

Scott A. Smolka

Curriculum Vitae

Date of last update: 5-29-16

SUNY Distinguished Professor
Department of Computer Science
SUNY at Stony Brook
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Educational Background

1975 A.B., Boston University Mathematics
1977 A.M., Boston University Mathematics
1984 Ph.D., Brown University Computer Science

Academic/Visiting Appointments

2016– SUNY Distinguished Professor, Dept. Computer Science, Stony Brook Univ.
1995–2016 Professor, Dept. Computer Science, Stony Brook University
1988–1995 Associate Professor, Dept. Computer Science, Stony Brook University
1982–1988 Assistant Professor, Dept. Computer Science, Stony Brook University
1989 Visiting Faculty Researcher, Laboratory for Foundations of Computer
 Science, University of Edinburgh, UK (May–July)
1991 Visiting Professor, Programming Research Group, University of Amsterdam
 The Netherlands (Aug.–Sept.)
1989 Visiting Faculty Researcher, Dept. Software Technology, CWI,
 Amsterdam, The Netherlands (Oct.–Nov.)

Experience in Industry

1999–2009 President, Reactive Systems, Inc.
2009– Director, Reactive Systems, Inc.
1993 Database Consultant, Allertek, Inc., East Rockaway, NY
1991 UNIX Consultant, Applied Digital Data Systems, Inc., Hauppauge, NY
1988 Consultant, Robotic Vision Systems, Inc., Hauppauge, NY
1987 Consultant, Meta Software Corporation, Cambridge, Mass.
1984 Visiting Faculty Researcher, IBM, Yorktown Heights, NY (summer)
1978 Programmer, National Bureau of Economic Research, Cambridge, Mass.
1977–1978 Scientific Analyst, Aerospace Systems, Inc., Burlington, Mass.

Honors and Awards

Appointed SUNY Distinguished Professor, Nov. 2016.

EATCS (European Association for Theoretical Computer Science) Fellow for “fundamental

contributions in formal modeling and analysis”, since Feb. 2016.

Joint CONCUR-QEST-FORMATS 2016 Invited Speaker. Québec City, Canada, Aug. 2016.

Discretionary Award for Exceptional Contributions to Research, Department of Computer Science, Stony Brook University. Dec. 2014.

Research Excellence Award, Dept. of Computer Science, Stony Brook University. Aug. 2012.

Best Paper Award, 2nd International Conference on Runtime Verification (RV’11). Sep. 2011.

2008-2009 President/Chancellor’s Award for Excellence in Scholarship and Creative Activities. Feb. 2009.

Computer Science Department Certificate of Appreciation for departmental, university and community service, especially my leadership role in CS@35, the day-long event/fundraiser celebrating the Computer Science Department’s 35th anniversary. Aug. 2006.

Most Practical Paper Award, Seventh International Symposium on Practical Aspects of Declarative Languages (PADL 05). Jan. 2005.

20-Year University Service Award, February 2003.

Patents/Copyrighted Software

Co-Inventor on U.S. Patent No. 6,385,765 entitled “Specification and Verification for Concurrent Systems with Graphical and Textual Editors.” Issued 5-7-02.

Wrote copyrighted software that serves as the enabling disclosure in U.S. patent application no. 08/088,136.

Service to the Profession

Lead PI and Director, *NSF CPS Frontier project: CyberCardia*, 2015-2020.
<http://cybercardia.cs.stonybrook.edu/>

Deputy Director, *NSF Expedition in Computing on Computational Modeling and Analysis for Complex Systems*, 2009-2015.

Co-Organizer, 2014 *National Workshop on Research Frontiers in Medical Cyber-Physical Systems*

Member of the Selection Committee for the 2014 *Bower Award and Prize for Achievement in Science*. The theme of the 2014 award was Verification of Computer Systems.

Steering Committee Member, *CONCUR — The International Conference on Concurrency Theory*.

Steering Committee Member, *ETAPS — European Joint Conferences on Theory & Practice of Software*, 2011-2014.

Steering Committee Member, *CPS V&V Industrial Challenges and Foundations Workshop*.

Member, IFIP Working Group 1.8 on Concurrency Theory.

Member Emeritus, IFIP Working Group 2.2, *Formal Description of Programming Concepts*.

Editorial Board Member of the following journals:

Logical Methods in Computer Science, Lars Birkedal, Editor-in-Chief.

Transactions on Computational Logic, Orna Kupferman, Editor-in-Chief, ACM Press.

Formal Methods in System Design, Daniel Kroening, Editor-in-Chief, Kluwer Press.

Software Tools for Technology Transfer, Bernhard Steffen and John Hatcliff, Editors-in-Chief, Springer-Verlag.

Program Committee Chair/Co-Chair of the following conferences:

RV 2014, Fourth International Conference on Runtime Verification

SPIN 2013, First International Symposium on Model Checking of Software (General Chair). *SPIN 2013* marked the 20th Anniversary of the International SPIN Workshop.

TACAS 2013, 19th Intl. Conf. on Tools & Algorithms for Construction and Analysis of Systems

INFINITY 2005, 7th International Workshop on Verification of Infinite-State Systems

PROCOMET 1998, IFIP Working Conference on Programming Concepts and Methods (Organizing Chair)

Concurrency Working Group Chair, ACM 50th Anniversary Workshop on Strategic Directions in Computing Research

CONCUR 1995, 6th International Conference on Concurrency Theory

CONCUR 1992, 3rd International Conference on Concurrency Theory (Organizing Chair)

PCK50, ACM Paris Kanellakis Memorial Workshop, 2003.

First International School on Formal Methods, 2001.

Program Committee Member for the following conferences:

HSCC 2017, 20th International Conference on Hybrid Systems: Computation and Control
it GaM 2017, Third Graphs as Models Workshop

CMSB 2016, 14th International Conference on Computational Methods in Systems Biology

RV 2016, Seventh International Conference on Runtime Verification

TACAS 2015, 21st Intl. Conf. on Tools & Algorithms for Construction and Analysis of Systems

ATVA 2015, 13th International Symposium on Automated Technology for Verification and Analysis

NFM 2015, 7th NASA Formal Methods Symposium

ISoLA 2014, 6th Intl. Symp. Leveraging Applications of Formal Methods, Verification and Validation

MedicalCPS 2014, Fifth Medical Cyber-Physical Systems Workshop (part of CPSWeek 2014)

TACAS 2014, 20th Intl. Conf. on Tools & Algorithms for Construction and Analysis of Systems

RV 2013, Fourth International Conference on Runtime Verification

SSS 2013, 15th Intl. Symp. Stabilization, Safety, and Security of Distributed Sys.

HSB 2013, Second Workshop on Hybrid Systems and Biology

TACAS 2012, 18th Intl. Conf. on Tools & Algorithms for Construction and Analysis of Systems

SSS 2012, 14th International Symposium on Stabilization, Safety, and Security of Distributed Systems

HSB 2012, First International Workshop on Hybrid Systems and Biology

RV 2011, Second International Conference on Runtime Verification

CMSB 2010, 8th International Conference on Computational Methods in Systems Biology

RV 2010, First International Conference on Runtime Verification

SSS 09, 11th Symposium on Stabilization, Safety and Security in Distributed Systems

CONCUR 08, 19th International Conference on Concurrency Theory

NETTAB 2008, Bioinformatics Methods for Biomedical Complex System Applications

FMWS 2008, Formal Methods for Wireless Systems
FBTC 2008, From Biology to Concurrency
FBTC 2007, From Biology to Concurrency
FOSSACS 2007, Foundations of Software Science and Computation Structures
QEST 2006, Third International Conference on Quantitative Evaluation of SysTems
SRV 2006, Second International Conference on Intelligent Computer Communication and Processing
ATVA 2005, Automated Technology for Verification and Analysis
FINCO 2005, Foundations of Interactive Computation
2003 Monterey Workshop on Software Engineering for Embedded Systems
CONCUR 02, 13th International Conference on Concurrency Theory
FORTE 2002, International Conference on Formal Techniques for Networked and Distributed Systems
PAPM-PROBMIV 2002, 2nd Joint International Workshop on Process Algebra and Performance Modelling and Probabilistic Methods in Verification
FORTE/PSTV 2000, Joint International Conference on Formal Description Techniques for Distributed Systems and Communication Protocols (FORTE XIII) and Protocol Specification, Testing and Verification
PAPM 2000, 8th International Workshop on Process Algebra and Performance Modelling
POPL '99, 26th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages
FST&TCS '99, 19th Conference on Foundations of Software Technology and Theoretical Computer Science
ASIAN '98, 4th Asian Computing Science Conference
TACAS '97, Intl. Conf. on Tools & Algorithms for Construction and Analysis of Systems
Second International Workshop on Applied Formal Methods in System Design, Zagreb, 1997.
CAV'96, 8th International Conference on Computer Aided Verification
TACAS '96, 2nd Intl. Conf. on Tools & Algorithms for Construction and Analysis of Systems
CONCUR '96, 7th International Conference on Concurrency Theory
CONCUR '94, 5th International Conference on Concurrency Theory
CONCUR '91, 2nd International Conference on Concurrency Theory
1991 International Conference for Young Computer Scientists
ICDCS '92, 12th International Conference on Distributed Computing Systems
READPAC '92, First Workshop on Reliable and Dependable Parallel Computing

Panel Member/Moderator for the following panels:

NSF CPS Safety Panel, June 2015.
NSF Computing Processes & Artifacts Panel, January 2007.
NSF ITR Review Panel, January 2002.
NSF SBIR Phase II Review Panel, February 1996.
NSF Software Engineering and Languages Review Panel, Arlington, VA, November 1996.
NSF Research Initiation Awards Review Panel, Washington, DC, May 1993.
NSF Expeditions in Computing Panel, January 2008.
 “Formal Methods: Are they Practical for Security.” Griffiss Inst. Univ.-Industry Conference, Nov 2003.
 “Protocol Verification: The Past Ten Years and the Next Ten Years,” 10th International Symposium on Protocol Specification, Testing, and Verification, June 1990.
 Panel Member, *NSF/DARPA Joint Initiative on Formal Methods in Software Engineering*, May 1990.

Referee for NSF, DARPA, AFOSR, ARO, Science Foundation of Ireland and numerous journals and conferences, including ACM Transactions on Programming Languages and Systems, IEEE Transactions on Computers, IEEE Transactions on Software Engineering, IEEE Transactions on Parallel and Distributed Systems, IEEE Software, IEEE Computer Magazine, Distributed

Computing, IBM Research and Development, Information and Computation, Journal of Parallel and Distributed Computing, Science of Computer Programming, Software: Practice and Experience, Acta Informatica, Theoretical Computer Science, Electronic Notes in Theoretical Computer Science, Formal Aspects of Computing, Journal of Computer Systems and Science, ICDCS, LICS, MASCOTS, MFCS, and PSTV.

Service to the University and the Community

Chair of the following committees:

Selection Committee for Chancellor's Award for Excellence in Scholarship and Creative Activity, 2011-2015.
SPAC Task Force on the Oracle Application System, 2002-2005.
Computer Science Department Faculty Recruiting Committee, 1999-2000.
Committee on Undergraduate Computer Science Curriculum Reform, 1992-1995. This committee implemented an extensive revision of the computer science undergraduate curriculum. The new curriculum, which featured a required two-course sequence in software engineering, took effect in Spring 1995.
Computer Science Qualifying Exam Subcommittee on Software Systems, 1992-1993.

Member of the following committees:

Research Advisory Committee, Office of Vice President for Research, 2015-
Personnel Policy Committee (for Promotion and Tenure), College of Engineering and Applied Sciences, 2012-2014.
Discretionary Salary Increases Committee for F/T and P/T Faculty, and Discretionary Salary Increases Committee for Non-Teaching Professionals, Department of Computer Science, 2014.
Planning Committee for President Stanley's Inauguration, 2009.
President's Committee for the celebration of the 50th anniversary of Stony Brook University, 2006-2007.
President's Faculty Advisory Council on the future of the University, 2004-2009.
Provost's Selection Committee for USB/BNL Seed Grant Program, 2002.
Computer Science Department's Operations Committee, 2002-2005.
Research Foundation's Sponsored Programs Advisory Council (SPAC), 2001-2004.
University Senate Research Committee, 2001-2004.
Computer Science Department Faculty Recruiting Committee, 2001.
Five Year Plan Task Force on Outreach and Entrepreneurship, 1999-2000.
Computer Science Department Faculty Recruiting Committee member, 1996-1998.
Computer Science Department Executive Committee member, 1993-1997.
Ad-Hoc Committee on Joint CEAS/Harriman Programs, 1995.
CEAS Curriculum and Teaching Policy Committee, 1994-1996.
Graduate Student Admissions Committee, Department of Computer Science, 1989-1991.
Mentoring Program, Office of Special Programs, 1989.
University Senate Committee on Computing and Communications, 1987-1990.
Committee on Academic Services, 1986-1987.
Computer Science Library Committee, 1986-1990.
Ad-Hoc Committee for the Formation of the Computer Science Library, 1985.
Member of CEAS Committee on Academic Standing and Appeals, 1985.

Advisor for the following programs:

Faculty Advisor for Freshmen, 1994-1996.

Transfer Student Advising, Spring and Summer 1994-1996.

Project WISE (Women in Science and Engineering) E-Mail/Internet Workshop for 30 high-achieving high school girls, Fall 1994.

URECA (Undergraduate Research and Creative Activities) advisor, 1991-1992.

University Undergraduate Admissions Recruiting Phone-a-thon participant, 1987, 1992, and 1997.

Academic Information Booth participant, 1987 and 1988.

SIP (Scholar Incentives Program) advisor, 1985-1986.

Faculty Instructor for College of Leadership & Service Freshman Seminar on Organ and Tissue Donation, and Faculty Advisor to Undergraduate Student Club on Organ Donation Awareness. From 2006-2012, students in the Seminar and Club organized and participated in the *Annual Donate Life Walk* around the campus mall to raise awareness for the need for organ donation.

Co-organizer, with Prof. Arie Kaufman, of the day-long event/fundraiser to celebrate Computer Science Department's 35th anniversary, May 2005. <http://www.cs.sunysb.edu/cs@35/>

Invited participant in 21st Annual Student-Faculty-Staff Retreat, Nov. 2005.

Spearheaded effort to enroll SBU in Sec. of Health Tommy Thompson's Workplace Partnership for Life program, which offers the employees of participating organizations the opportunity to learn about, discuss, and make decisions concerning the donation of organs, tissue, marrow and blood; 2004.

Volunteer for New York Organ Donor Network, 2004–

Volunteer scorekeeper, ACUI College Bowl and Recreation Tournament, 2002.

Volunteer, Scooping Out Success Ice Cream Information Fair, 2002.

Organized WTC Memorial Lecture Series on Information Technology at Stony Brook Manhattan, 2002.

Founded, in Spring 2000, Automated Verification Laboratory with an equipment grant from Sun Microsystems in the amount of \$21,423.

Judge representing the Computer Science Department, USB's First Celebration of Undergraduate Achievements, April 1999.

Computer Science Undergraduate Program Director, 1994-1996.

University Admissions Open House participant, Fall 1994.

Guest lecturer, BSE 102: Opportunities in Science and Engineering, Baruch College Dormitory for Science and Engineering, Spring 1994.

Faculty Marshal, CEAS graduation ceremony, 1994 and 1995.

Stony Brook University Percussion Ensemble, Prof. Raymond Des Roche, Director, 1985-1989.

Timpanist, Stony Brook University Concert Band and Stony Brook University Undergraduate Orchestra, 1986-1989.

Invited Presentations (since 1990)

“Compositional, Approximate and Quantitative Reasoning for Medical Cyber-Physical Systems.” NSF CPS PI Meeting, Arlington, VA, November 2015.

“Adaptive Runtime Verification and Recovery for Mission-Critical Software (ARRIVE).” AFOSR Systems & Software Program Review, Arlington, VA, July 2015.

“Linear Model Measurements with Application to Bird Flocking.” Clarke Symposium 2014: Celebrating 2⁵ Years of Model Checking, Pittsburgh, PA, September 2014.

“Adaptive Runtime Verification.” AFOSR Software and Systems Program Review Meeting, Washington, DC, November 2012.

“Runtime Verification with State Estimation.” AFOSR Software and Systems Program Review Meeting, Arlington, VA, October 2011.

“Aspect-Oriented Program Instrumentation for GCC.” AFOSR Software and Systems Program Review Meeting, Arlington, VA, May 2010.

“Software Monitoring with Controllable Overhead.” Safe & Secure Systems & Software Symposium – S5, Beaverton, OH, June 2010.

“Learning and Detecting Emergent Behavior in Networks of Cardiac Myocytes.” Kickoff Meeting, NSF Expedition on Computational Modeling and Analysis for Complex Systems, Pittsburgh, PA, October 2009.

“Survivable Software.” AFOSR Systems and Software Program Review Meeting, Arlington, VA, May 2009.

“Approximate Behavioral Equivalences: A Historical Perspective” (with Franck van Breugel). Workshop on Approximate Behavioural Equivalences, Toronto, Canada, August 2008.

“Uppaal-Based Model Checking of Timed Input/Output Automata.” MIT, Cambridge, MA, April 2007.

“Efficient Modeling of Excitable Cells Using Hybrid Automata.” UCLA, Los Angeles, CA, Sept. 2005.

“Monte Carlo Model Checking of Timed Automata.” MIT, Cambridge, MA, Feb. 2005.

“Quantitative Model Checking.” University of Minnesota, Minneapolis, MN, July 2004.

“Testing and Verification of Embedded Control Software.” Guidant Corporation, St. Paul, MN, July 2004.

“Randomized Model Checking.” UCLA, Los Angeles, CA, July 2004.

“Monte Carlo Model Checking.” Army Research Office Conference on High-Confidence Embedded Systems (HCES 2004). Philadelphia, PA, April 2004.

“Formal Methods: Are They Practical for Security?” Griffiss Institute Fall Conference, Panel Moderator. New Paltz, NY, Nov. 2003.

“Specification and Verification of the CARA Infusion Pump Control Software.” Army Research Office Conference on High-Confidence Embedded Systems. Atlanta, GA, May 2002.

“Probabilistic Process Algebra.” First International School on Formal Methods for the Design of Computer, Communication and Software Systems, Bertinoro, Italy, July 2001.

“Turing Machines, Transition Systems, and Interaction,” U. Mass./Boston, March 2001.

“Probabilistic Methods in Specification and Verification,” Brown University, Providence, RI, Dec. 1999.

“Recent Developments in the Concurrency Factory,” Oregon Graduate Institute, Portland, OR, March 1998.

“Faster Model Checking in the Modal Mu-Calculus,” Second NSF/CNPq Workshop on Formal Foundations of Software Systems, New Orleans, November 1997.

“Partial-Order Reduction in the Weak Modal Mu-Calculus,” Eighth International Conference on Concurrency Theory (CONCUR '97), Warsaw, Poland, July 1997.

“Specification and Verification of Probabilistic and Real-Time Concurrent Systems,” ARPA PI meeting, San Diego, CA, Jan. 1996.

“Probabilistic I/O Automata: Theory and Practice,” Department of Computer Science, Brown University, Dec. 1994.

“Parallel Algorithms for the Verification of Concurrent Systems,” Department of Computer Science, New York University, Oct. 1994.

“Semantic Theories and Automated Tools for Real-Time and Probabilistic Concurrent Systems,” AFOSR Contractors Meeting, Bolling Air Force Base, Washington, DC, Sept. 1994.

“The Parallel Complexity of Bisimulation and Model Checking,” IFIP Working Group 2.2, *Formal Description of Programming Concepts*, San Miniato, Italy, June 1994.

“The Concurrency Factory — Practical Tools for Specification, Simulation, Verification, and Implementation of Concurrent Systems,” *DIMACS Workshop on Specification of Parallel Algorithms*, Princeton, NJ, May 1994.

“The Parallel Complexity of Bisimulation and Model Checking,” *Three Days of Bisimulation*, Amsterdam, the Netherlands, April 1994.

“Incremental Model Checking in the Modal Mu-Calculus,” Dagstuhl Seminar on Algorithms in Automata Theory, Saurbrucken, Germany, Feb. 1994.

“Specifying and Debugging Concurrent Systems Graphically,” Department of Philosophy, University of Utrecht, the Netherlands, Feb. 1994.

“A Comprehensive Study of the Complexity of Multiparty Interaction,” IFIP Working Group 2.2, *Formal Description of Programming Concepts*, Hamilton, Ontario, Canada, June 1993.

“Axiomatizing Probabilistic Processes: ACP with Generative Probabilities,” CUNY Graduate Center, New York, NY, Nov. 1992.

“Parallel Programming with Process Algebra,” *ONR Workshop on Domain-Specific Massive Parallelism*, Los Angeles, CA, May 1992.

“Probabilistic Process Algebra,” *CONCUR Review Meeting*, Edinburgh, U.K., September, 1991.

“Axioms for Generative and Stratified Processes,” Department of Informatics, RWTH Aachen, Germany, Aug. 1991.

“The Concurrency Factory — Practical Tools for the Specification and Verification of Concurrent Systems,” *SICS Workshop on Methodologies and Tools for Design of Distributed Systems*, Naesslingen, Sweden, August 1990.

External Funding

NSF CPS-1446832, “CPS: Frontiers: Collaborative Research: Compositional, Approximate, and Quantitative Reasoning for Medical Cyber-Physical Systems”, Lead Investigator (Radu Grosu and James Glimm, Co-Principal Investigators), \$1,222,305, from 1-1-15 to 12-31-20.

NSF IIS-1447549, “Big Data Modeling and Analysis with Depth and Scale”, Co-Principal Investigator with C.R. Ramakrishnan (PI), I.V. Ramakrishnan, Maureen O’Leary, Annie Liu, and David S. Warren, \$1,704,084, from 8-1-14 to 7-31-18.

AFOSR FA9550-14-1-0261, “Adaptive Runtime Verification and Recovery for Mission-Critical Software”, Principal Investigator (Scott D. Stoller and Erez Zadok, Co-Principal Investigators), \$620,861, from 8-1-14 to 7-31-17.

NSF CNS-1445770 Scholar-in-Residence at FDA, “Closed-Loop Formal Verification of ICDs Using Cardiac Electrophysiological Models”, Principal Investigator, \$162,122, from 10-15-14 to 10-14-16.

NSF CNS-1430010, “2014 CPS Medical Devices Workshop Travel Subsidies”, Principal Investigator, \$62,874, from 3-15-14 to 2-28-15.

AFRL, “Formal Verification of Quasi-Synchronous Systems”, Principal Investigator, \$100,000, from 1-1-13 to 9-30-14.

NASA NNX12AN15H, “GPGPU Parallel SPIN Model Checker”, Principal Investigator, NASA Space Technology Research Fellowship (Student: Richard DeFrancisco), \$127,617, from 8-1-12 to 7-31-16.

NSF CCF-1018459, “Probabilistic Tabled Logic Programming”, Co-Principal Investigator with C.R. Ramakrishnan (PI), I.V. Ramakrishnan, and David S. Warren, \$500,000, from 9-1-10 to 8-31-13.

NSF CCF-0926190, “NSF Expedition in Computing: Next-Generation Model Checking and Abstract Interpretation With a Focus on Embedded Control and Systems Biology”, Principal Investigator (James Glimm and Radu Grosu, Co-Principal Investigators), \$1,900,000, from 9-2-09 to 8-31-14.

AFOSR FA0550-09-1-0481, “Survivable Software”, Principal Investigator (Radu Grosu, Scott Stoller and Erez Zadok, Co-Principal Investigators), \$881,690, from 6-1-09 to 11-30-12.

AFRL SBIR Phase III Award, “Run Time Assurance Framework Development for Highly Adaptive Flight Control Systems”, Principal Investigator (Scott Stoller, Co-Principle Investigator), \$400,000 subcontract to Barron Associates Inc., from 9-18-12 to 9-30-14.

CEWIT Seed Grant, “Model-Based Learning, Analysis and Control of Excitable Cells”, Co-Principal Investigator with Emilia Entcheva (PI), Radu Grosu, and I.V. Ramakrishnan, \$9,000, from 7-15-07 to 7-14-08.

NSF CNS-0509230, “Runtime Monitoring and Model Checking for High-Confidence System Software”, Co-Principal Investigator with Radu Grosu (PI), Annie Liu, Scott Stoller and Erez Zadok, \$830,000, from 7-1-05 to 6-30-09.

NSF CCF-0523863, “Efficient Modeling of Excitable Cells Using Hybrid Automata”, Co-Principal Investigator with Emilia Entcheva (PI) and Radu Grosu, \$300,000, from 7-15-05 to 7-14-09.

Navy STTR Phase II Contract No. FA9550-04-C-0084, “A Framework for Modeling and Analyzing Complex Distributed Systems”, Co-Principal Investigator with Radu Grosu, PI: Nancy Lynch (MIT), and Alex Shvartsman (UConn), \$750,000, from 9-1-05 to 8-31-08.

NSF ITR (Information Technology Research), CCR-0205376, “Model Checking for Detecting Computer System Vulnerabilities”, Co-Principal Investigator with C.R. Ramakrishnan (PI), I.V. Ramakrishnan, R. Sekar, and Scott Stoller, \$925,000, from 9-1-02 to 8-31-05.

ONR N000140110967, DOD University Research Initiative (URI) award in the area of Critical Infrastructure Protection (CIP), “Model-Carrying Code: A New Paradigm for Mobile Code Security”, Co-Principal Investigator with C.R. Ramakrishnan (PI), I.V. Ramakrishnan and R. Sekar, \$1,548,926, from 7-9-01 to 7-8-04.

ARO DAAD190110003, “An Integrated Environment for Control Software Engineering”, Principal Investigator with Co-PIs Rance Cleaveland and Eugene Stark, \$365,000, from 11-20-00 to 11-19-04.

ARO DAAD190110019, “Advanced Formal Methods for Reactive Systems Engineering” Co-Principal Investigator with Rance Cleaveland (PI) and Eugene Stark, \$408,000, from 2-1-01 to 1-31-05.

NSF CCR-9988155, “Compositional Techniques for Verification and Performance Analysis of Reactive Probabilistic Systems”, Co-Principal Investigator with Eugene Stark (PI), \$248,495, from 7-1-00 to 6-30-03.

NSF DMI-0091499 (SBIR Phase II Award), “Advanced Formal Techniques for Dependable Reactive Systems”, Co-Principal Investigator with Rance Cleaveland (PI) and Steven Sims, \$499,890, from 3-15-01 to 2-28-03. NSF SBIR Phase II funding awarded to Reactive Systems, Inc.

NSF DMI-9961012 (SBIR Phase I Award), “Advanced Formal Methods for Dependable Reactive Systems”, Co-Principal Investigator with Rance Cleaveland (PI) and Steven Sims, \$99,726, from 1-1-00 to 6-30-00. NSF SBIR Phase I funding awarded to Reactive Systems, Inc.

NSF EIA-9818342, “A Cluster-Based Network Memory Server” (one of eight co-PIs), \$140,000, from 1-1-99 to 12-31-01.

NSF EIA-9805735, “CISE PostDoc: Beyond Finite State Model Checking in LMC”, Co-Principal Investigator with C.R. Ramakrishnan (PI), I.V. Ramakrishnan, and David S. Warren, \$66,000, from 9-1-98 to 8-31-01.

NSF CCR-9705998, “LMC: A System for the Specification and Evaluation of Logic-Based Model Checking”, Co-Principal Investigator with C.R. Ramakrishnan (PI), I.V. Ramakrishnan, and David S. Warren, \$1,224,112, from 7-1-97 to 6-30-01.

AFOSR F49620-96-1-0087, “Compositional Analysis of Expected Delay in Networks of Automata”, Co-Principal Investigator with Eugene Stark (PI) and Stephanie White of Northrop Grumman, \$296,689, from 3-15-96 to 3-14-99.

NSF CCR-9505562, “Practical Techniques for the Design, Specification, Verification, and Implementation of Concurrent Systems”, Co-Principal Investigator with Rance Cleaveland (PI) and Philip M. Lewis, \$308,703, from 3-1-96 to 2-28-99.

NSF CCR-9529068, “CONCUR ’95 — Sixth International Conference on Concurrency Theory”, Co-Principal Investigator with Insup Lee (PI) of U. Penn), \$7,500, from 9-1-95 to 2-29-96.

AFOSR F49620-95-1-0508, “Advanced Formal Methods for Critical Systems Software” Co-Principal Investigator with Rance Cleaveland of N.C. State (PI), Insup Lee of U. Penn, and Philip M. Lewis, \$1,220,000, from 8-15-95 to 8-14-98.

NSF CDA-9303181, “PROUD — Parallel Resources On Users Desks” (one of ten PIs), \$2M (includes university matching), 8-1-93 to 7-31-98.

Commission of the European Communities, Human Capital and Mobility project No. ERB4050PL930392, “EXPRESS — Expressiveness of Languages for Concurrency” (one of four external PIs, along with six PIs and four associate PIs), 470,000 ECU, from 10-1-93 to 9-30-96.

NSF CCR-9311650, “CONCUR ’93 — Fourth International Conference on Concurrency Theory,” Principal Investigator, \$12,577, from 8-15-93 to 7-31-94.

AFOSR F49620-93-1-0250, “Semantic Theories and Automated Tools for Real-Time and Probabilistic Concurrent Systems,” Principal Investigator, \$164,554, from 4-1-93 to 3-31-96.

Brookhaven National Lab, Graduate Student Research Program, Principal Investigator, \$16,200, from 8-1-92 to 5-31-93.

NSF CCR-9120995, “OSP++: Object-Oriented Courseware for Operating System Projects,” REU supplement with Michael Kifer, \$10,000, from 8-16-93 to 2-28-95.

NSF CCR-9208585, “Algebraic Reasoning for Probabilistic and Real-Time Concurrent Systems,” Principal Investigator, \$275,691, from 6-1-92 to 5-31-95.

NSF CCR-9120995, “The Concurrency Factory — Practical Tools for the Design and Verification of Concurrent Systems”, Co-Principal Investigator with Rance Cleaveland (PI) and Philip M. Lewis, \$518,893, from 3-1-92 to 2-28-95.

NSF CCR-9201450, “CONCUR ’92 — Third International Conference on Concurrency Theory”, Co-Principal Investigator with Rance Cleaveland (PI), \$11,660, from 1-15-92 to 12-31-92.

NSF CCR-9102159, “OSP: An Environment for Operating System Projects” REU (Research Experience for Undergraduates) supplement with Michael Kifer, \$15,000, 1-1-91 to 12-31-92.

NSF Institutional Infrastructure grant CDA-8822721, “ACTIVE: Animated Color Three-D Interactive Visualization Environments” (one of 14 PIs), \$1,000,000, 1-1-89 to 12-31-92.

Addison-Wesley Publishing Company, “OSP: An Operating Systems Project” (Co-Principal Investigator with Michael Kifer), \$10,551, 1988.

Meta Software Corporation, “Graduate Student Research Program,” Principal Investigator, \$5,561, 1988.

NSF CCR-8704309, “Integrated Environments for Formally Based Design and Simulation of Concurrent Systems: A Non-Procedural Approach”, Co-Principal Investigator with Alessandro Giacalone (PI), \$268,980 (includes 1988-1989 supplement of \$32,984), 1987-1990.

NSF CCR-8705079, “Engineering Research Equipment Grant: Multiprocessor Vision System” (Co-Principal Investigator), \$100,000, 1987-1988.

NSF DCR-8505873, “Livelock, Lockout and Liveness in Networks of Communicating Processes” (Principal Investigator), \$80,913, 1985-1987.

NSF DCR-8504838, “Equipment for Computer Research – Lisp Machines Acquisition” (Co-Principal Investigator), \$121,796, 1985-1986.

Ph.D. Students Advised

<u>Student</u>	<u>Date</u>	<u>Dissertation Title</u>	<u>Current Affiliation</u>
Shaji Bhaskar	9/91	<i>Computations in Anonymous Networks</i>	Bell Northern Research, Research Triangle Park, NC
Yuh-Jzer Joung	2/92	<i>On the Design and Implementation of Multiparty Interaction</i>	Professor & Assoc. Dean, National Taiwan University
Chi-Chang Jou	12/92	<i>Aspects of Probabilistic Process Algebra</i>	AT&T Bell Labs, Middletown, NJ
Shipei Fred Zhang	5/95	<i>Topics in the Specification and Verification of Concurrent Systems</i>	Morgan Stanley, New York, NY
Sue-Hwey Wu	5/96	<i>Probabilistic I/O Automata and Performance Evaluation</i>	AT&T
Oleg Sokolsky	5/96	<i>Efficient Graph-Based Algorithms for Model Checking in the Modal Mu-Calculus</i>	Research Associate Professor, University of Pennsylvania
Xiaoqun Du	8/00	<i>Tabled Resolution and Constraints for Model Checking Real-Time and Infinite-State Systems</i>	Cadence DesignSystems/Bell Labs
Yifei Dong	5/03	<i>Practical Tools for the Specification and Verification of Concurrent Systems</i>	Professor, University of Oklahoma

Samik Basu	12/03	<i>Constraint-Based Abstraction Techniques for Software Verification</i>	Professor, Iowa State University
Ping Yang	12/04	<i>Logic Programming for Mobile Processes</i>	Associate Professor, SUNY Binghamton
Pei Ye	8/08	<i>Efficient Modeling and Analysis of Excitable Cells Using Hybrid Automata</i>	Electro-Optical Sciences
Anu Singh	5/09	<i>Modeling and Verification Techniques for Ad Hoc Network Protocols</i>	Google
Xiaowan Huang	5/10	<i>Compiler-Assisted Software Model Checking and Monitoring</i>	Ask.com
Tushar Deshpande	8/13	<i>Formal Analysis of DNS Attacks and Their Countermeasures Using Probabilistic Model Checking</i>	CA Technologies
Abhishek Murthy	8/14	<i>Computational Modeling and Analysis of Cardiac Excitation</i>	Philips Research
Md Ariful Islam	5/16	<i>Formal Verification of Nonlinear Biological Systems</i>	Postdoc at CMU

Post-Doctoral Students

Nicola Paoletti, Ph.D., University of Camerino, Italy, 2016–.

Greg Byrne, Ph.D., George Mason University, 2015–.

Ezio Bartocci, Ph.D., University of Camerino, Italy, 2010-2012.

Steven Sims, Ph.D., North Carolina State University, 1999.

Denis Roegel, Ph.D., University of Nancy, France, 1997.

K. Narayan Kumar, Ph.D., TIFR – University of Bombay, India, 1997.

Xinxin Liu, Ph.D., Aalborg University, Denmark, 1996-1997.

Y.S. Ramakrishna, Ph.D., University of California at Santa Barbara, 1995-1997.

Shoji Yuen, Ph.D., Nagoya University, 1993-1994.

Books

1. Michael Kifer and Scott A. Smolka, *Introduction to Operating System Design and Implementation: The OSP 2 Approach*, Springer-Verlag, Series: Undergraduate Topics in Computer Science (2007). Reprinted in Chinese in 2009.
2. Nir Piterman and Scott A. Smolka (Eds.), *Tools and Algorithms for the Construction and Analysis of Systems, Proceedings of 19th International Conference, TACAS 2013*, Held as Part of European Joint Conferences on Theory and Practice of Software, ETAPS 2013, Lecture Notes in Computer Science, Volume 7795, Springer, Rome, Italy (March 2013).

3. Dina Q. Goldin, Scott A. Smolka, and Peter Wegner (Eds.), *Interactive Computation: The New Paradigm*, Springer-Verlag, 2006.
4. Scott A. Smolka and Jiří Srba (Eds.), *Proceedings of the Seventh International Workshop on Verification of Infinite-State Systems (INFINITY '05)*, Electronic Notes in Theoretical Computer Science, Volume 149, Number 1 (Feb. 2006).
5. Dina Q. Goldin, Alex A. Shvartsman, Scott A. Smolka, Jeffrey S. Vitter, and Stan B. Zdonik (Eds.), *Proceedings of the Paris C. Kanellakis Memorial Workshop on Principles of Computing & Knowledge*, ACM Press, New York (2003).
6. Jan Bergstra, Alban Ponse, and Scott A. Smolka (Eds.), *The Handbook of Process Algebra*, Elsevier Science B.V., Amsterdam, 1,342 pp. (2001).
7. Michael Kifer and Scott A. Smolka, *OSP: An Environment for Operating System Projects*, Addison-Wesley, Reading, MA (1991). A separate *Instructor's Version* has also been published by Addison-Wesley.
8. Scott A. Smolka and Insup Lee (Eds.), *CONCUR '95: Concurrency Theory, 6th International Conference*, Lecture Notes in Computer Science, Volume 962, Springer-Verlag, Berlin (1995).

Journal Publications

1. A. Murthy, Md. A. Islam, S. A. Smolka, and R. Grosu, “Computing Compositional Proofs of Input-to-Output Stability Using SOS Optimization and δ -Decidability.” *Nonlinear Analysis: Hybrid Systems*, Elsevier. Available online 14 May 2016.
2. G. Chatzieftheriou, B. Bonakdarpour, P. Katsaros, and S. A. Smolka, “Abstract Model Repair.” *Logical Methods in Computer Science*, Vol. 3:11 (2015).
3. Md. A. Islam, A. Murthy, E. Bartocci, E. M. Cherry, F. H. Fenton, J. Glimm, S. A. Smolka, and R. Grosu, “Model-Order Reduction of Ion Channel Dynamics Using Approximate Bisimulation.” *Theoretical Computer Science*, Vol. 599C, pp. 34-46, (Sept. 2015).
4. A. Murthy, E. Bartocci, F. Fenton, J. Glimm, R. Gray, E. M. Cherry, S. A. Smolka, and R. Grosu, “Curvature Analysis of Cardiac Excitation Wavefronts.” *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, Vol. 10, No. 2, pp. 323-336 (March-April 2013).
5. A. Gorlin, C. R. Ramakrishnan, and S. A. Smolka, “Model Checking with Probabilistic Tabled Logic Programming.” *Theory and Practice of Logic Programming*, Vol. 12, No. 4-5, pp. 681-700, Cambridge University Press (Sept. 2012).
6. X. Huang, J. Seyster, S. Callanan, K. Dixit, R. Grosu, S. A. Smolka, S. D. Stoller, and E. Zadok. “Software Monitoring with Controllable Overhead.” *International Journal on Software Tools for Technology Transfer*, Vol. 14, Issue 3, pp. 327-347, Springer-Verlag (June 2012).

7. J. Seyster, K. Dixit, X. Huang, R. Grosu, K. Havelund, S. A. Smolka, S. D. Stoller, and E. Zadok, "InterAspect: Aspect-Oriented Instrumentation with GCC." *Formal Methods in System Design*, Vol. 41, No. 3, pp. 295-320, Springer (Dec. 2012).
8. E. Bartocci, R. Singh, F. von Stein, A. Amedome, A.-J. Caceres, J. Castillo, E. Closser, G. Deards, A. Goltsev, R. Sta. Ines, C. Isbilir, J. Marc, D. Moore, D. Pardi, S. Sadhu, S. Sanchez, P. Sharma, A. Singh, J. Rogers, A. Wolinetz, T. Grosso-Applewhite, K. Zhao, A. Filipski, R. F. Gilmour Jr, R. Grosu, J. Glimm, S. A. Smolka, E. M. Cherry, E. M. Clarke, N. Griffeth, and F. H. Fenton, "Teaching Cardiac Electrophysiology Modeling to Undergraduate Students: Using Java Applets and GPU Programming to Study Arrhythmias and Spiral-Wave Dynamics." *American Journal of Advances in Physiology Education*, Vol. 35, pp. 427-437, American Physiological Society (Dec. 2011).
9. X. Huang, A. Singh, and S. A. Smolka, "Using Integer Clocks to Verify Clock-Synchronization Protocols." *Innovations in Systems and Software Engineering*, Special Issue on NASA Formal Methods Symposium 2010, Vol. 7, Issue 2, pp. 119-130 (June 2011).
10. A. Singh, C. R. Ramakrishnan and S. A. Smolka. "A Process Calculus for Mobile Ad Hoc Networks." *Science of Computer Programming*, Vol. 75, Issue 6, pp. 440-469 (June 2010).
11. E. Bartocci, F. Corradini, M. R. Di Berardini, E. Entcheva, S. A. Smolka and R. Grosu. "Modeling and Simulation of Cardiac Tissue using Hybrid I/O Automata." *Theoretical Computer Science*. Vol. 410, No. 33, pp. 3149-3165 (August 2009).
12. R. Grosu, S.A. Smolka, F. Corradini, A. Wasilewska, E. Entcheva, and E. Bartocci, "Learning and Detecting Emergent Behavior in Networks of Cardiac Myocytes." *Communications of the ACM*, Vol. 53, No. 3, pp. 97-105 (March 2009).
13. P. Ye, E. Entcheva, S.A. Smolka and R. Grosu. "Modeling Excitable Cells Using Cycle-Linear Hybrid Automata." *Journal of IET Systems Biology*, Vol. 2, Issue 1, pp. 24-32 (January 2008).
14. E. Bartocci, F. Corradini, E. Entcheva, R. Grosu and S.A. Smolka. "CellExcite: An Efficient Simulation Environment for Excitable Cells." *BMC Bioinformatics*, **9**(Suppl 2):53 (March 2008).
15. S. Basu and S.A. Smolka, "Model Checking the Java Meta-Locking Algorithm." *ACM Transactions on Software Engineering and Methodology*. Vol. 16, Issue 3 (July 2007).
16. F. Moller, S.A. Smolka, and J. Srba, "On the Computational Complexity of Bisimulation, Redux." *Information and Computation*, Vol. 194, Issue 2, pp. 129-143 (November 2004).
17. D.Q. Goldin, S.A. Smolka, P.C. Attie, and E.L. Sonderegger, "Turing Machines, Transition Systems, and Interaction." *Information and Computation*, Vol. 194, Issue 2, pp. 101-128 (November 2004).
18. P. Yang, C.R. Ramakrishnan, and S.A. Smolka, "A Logical Encoding of the π -Calculus: Model Checking Mobile Processes Using Tabled Resolution." *International Journal on*

- Software Tools for Technology Transfer* (STTT), Vol. 6, No. 1, pp. 38-66, Springer-Verlag (July 2004).
19. D. Hansel, R. Cleaveland, and S.A. Smolka, "Distributed Prototyping from Validated Specifications." *Journal of Systems and Software*, Vol. 70, Issue 3, pp. 275–298 (March 2004).
 20. Y. Dong, X. Du, G.J. Holzmann and S.A. Smolka. "Fighting Livelock in the GNU i-Protocol: A Case Study in Explicit-State Model Checking." *International Journal on Software Tools for Technology Transfer (STTT)*, Vol. 4, No. 4, pp. 505–528, Springer-Verlag (August 2003).
 21. A. Philippou, O. Sokolsky, R. Cleaveland, I. Lee, and S.A. Smolka, "Hiding Resources that Can Fail: An Axiomatic Perspective." *Information Processing Letters*, Special Issue on Process Algebra, Vol. 80, Issue 1, pp. 3-13 (October 2001).
 22. X. Du, S.A. Smolka, and R. Cleaveland, "Local Model Checking and Protocol Analysis." *International Journal on Software Tools for Technology Transfer (STTT)*, Vol. 2, No. 3, pp. 219-241, Springer-Verlag (November 1999).
 23. R. Cleaveland, Z. Dayar, S.A. Smolka, S. Yuen and A. Zwarico, "Testing Preorders for Probabilistic Processes." *Information and Computation*, Vol. 154, No. 2, pp. 93-148 (November 1999).
 24. Y.-J. Joung and S.A. Smolka, "Strong Interaction Fairness via Randomization." *IEEE Trans. on Parallel and Distributed Systems*, Vol. 9, No. 2 (February 1998).
 25. S.-H. Wu, S.A. Smolka and E. Stark, "Composition and Behaviors of Probabilistic I/O Automata." *Theoretical Computer Science*, Vol. 176, No. 1-2, pp. 1-38 (1997).
 26. Y.-J. Joung and S.A. Smolka, "A Comprehensive Study of the Complexity of Multiparty Interaction." *Journal of the ACM*, Vol. 43, No. 1, pp. 75-115 (January 1996).
 27. S.A. Smolka and B. Steffen, "Priority as Extremal Probability." *Formal Aspects of Computing*, Vol. 8, pp. 585-606 (1996).
 28. R. Cleaveland and S.A. Smolka, "Strategic Directions in Concurrency Research." *ACM Computing Surveys*, Vol. 28, No. 4, pp. 607-625 (December 1996).
 29. R. De Nicola and S.A. Smolka, "Concurrency: Theory and Practice." *ACM Computing Surveys*, Vol. 28, No. 4es, Article 52 (December 1996).
<http://www.acm.org./surveys/1996/DeNicolaPractice/>
 30. R. van Glabbeek, S.A. Smolka, and B.U. Steffen, "Reactive, Generative, and Stratified Models of Probabilistic Processes." *Information and Computation*, Vol. 121, No. 1, pp. 59-80 (August 1995).
 31. J.C.M. Baeten, J.A. Bergstra, and S.A. Smolka, "Axiomatizing Probabilistic Processes: ACP with Generative Probabilities." *Information and Computation*, Vol. 121, No. 2, pp. 234-255 (September 1995).

32. F. Moller and S.A. Smolka, "On the Complexity of Bisimulation." *ACM Computing Surveys*, Vol. 27, No. 2, pp. 287-289 (June 1995).
33. R. Gupta, S. Bhaskar, and S.A. Smolka, "On Randomization in Sequential and Distributed Algorithms," *ACM Computing Surveys*, Vol. 26, No. 1, pp. 7-86 (March 1994).
34. Y.-J. Joung and S.A. Smolka, "Coordinating First-Order Multiparty Interactions." *ACM TOPLAS*, Vol. 16, No. 3, pp. 954-985 (May 1994).
35. P.C. Kanellakis and S.A. Smolka, "CCS Expressions, Finite State Processes, and Three Problems of Equivalence," *Information and Computation*, Vol. 86, No. 1, pp. 43-68 (May 1990).
36. J. Reif and S.A. Smolka, "Data Flow Analysis of Distributed Communicating Processes," *International Journal on Parallel Programming* (Gary Lindstrom, Editor), Vol. 19, No. 1 (Feb. 1990).
37. J. Reif and S.A. Smolka, "The Complexity of Reachability in Distributed Communicating Processes," *Acta Informatica*, Vol. 25, pp. 333-354 (1988).
38. A. Giacalone and S.A. Smolka, "Integrated Environments for Formally Based Design and Simulation of Concurrent Systems: A Non-Procedural Approach," Special Issue on Integrated Software Engineering Environments, *IEEE Transactions on Software Engineering*, Vol. 14, No. 6, pp. 787-802 (June 1988).
39. P.C. Kanellakis and S.A. Smolka, "On the Analysis of Cooperation and Antagonism in Networks of Communicating Processes," Special Issue on Parallel and Distributed Computing, *Algorithmica*, Vol. 3, pp. 421-450 (1988).
40. S.A. Smolka and R.E. Strom, "A CCS Semantics for NIL," Special Issue on Formal Definition/Design of Computer Systems, *IBM Journal of Research and Development*, Vol. 31, No. 5, pp. 556-571 (Sept. 1987).
41. P. Wegner and S.A. Smolka, "Processes, Tasks, and Monitors: A Comparative Study of Concurrent Programming Primitives," *IEEE Transactions on Software Engineering*, Vol. 9, No. 4, pp. 446-462 (July 1983).

Near-Term Planned Conference Submissions

1. D. Phan, J. Yang, R. Grosu, S. A. Smolka, and S. D. Stoller, "A Component-Based Simplex Control Architecture for High-Assurance Cyber-Physical Systems." Planned submission to *RV 2016, 16th International Conference on Runtime Verification*, Madrid, Spain (Sept. 2016).
2. H. Abbas, E. Bartocci, R. Grosu, A. Rodionova, and S. A. Smolka, "Formal Analysis of Cardiac Electrograms using Signal Temporal Logic." Planned submission to *RV 2016, 16th International Conference on Runtime Verification*, Madrid, Spain (Sept. 2016).

3. J. Yang, A. Murthy, S. A. Smolka, and S. D. Stoller, “A Simplex Control Architecture for Hybrid Systems using Barrier Certificates.” Planned submission to *RV 2016, 16th International Conference on Runtime Verification*, Madrid, Spain (Sept. 2016).
4. G. Byrne, R. Grosu, A. Islam, and S. A. Smolka, “Reach-Tube Analysis for Cardiac-Cell Dynamics.” Planned submission to *CMSB 2016, 14th International Conference on Computational Methods in Systems Biology*, Cambridge, UK (Sept. 2016).
5. Md. A. Islam, G. Byrne, R. Grosu, and S. A. Smolka, “ δ -Reachability for Cardiac-Cell Dynamics.” Planned submission to *CMSB 2016, 14th International Conference on Computational Methods in Systems Biology*, Cambridge, UK (Sept. 2016).

Refereed Conference Publications

1. Md. A. Islam, Q. Wang, E. M. Clarke, S. A. Smolka, R. Hsani, Radu Grosu, and O. Balun, “Probabilistic Reachability Analysis of the Tap Withdrawal Circuit in *Caenorhabditis elegans*.” *Proceedings of HLDVT 2016: 18th IEEE International High-Level Design Validation and Test Workshop*, Santa Cruz, CA, IEEE Press (Oct. 2016).
2. C. Jegourel, A. Lukina, A. Legay, S. A. Smolka, R. Grosu, and E. Bartocci, “Feedback Control for Statistical Model Checking of Cyber-Physical Systems.” *Proceedings of ISoLA 2016, Eighth International Symposium on Leveraging Applications*, Corfu, Greece, Lecture Notes in Computer Science, Springer (Oct. 2016).
3. Md. A. Islam, G. Byrne, S. Kong, E. M. Clarke, R. Cleaveland, F. H. Fenton, R. Grosu, and S. A. Smolka, “Bifurcation Analysis of Cardiac Alternans using δ -Decidability.” *Proceedings of CMSB 2016, 14th Conference on Computational Methods in Systems Biology*, Cambridge, UK (Sept. 2016).
4. J. Yang, R. Grosu, S. A. Smolka, and A. Tiwari, “Love Thy Neighbor: V-Formation as a Problem of Model Predictive Control (Extended Abstract).” *Proceedings of CONCUR 2016, 27th International Conference on Concurrency Theory*, Québec City, Canada (Aug. 2016).
5. D. Phan, J. Yang, D. Ratasich, R. Grosu, S. A. Smolka and S. D. Stoller, “Collision Avoidance for Mobile Robots with Limited Sensing and Limited Information about the Environment.” *Proceedings of RV 2015, 15th International Conference on Runtime Verification*, Vienna, Austria (Sept. 2015).
6. K. Selyunin, D. Ratasich, E. Bartocci, Md. A. Islam, S. A. Smolka, and R. Grosu, “Neural Programming: Towards Adaptive Control in Cyber-Physical Systems.” *Proceedings of CDC 2015, 54th IEEE Conference on Decision and Control*, Osaka, Japan (Dec. 2015).
7. Md. A. Islam, R. DeFrancisco, C. Fan, R. Grosu, S. Mitra, and S. A. Smolka, “Model Checking Tap Withdrawal in *C. Elegans*.” *Proceeding of HSB 2015, Fourth International Workshop on Hybrid Systems Biology*, Madrid, Spain (Sept. 2015).

8. A. Murthy, Md. A. Islam, S. A. Smolka, and R. Grosu, "Computing Bisimulation Functions using SOS Optimization and SMT: Opportunities and Pitfalls." *Proceeding of HSCC 2015, 18th International Conference on Hybrid Systems: Computation and Control*, Seattle, Washington, USA, ACM Press (April 2015).
9. Md. A. Islam, A. Murthy, A. Girard, S. A. Smolka, and R. Grosu, "Compositionality Results for Cardiac Cell Dynamics." *Proceeding of HSCC 2014, 17th International Conference on Hybrid Systems: Computation and Control*, Berlin, Germany, ACM Press (April 2014).
10. E. Bartocci, R. DeFrancisco, and S. A. Smolka, "Towards a GPGPU-Parallel SPIN Model Checker." *Proceedings of SPIN 2014, Third International SPIN Symposium on Model Checking of Software*, San Jose, CA, ACM Press (July 2014).
11. S. Bhattacharyya, S. P. Miller, J. Yang, S. A. Smolka, B. Meng, C. Stickse, and C. Tinelli, "Verification of Quasi-Synchronous Systems with Uppaal." *Proceedings of DASC 2014, IEEE/AIAA 33rd Digital Avionics Systems Conference*, Colorado Springs, CO (Oct. 2014).
12. D. Peled, R. Grosu, C. R. Ramakrishnan, S. A. Smolka, S. D. Stoller, and J. Yang, "Using Statistical Model Checking for Measuring Systems." *Proceedings of ISoLA 2014, Sixth International Symposium on Leveraging Applications*, Corfu, Greece, Lecture Notes in Computer Science, Springer (Oct. 2014).
13. T. Deshpande, P. Katsaros, S. A. Smolka, and S. D. Stoller, "Stochastic Game-Based Analysis of the DNS Bandwidth Amplification Attack Using Probabilistic Model Checking." *Proceedings of EDCC 2014, 10th European Dependable Computing Conference*, Newcastle upon Tyne, UK, IEEE Press (May 2014).
14. Md. A. Islam, T. Deshpande, A. Murthy, E. Bartocci, S. D. Stoller, S. A. Smolka, and R. Grosu, "Tracking Action Potentials of Nonlinear Excitable Cells using Model Predictive Control." *Proceedings of BIOTECHNO 2014, Sixth International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies*, Chamonix, France, IARIA XPS Press (April 2014).
15. Md. A. Islam, A. Murthy, A. Girard, S. A. Smolka, and R. Grosu, "Compositionality Results for Cardiac Cell Dynamics." *Proceeding of HSCC 2014, 17th International Conference on Hybrid Systems: Computation and Control*, Berlin, Germany, ACM Press (April 2014).
16. K. Kalajdzic, E. Bartocci, S. A. Smolka, S. D. Stoller and R. Grosu, "Runtime Verification with Particle Filtering." *Proceedings of RV 2013, Fourth International Conference on Runtime Verification*, INRIA Rennes, France, Springer-Verlag, Lecture Notes in Computer Science (Sept. 2013).
17. A. Islam, A. Murthy, E. Bartocci, A. Girard, S. A. Smolka, and R. Grosu, "Compositionality Results for Cardiac Cell Dynamics." *Proceedings of CMSB'13, 11th Conference on Computational Methods in Systems Biology*, Klosterneuburg, Austria, Springer-Verlag, Lecture Notes in Computer Science, Sept. 2013 (Short paper).
18. E. Bartocci, R. Grosu, A. Karmarkar, S. A. Smolka, S. D. Stoller, E. Zadok and J. Seyster, "Adaptive Runtime Verification." *Proceedings of RV 2012, Third International Conference*

on Runtime Verification, Istanbul, Turkey, Springer-Verlag, Lecture Notes in Computer Science (Sept. 2012).

19. A. Gorlin, C. R. Ramakrishnan, and S. A. Smolka, “Model Checking with Probabilistic Tabled Logic Programming.” *Proceedings of ICLP 2012, 28th International Conference on Logic Programming*, Budapest, Hungary (Sep. 2012).
20. A. Murthy, A. Islam, E. Bartocci, E. Cherry, F. H. Fenton, J. Glimm, S. A. Smolka, and R. Grosu, “Approximate Bisimulations for Sodium Channel Dynamics.” *Proceedings of CMSB 2012, 10th Conference on Computational Methods in Systems Biology*, London, UK, Springer, Lecture Notes in Computer Science (Oct. 2012).
21. A. Donzé, O. Maler, E. Bartocci, D. Nickovic, R. Grosu, and S. A. Smolka, “On Temporal Logic and Signal Processing.” *Proceedings of ATVA 2012, 10th International Symposium on Automated Technology for Verification and Analysis*, Trivandrum, Kerala, Springer, Lecture Notes in Computer Science (Oct. 2012).
22. G. Chatzieftheriou, B. Bonakdarpour, S. A. Smolka and P. Katsaros, “Abstract Model Repair.” *Proceedings of NFM 2012, Fourth NASA Formal Methods Symposium*, pp. 341-355, Springer-Verlag, Lecture Notes in Computer Science, Vol. 7226, Norfolk, VA, (April 2012).
23. T. Deshpande, S. Basagiannis, P. Katsaros, and S. A. Smolka, “Formal Analysis of the DNS Bandwidth Amplification Attack and its Countermeasures Using Probabilistic Model Checking.” *Proceedings of HASE 2011, 13th IEEE International High Assurance Systems Engineering Symposium*, Boca Raton, FL, IEEE Computer Society (Nov. 2011).
24. S. D. Stoller, E. Bartocci, J. Seyster, R. Grosu, K. Havelund, S. A. Smolka and E. Zadok, “Runtime Verification with State Estimation.” *Proceedings of RV 2011, Second International Conference on Runtime Verification*, San Francisco, US, Springer-Verlag, Lecture Notes in Computer Science (Sept. 2011).
25. E. Bartocci, E. M. Cherry, J. Glimm, R. Grosu, S. A. Smolka, and F.H. Fenton, “Toward Real-time Simulation of Cardiac Dynamics.” *Proceedings of CMSB 2011, 9th International Conference on Computational Methods in Systems Biology*, Paris, France, ACM Press (Sept. 2011).
26. A. Murthy, E. Bartocci, F. Fenton, J. Glimm, R. Gray, S. A. Smolka, and R. Grosu, “Curvature Analysis of Cardiac Excitation Wavefronts.” *Proceedings of CMSB 2011, 9th International Conference on Computational Methods in Systems Biology*, Paris, France, ACM Press (Sept. 2011).
27. R. Grosu, G. Batt, F. H. Fenton, J. Glimm, C. Leguernic, S. A. Smolka, and E. Bartocci, “From Cardiac Cells to Genetic Regulatory Networks.” *Proceedings of CAV 2011, 23rd International Conference on Computer Aided Verification*, Snowbird, Utah, Springer-Verlag, Lecture Notes in Computer Science (July 2011).
28. Z. Li, R. Grosu, K. Muppalla, S. A. Smolka, S. D. Stoller, and E. Zadok, “Model Discovery for Energy-Aware Computing Systems.” *Proceedings of ERSS 2011, First International*

Workshop on Energy Consumption and Reliability of Storage Systems, Orlando, FL, IEEE Press (July 2011).

29. Z. Li, R. Grosu, P. Sehgal, S. A. Smolka, S. D. Stoller, and E. Zadok, "On the Energy Consumption and Performance of Systems Software." *Proceedings of SYSTOR 2011, Fourth Annual International Systems and Storage Conference*, Haifa, Israel, ACM Press (May 2011).
30. E. Bartocci, R. Grosu, P. Katsaros, C. R. Ramakrishnan, and S. A. Smolka, "Model Repair for Probabilistic Systems." *Proceedings of TACAS 2011, 17th International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, Saarbrücken, Germany, Springer-Verlag, Lecture Notes in Computer Science, Vol. 6605, pp. 326-340 (March-April 2011).
31. N. Alexiou, T. Deshpande, S. Basagiannis, S. A. Smolka and P. Katsaros, "Formal Analysis of the Kaminsky DNS Cache-Poisoning Attack Using Probabilistic Model Checking." *Proceedings of HASE 2010, 12th IEEE International High Assurance Systems Engineering Symposium*, San Jose, CA, IEEE Computer Society (Nov. 2010).
32. J. Seyster, K. Dixit, X. Huang, R. Grosu, K. Havelund, S. A. Smolka, S. D. Stoller and E. Zadok, "Aspect-Oriented Instrumentation with GCC." *Proceedings of RV 2010, First International Conference on Runtime Verification*, Sliema, Malta, Springer-Verlag, Lecture Notes in Computer Science, Vol. 6418, pp. 405-420 (Nov. 2010).
33. X. Huang, A. Singh and S. A. Smolka, "Using Integer Clocks to Verify the Timing-Sync Sensor Network Protocol." *Proceedings of NFM 2010, Second NASA Formal Methods Symposium*, Washington D.C., NASA Conference Publication (April 2010).
34. A. Singh, C. R. Ramakrishnan and S. A. Smolka, "Query-Based Model Checking of Ad Hoc Network Protocols." *Proceedings of CONCUR 2009, the 20th International Conference on Concurrency Theory*, Pisa, Italy, Springer-Verlag, Lecture Notes in Computer Science, Vol. 5710, pp. 603-619 (Sep. 2009).
35. Z. Yang, B. Al-Rawi, K. Sakallah, X. Huang, S. A. Smolka and R. Grosu, "Dynamic Path Reduction for Software Model Checking." *Proceedings of iFM'09, the Seventh International Conference on Integrated Formal Methods*, Duesseldorf, Germany, Springer-Verlag, Lecture Notes in Computer Science, Vol. 5423, pp. 322-336 (Feb. 2009).
36. O. Riganelli, R. Grosu, S. R. Das, C. R. Ramakrishnan and S. A. Smolka, "Power Optimization in Fault-Tolerant Mobile Ad Hoc Networks." *Proceedings of the 11th IEEE High Assurance Systems Engineering Symposium (HASE'08)*, Nanjing, China, IEEE Press (Dec. 2008).
37. P. Ye, R. Grosu, S. A. Smolka and E. Entcheva. "Formal Analysis of Abnormal Excitation in Cardiac Tissue." *Proceedings of CMSB'08, the 6th International Conference on Computational Methods in Systems Biology*, Rostock, Germany, Springer, Lecture Notes in Bioinformatics (Oct. 2008).

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