

## Scott A. Smolka

### *Curriculum Vitae*

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<http://www.cs.sunysb.edu/~sas>

### Education

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

### Academic Appointments

1995– Professor, Dept. Computer Science, SUNY at Stony Brook  
1988–1995 Associate Professor, Dept. Computer Science, SUNY at Stony Brook  
1982–1988 Assistant Professor, Dept. Computer Science, SUNY at Stony Brook  
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– President, 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.

### Awards

2008-2009 President's Award for Excellence in Scholarship and Creative Activities. February 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. August 2006.

## 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.

## Professional Activities

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

Member, IFIP Working Group 1.8 on Concurrency Theory.

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

Member of the Editorial Board of the journal *Logical Methods in Computer Science*, Dana Scott, Editor-in-Chief.

Member of the Editorial Board of the journal *Transactions on Computational Logic*, Krzysztof Apt, Editor-in-Chief, ACM Press.

Member of the Editorial Board of the journal *Formal Methods in System Design*, Ed Clarke, Editor-in-Chief, Kluwer Press.

Member of the Editorial Board of the journal *Software Tools for Technology Transfer*, Bernhard Steffen, Editor-in-Chief, Springer-Verlag.

Program Committee Member, *SSS 09*, 11th Symposium on Stabilization, Safety and Security in Distributed Systems, Lyon, France, November 2009.

Program Committee Member, *CONCUR 08*, 19th International Conference on Concurrency Theory, Toronto, Canada, August 2008.

Program Committee Member, *NETTAB 2008* (Bioinformatics Methods for Biomedical Complex System Applications), Varenna, Como Lake, Italy, May 2008.

Program Committee Member, *FMWS 2008*, Formal Methods for Wireless Systems, Toronto, Canada, August 2008.

Program Committee Member, FBTC 2008 (From Biology to Concurrency), Reykjavik, Iceland, July 2008.

Panel Member, *NSF Expeditions in Computing Panel*, January 2008.

Program Committee Member, FBTC 2007 (From Biology to Concurrency), Lisbon, Portugal, September 2007.

Program Committee Member, Foundations of Software Science and Computation Structures (FOSSACS 2007), Munich, Germany, March 2007.

Panel Member, *NSF Computing Processes & Artifacts Panel*, January 2007.

Program Committee Member, Third International Conference on Quantitative Evaluation of SysTems (QEST 2006), Riverside, CA, September 2006.

Program Committee Member, Second International Conference on Intelligent Computer Communication and Processing, Static and Runtime Verification Track (SRV'06), Napoca, Romania, September 2006.

Program Committee Member, Automated Technology for Verification and Analysis (ATVA 2005), Taipei, Taiwan, October 2005.

Program Committee Co-Chair, *INFINITY 2005*, San Francisco, CA, August 2005.

Program Committee Member, Foundations of Interactive Computation (FINCO 2005), Edinburgh, Scotland, April 2005.

Panel Moderator, "Formal Methods: Are they Practical for Security." First Griffiss Institute University-Industry Conference, November 2003.

Co-Organizer, *PCK50: ACM Paris Kanellakis Memorial Workshop*, June 2003.

Co-Organizer, First International School on Formal Methods, Bertinoro, Italy, July 2001.

Panel Member, *NSF ITR Review Panel*, January 2002.

Program Committee Member, *2003 Monterey Workshop on Software Engineering for Embedded Systems*, Chicago, IL, September 2003.

Program Committee Member, *CONCUR 02*, Brno, Czech Republic, August 2002.

Program Committee Member, *FORTE 2002*, Houston, Texas, November 2002.

Program Committee Member, *PAPM-PROBMIV 2002*, Copenhagen, Denmark, July 2002.

Program Committee Member, *FORTE/PSTV 2000*, Pisa, Italy, October 2000.

Program Committee Member, *PAPM 2000*, Geneva, Switzerland, July 2000.

Program Committee Member, *POPL '99*, San Antonio, TX, January 1999.

Program Committee Member, *FST&TCS '99*, Chennai, India, December 1999.

Organizing Committee Chair, IFIP Working Conference on Programming Concepts and Methods (*PROCOMET '98*), Shelter Island, NY, June 1998.

Program Committee Member, *ASIAN '98*, Manila, Philippines, December 1998.

Program Committee Member, *TACAS '97*, University of Twente, The Netherlands, April 1997.

Program Committee Member, *Second International Workshop on Applied Formal Methods in System Design*, Zagreb, Croatia, June 1997.

Concurrency Working Group Chair, ACM 50th Anniversary Workshop on Strategic Directions in Computing Research, MIT, June 1996.

Program Committee Member, *Computer Aided Verification '96*, New Brunswick, NJ, July 1996.

Program Committee Member, *TACAS '96*, Passau, Germany, March 1996.

Program Committee Member, *CONCUR '96*, Pisa, Italy, August 1996.

Panel Member, *NSF SBIR Phase II Review Panel*, February 1996.

Panel Member, *NSF Software Engineering and Languages Review Panel*, Arlington, VA, November 1996.

Program Committee Chair, *CONCUR '95*, Philadelphia, PA, August 1995.

Program Committee Member, *CONCUR '94*, Uppsala, Sweden, August 1994.

Panel Member, *NSF Research Initiation Awards Review Panel*, Washington, DC, May 1993.

Program Committee Member, *Twelfth International Conference on Distributed Computing Systems*, Yokohama, Japan, June 1992.

Organizing Committee Chair, *CONCUR '92*, Stony Brook, NY, August 1992. *CONCUR '92* was held on the USB campus in August, 1992. The conference attracted 125 attendees and featured an invited lecture by Robin Milner, recipient of the 1991 ACM Turing Award.

Program Committee Member, *READPAC '92 – First Workshop on Reliable and Dependable Parallel Computing*, Stony Brook, NY, August 1992.

Program Committee Member, *CONCUR '91*, Amsterdam, The Netherlands, August 1991.

Program Committee Member and Invited Speaker, *International Conference for Young Computer Scientists*, Beijing, China, July 1991.

Panel Member, “Protocol Verification: The Past Ten Years and the Next Ten Years,” *Tenth International Symposium on Protocol Specification, Testing, and Verification*, Ontario, Canada, June 1990.

Panel Member, *NSF/DARPA Joint Initiative on Formal Methods in Software Engineering*, Washington, DC, 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

Faculty advisor to Undergraduate Student Club on Organ Donation Awareness. Students in the club organized the Second and Fourth *Annual Donate Life Walk* around the campus mall to raise awareness for the need for organ donation. The Walks took place on April 25, 2007 and April 15, 2009.

Member of President's Committee for the celebration of the 50th anniversary of Stony Brook University, 2006–

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/>

Taught freshmen seminar in Spring 2006 and 2008 on *Organ Donation Awareness* for the College of Leadership and Service. Students in the course designed, organized and participated in the Donate Life Walk around the campus mall to raise awareness for the need for organ donation.

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

Member of President's Faculty Advisory Council on the future of the University, 2004–

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–

20-Year University Service Award, February 2003.

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.

Member of Provost's Selection Committee for USB/BNL Seed Grant Program, 2002.

Member of Computer Science Department's Operations Committee, 2002–

Research Foundation's Sponsored Programs Advisory Council (SPAC) member, 2001–

Chair of SPAC Task Force on the Oracle Application System, 2002–

University Senate Research Committee member, 2001–2004

Computer Science Department Faculty Recruiting Committee member, 2001.

Five Year Plan Task Force on Outreach and Entrepreneurship, member, 1999–2000.

Chair, Computer Science Department Faculty Recruiting Committee, 1999–2000.

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 Department Faculty Recruiting Committee member, 1996-1998.

Computer Science Undergraduate Program Director, 1994-1996.

Computer Science Department Executive Committee member, 1993-1997.

Ad-Hoc Committee on Joint CEAS/Harriman Programs, 1995.

Chair, 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 features a required two-course sequence in software engineering, took effect in Spring, 1995.

CEAS Curriculum and Teaching Policy Committee, 1994-1996.

Faculty Advisor for Freshmen, 1994-1996.

Transfer Student Advising, Spring and Summer 1994 –

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

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.

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

Chair, Computer Science Qualifying Exam Subcommittee on Software Systems, 1992-1993.

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.

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

Academic Information Booth participant, 1987 and 1988.

Computer Science Library Committee, 1986-1990.

Ad-Hoc Committee for the Formation of the Computer Science Library, 1985.

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

Member of CEAS Committee on Academic Standing and Appeals, 1985.

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 Talks (since 1990)**

“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, Boston, MA, 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.

## Funding

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

CEWIT Seed Grant, “Model-Based Learning, Analysis and Control of Excitable Cells” (Co-Principal Investigator with Emilia Entcheva, Radu Grosu, I.V. Ramakrishnan and S.A. Smolka), \$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, 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 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, 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, 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, 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 along 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 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), \$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 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 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, 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, 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 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 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 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, 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,” \$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,” \$164,554, from 4-1-93 to 3-31-96.

Brookhaven National Lab, Graduate Student Research Program, \$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,” \$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 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), \$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 fourteen 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,” \$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), \$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>	Associate Professor, 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>	
Oleg Sokolsky	5/96	<i>Efficient Graph-Based Algorithms for Model Checking in the Modal Mu-Calculus</i>	Research Assistant Professor, University of Pennsylvania
Xiaoqun Du	8/00	<i>Tabled Resolution and Constraints for Model Checking Real-Time and Infinite-State Systems</i>	Cadence Design Systems/Bell Labs

<u>Student</u>	<u>Date</u>	<u>Dissertation Title</u>	<u>Current Affiliation</u>
Yifei Dong	5/03	<i>Practical Tools for the Specification and Verification of Concurrent Systems</i>	Assistant Professor, Oklahoma University
Samik Basu	12/03	<i>Constraint-Based Abstraction Techniques for Software Verification</i>	Assistant Professor, Iowa State University
Ping Yang	12/04	<i>Logic Programming for Mobile Processes</i>	
Pei Ye	8/08	<i>Efficient Modeling and Analysis of Excitable Cells Using Hybrid Automata</i>	
Xiaowan Huang	5/09	<i>GCC-Based Software Model Checking</i>	
Anu Singh	5/09	<i>Modeling and Verification Techniques for Ad Hoc Network Protocols</i>	

### Post-Doctoral Students

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).
2. Dina Q. Goldin, Scott A. Smolka, and Peter Wegner (Eds.), *Interactive Computation: The New Paradigm*, Springer-Verlag, 2006.
3. 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).
4. 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).
5. Jan Bergstra, Alban Ponse, and Scott A. Smolka (Eds.), *The Handbook of Process Algebra*, Elsevier Science B.V., Amsterdam, 1,342 pp. (2001).

6. 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.
7. 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. 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*. Article in Press. 2009.
2. A. Singh, C. R. Ramakrishnan and S. A. Smolka. "A Process Calculus for Mobile Ad Hoc Networks." *Science of Computer Programming*, Elsevier, 2009 (To appear).
3. 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).
4. 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).
5. 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).
6. 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).
7. 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).
8. P. Yang, C.R. Ramakrishnan, and S.A. Smolka, "A Logical Encoding of the  $\pi$ -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).
9. 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).
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