 79) **[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%).
- 80) **[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%).
- 81) **[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%).
- 82) **[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%).
- 83) **[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%).
- 84) **[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%).

- 85) **[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%).
- 86) **[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%).
- 87) **[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%).
- 88) **[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%).
- 89) **[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%).
- 90) **[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%).
- 91) **[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%).
- 92) **[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%).
- 93) **[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%).
- 94) **[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%).

- 95) **[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%).
- 96) **[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%).
- 97) **[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%).
- 98) **[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%).
- 99) **[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*. Acceptance rate 23/100 (23%).
- 100) **[FM'99]** Joseph Goguen GR. "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%).
- 101) **[ASE'97]** Joseph Goguen, Kai Lin, Akira Mori, Grigore Roşu and Akiyoshi Sato. "Distributed Cooperative 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**

- 102) Grigore Roşu. "Matching Logic", *High Confidence Software and Systems (HCSS'11)*, Annapolis, Maryland, USA, 1-6 May 2011. Invited position paper.
- 103) 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.
- 104) 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.

- 105) Traian Florin Șerbănuță and Grigore Roșu. “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%).
- 106) Vilas Jagannath, Milos Gligoric, Dongyun Jin, Grigore Roșu 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 49-49, 2010.
- 107) Dorel Lucanu, Eugen-Ioan Goriac, Georgiana Caltais and Grigore Roșu. “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.
- 108) Grigore Roșu, Wolfram Schulte and Traian Florin Șerbănuță. “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%).
- 109) Traian Florin Șerbănuță, Gheorghe Ștefănescu and Grigore Roșu. “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.
- 110) Mark Hills, Feng Chen and Grigore Roșu. “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*, to appear 2008.
- 111) Mark Hills and Grigore Roșu. “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.
- 112) 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.
- 113) 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.
- 114) 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.
- 115) Dorel Lucanu, Grigore Roșu and Gheorghe Grigoraș. “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.

- 116) Grigore Roşu, 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%).
- 117) Mark Hills and Grigore Roşu. “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.
- 118) Patrick Meredith, Mark Hills and Grigore Roşu. “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.
- 119) Traian Florin Şerbănuţă, Grigore Roşu 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, Wroclaw, Poland. *Electronic Notes in Theoretical Computer Science*, Volume 192(1), 2007, pages 125-141.
- 120) Mark Hills, Traian Florin Şerbănuţă and Grigore Roşu. “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%).
- 121) Grit Denker, Carolyn Talcott, Mark van den Brand, Steven Eker, Grigore Roşu and Traian Florin Şerbănuţă. “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%).
- 122) Feng Chen, Marcelo d’Amorim and Grigore Roşu. “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%).
- 123) 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.
- 124) 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%).
- 125) 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.

- 126) 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*.
- 127) 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%).
- 128) 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.
- 129) 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.
- 130) 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.
- 131) 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%).
- 132) 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.
- 133) 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%).
- 134) 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.
- 135) 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.
- 136) 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%).



- 137) 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.
- 138) 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.
- 139) 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.
- 140) 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.
- 141) Grigore Roşu. “Behavioral Coinductive Rewriting”. Proceedings of the *OBJ/CafeOBJ/Maude Workshop at FM’99*, Toulouse, France, 20-22 September 1999.
- 142) 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*.
- 143) 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.
- 144) 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.
- 145) 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

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

## Presentations

- “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.

## Software Systems Work

- **MatchC**. With Andrei Ștefănescu at UIUC. A matching logic verifier for C.
- **K-Maude**. With Traian Florin Șerbănuță and Andrei Arusoaiu at UIUC and UAIC (University Alexandru Ioan-Cuza, Iași, Romania). A framework for defining programming language semantics and for implementing program analysis tools.
- **jMiner**. With Choonghwan Lee at UIUC. A parametric specification mining tool for Java.
- **jPredictor**. With Feng Chen and Traian Florin Șerbănuță at UIUC. A predictive runtime analysis tool for Java.
- **JavaFAN**. With Feng Chen, Azadeh Farzan, and José Meseguer at UIUC. A model checker for Java and the JVM based on rewriting logic definitions.
- **Dame**. With Koushik Sen, Abhay Vardan and Gul Agha at UIUC. A decentralized monitoring system for multithreaded applications.
- **MOP**. With Feng Chen, Patrick Meredith, Dongyun Jin and Marcelo d’Amorim at UIUC. A monitoring-oriented programming environment, aiming at combining specification and implementation by synthesizing configurable monitors from specifications.

- ***Diana***. With Koushik Sen, Abhay Vardan and Gul Agha at UIUC. A decentralized monitoring system, based on a synthesis algorithm for efficient monitors from epistemic formulae.
- ***Java MultiPathExplorer***. With Koushik Sen and Gul Agha at UIUC. An extension of Java PathExplorer with distributed systems techniques to extract a partial order from a flat execution. Runtime verification is then performed on that partial order, so it covers multiple paths.
- ***Java PathExplorer***. With Klaus Havelund at NASA Ames, Automated Software Engineering Group. A runtime verification environment for monitoring programs.
- ***AutoBayes***. With Bernd Fischer and Johann Schumann at NASA Ames, Automated Software Engineering Group. A data analysis software synthesis system.
- ***Tatami***. With Joseph Goguen and Kai Lin at UCSD. System aims to produce an industrial strength library of formal methods examples, with tool support, for distributed cooperative proofs of concurrent object systems on the web.
- ***BOBJ***. With Joseph Goguen and Kai Lin at UCSD. Specification language in the OBJ family whose underlying logic is behavioral logic. Intended for specification and verification of object-oriented, concurrent and distributed systems.
- ***Neural Network Library***. Implemented library of known (in 1995) neural networks and tested them on wind speed forecasting as a consultant to IPA, Romania.

## Mentored Students

### Students I currently supervise

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

Chucky Ellison - PhD - Started in 2007.

Patrick Meredith - PhD - Started in 2007.

Dongyun Jin - PhD - Started in 2007.

Choonghwan Lee - PhD - Started in 2008.

Francisco Rios - PhD - Started in 2008. (Francisco is from the Mathematics Department)

Andrei Ștefănescu - PhD - Started in 2009.

Codruța Gârlea - PhD - Started in 2010. (Codruța is coadvised jointly with Eyal Amir)

Qingzhou Luo - PhD - Started in 2010. (Qingzhou is coadvised jointly with Darko Marinov)

I also supervised Michael Ilseman (Mike), a UIUC undergrad who worked with my group during 2009-2010 towards his B.S. thesis and as a researcher. Also, I am currently supervising David Lazar, a UIUC undergrad working with my group since 2009. I am also supervising a visiting female graduate student, Soha Hussein (for two years, starting with Fall 2009; Soha is visiting from the University of Ain Shams, Cairo, Egypt).



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

The following students graduated under my supervision (reverse chronological order by graduation date):

Traian Florin Șerbănuță (UIUC 2004-2010, PhD). University Alexandru-Ioan Cuza, Iași, Romania, and UIUC (postdoc).  
Mark Hills (UIUC 2004-2009, Ph.D.). Centrum Wiskunde & Informatica (CWI), Netherlands.  
Feng Chen (UIUC 2002-2009, Ph.D.). Iowa State University, USA, but passed away in August 2009.  
Andrew Bennett (UIUC 2005-2006, M.S.). Now (2009) at ITA Software in Boston, USA.  
Ram Prasad Venkatesan (UIUC 2002-2004, M.S.). Now (2009) at Microsoft in Redmond, USA.

## **Former/Visiting students**

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

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).

## **Collaborator students**

My close collaboration with the following students resulted in joint papers, but I was not their adviser (reverse chronological order by the start date of our collaboration):

Vilas Jagannath (UIUC 2010-). Advised by Darko Marinov.  
Milos Gligoric (UIUC 2010-). Advised by Darko Marinov.  
Rodolfo Pellizzoni (UIUC 2007-2008). Advised by Marco Caccamo.  
Abhay Vardhan (UIUC 2005-2006). Advised by Mahesh Viswanathan.  
Sumant Kowshik (UIUC 2005-2006). Advised by Lui Sha.  
Azadeh Farzan (UIUC 2003-2006). Advised by José Meseguer.  
Prasanna Thati (UIUC 2003-2004). Advised by Gul Agha.  
Koushik Sen (UIUC 2002-2006). Advised by Gul Agha.

## **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):

Musab Ahmad AlTurki (UIUC 2011?; adviser Jose Meseguer)  
Michael Katelman (UIUC 2011?; adviser Jose Meseguer)  
Nicholas Rizzolo (UIUC 2011?; adviser Dan Roth)  
Robert Bocchino (UIUC 2010; adviser Vikram Adve)  
Andrei Popescu (UIUC 2010; adviser Elsa Gunter)  
Ayesha Yasmeen (UIUC 2009; 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).  
Hong-Seok Kim (UIUC 2004; adviser Wen-Mei W. Hwu).  
Yixin Chen (UIUC 2005; adviser Benjamin W. Wah).  
Girish Baliga (UIUC 2005; P.R. Kumar).

## **Professional Activities**

### **Program Chair**

- 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

- 2<sup>nd</sup> International Conference on Runtime Verification, RV'11, 27-30 September 2010, San Francisco, USA.
- 2<sup>nd</sup> 2nd 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

- 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**

- 20<sup>th</sup> International Symposium on the Foundations of Software Engineering, FSE'12, 10-17 November 2012, Research Triangle Park, North Carolina, USA.
- 50<sup>th</sup> International Conference on Objects, Models, Components and Patterns, TOOLS'12, 29-31 May 2012, Prague, Czech Republic.
- 2<sup>nd</sup> International Conference on Runtime Verification, RV'11, 27-30 September 2010, San Francisco, USA.
- 2<sup>nd</sup> 2nd 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 2007, 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 and proposal evaluator**

- Swiss National Science Foundation (SNSF), proposal evaluator: 2010.
- NASA Safety Conference, panelist in the Software Health Management panel, 2008.
- National Science Foundation (NSF), panelist for proposal evaluation: 2004, 2008, 2009.
- Air Force Office of Scientific Research, proposal evaluator, 2008.
- The Netherlands Organisation for Scientific Research (NWO), proposal evaluator, 2008, 2009.
- Engineering and Physical Sciences Research Council, United Kingdom, proposal evaluator, 2007.

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

- **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).
- Association for Computing Machinery (ACM).
- IEEE Computer Society.

## **Hobbies**

- Flying (private pilot, VFR certified).
- Go (1 Dan - amatory; IGS username: Luta).
- Outdoors. Fishing.