

# Scott D. Stoller

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## RESEARCH INTERESTS

Design, analysis, optimization, testing, and verification of software, with emphases on computer security and distributed systems.

## EDUCATION

- 09/1991 - 08/1996: **Cornell University.** Ph.D., Computer Science, May 1997. GPA: 4.1  
09/1990 - 05/1991: **Cornell University.** Ph.D. Candidate, Physics. GPA: 4.0  
09/1986 - 05/1990: **Princeton University.** B.A., Physics, *summa cum laude*, May 1990. GPA: 4.1

## WORK EXPERIENCE

- 09/2009 - present: **Stony Brook University**, Computer Science Dept.  
*Professor*
- 09/2003 - 08/2009: **Stony Brook University**, Computer Science Dept.  
*Associate Professor*
- 09/2000 - 08/2003: **Stony Brook University**, Computer Science Dept.  
*Assistant Professor*
- 08/1996 - 08/2000: **Indiana University**, Computer Science Dept., Bloomington, IN  
*Assistant Professor*
- 09/1993 - 08/1996: **Cornell University**, Computer Science Dept.  
*Graduate Research Assistant with Professor Fred B. Schneider*
- 06/1994 - 08/1994: **DEC Systems Research Center**, Palo Alto, CA  
*Research Intern with Dr. John DeTreville*
- 06/1993 - 08/1993: **AT&T Bell Labs**, Murray Hill, NJ  
*Member of Technical Staff, working with Dr. Douglas J. Howe*
- 09/1991 - 05/1993: **Cornell University**, Computer Science Dept.  
*Graduate Research Assistant with Professor Robert L. Constable*
- 06/1990 - 08/1990: **Hoffmann-La Roche, Inc.**, Nutley, NJ  
*Employee in MIS Department*
- 06/1989 - 08/1989: **Eastman Kodak Co., Engineering Research Center**, Rochester, NY  
*Intern in Optical Device Group with Dr. John Debesis*
- 06/1988 - 08/1988: **Princeton University**, Department of Physics  
*Research Assistant with Professor Daniel Marlow*
- 06/1987 - 08/1987: **Sony Corporation of America, Inc.**, Park Ridge, NJ  
*Intern in Advertising Department, developing database system*

## AWARDS AND HONORS

- Best Paper Award, 30th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2016), with Thang Bui.
- Career Center Faculty Partner of the Year, Stony Brook University, 2014-2015.
- Undergraduate College Faculty Fellow, Stony Brook University, 2012.
- Best Student Paper Award, 14th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2012), with Bo Lin and Yanhong Liu.
- 2011-2012 State University of New York (SUNY) Chancellor's Award for Excellence in Scholarship and Creative Activities.
- Best Paper Award, 2nd International Conference on Runtime Verification (RV 2011), with Ezio Bartocci, Justin Seyster, Radu Grosu, Klaus Havelund, Scott A. Smolka, and Erez Zadok.
- Outstanding Community Service Award, IEEE Technical Committee on Security and Privacy, 2009.
- Best Paper Award, 2005 Haifa Verification Conference, with Rahul Agarwal and Liqiang Wang.
- NASA Turning Goals Into Reality Award for Engineering Innovation, 2003. Awarded to the Java PathFinder Team. I am named as a team member for my contributions.
- Office of Naval Research Young Investigator Award, 2002.  
Two Young Investigators in Computer Science were selected in 2002.
- National Science Foundation CAREER Award, 1999.
- Teaching Excellence Recognition Award, Indiana University, 1999.
- IBM Graduate Fellow, 1993-1994.
- National Science Foundation Graduate Fellow, 1990-1993.
- Graduated *summa cum laude*, Princeton University, 1990.
- Apker Award Finalist, American Physical Society, 1990.  
Four finalists are selected annually for excellence in undergraduate research.
- Kodak Scholar, with full-tuition scholarship, 1988-1990.
- Manfred Pyka Memorial Physics Prize, Physics Dept., Princeton University, 1989.
- Kusaka Memorial Physics Prize, Physics Dept., Princeton University, 1988.

## GRANTS

1. Controller-Attacker Games for Multi-Agent Systems, with Scott A. Smolka (co-PI). US Army Research Office, \$737,514, 2024-2027.
2. Research Experiences for Undergraduates (REU) Supplement (to WebSheets grant), \$16,000, June 2023 – September 2026.
3. Real-Time Detection of Advanced Malware Attacks with Ensembles of Graph Neural Networks, with Guanhua Yan (SUNY PI at Binghamton University), Ping Yang (Binghamton University), and Xiaokui Shu (IBM PI at IBM Research). SUNY-IBM AI Collaborative Research Alliance, \$100,000 (SBU share \$10,375), 2022-2024.

4. *SaTC CORE: MEDIUM: WebSheets: A Framework for Privacy-Centric Web Applications By Non-Programmers*, with R. Sekar (PI) and I. V. Ramakrishnan (co-PI). National Science Foundation, \$1,019,291, 2022-2026.
5. *NSF Convergence Accelerator—Track D: AI-Grid: AI-Enabled, Provably Resilient, Programmable Networked Microgrids* (Phase 2), with Peng Zhang (PI), Scott A. Smolka, and Xin Wang. National Science Foundation, Convergence Accelerator Program, \$5,000,000, 2021-2024.
6. *Resilience through Distribution, Replication, and Coordination*, with Yanhong Liu (co-PI). Office of Naval Research, \$101,536, 2021-2022.
7. *Real-Time Detection of Advanced Malware Attacks with Ensembles of Graph Neural Networks*, with Guanhua Yan (SUNY PI at Binghamton University), Ping Yang (Binghamton University), and Xiaokui Shu (IBM PI at IBM Research). SUNY-IBM AI Collaborative Research Alliance, \$100,000 (SBU share \$9,707), 2021-2022.
8. *NSF Convergence Accelerator—Track D: AI-Enabled Provably Resilient Networked Microgrids* (Phase 1), with Peng Zhang (PI), Scott A. Smolka, and Xin Wang. National Science Foundation, Convergence Accelerator Program, \$1,000,000, 2020-2021.
9. *SHF: Medium: Configuration for Assurance: Safe, Live, and Secure Distributed Systems*, with Yanhong Liu (PI). National Science Foundation, Software and Hardware Foundations (SHF) Program, \$1,000,000, 2020-2024.
10. *Knowledge and Reasoning for Drastic Program Improvement: Melding Formal and Statistical Approaches*, with Yanhong Liu (co-PI). Office of Naval Research, \$596,571, 2019-2022.
11. *SPX: Collaborative Research: NSF Scalable Parallelism in the Extreme (SPX) Workshop on Future Directions for Parallel and Distributed Computing*. National Science Foundation, Computing and Communication Foundations, \$36,738, 2019–2020.
12. Google Cloud Platform Education Grant, \$5,000 2018–2019.
13. Google Cloud Platform Education Grant, \$5,250 2017–2018.
14. *MARPLE: Mitigating APT damage by Reasoning with Provenance in Large Enterprise networks*, with R. Sekar (Principal Investigator). DARPA Transparent Computing program, \$959,073, 2015–2019. This is the SBU part of a collaborative project with J.R. Rao et al. at IBM T. J. Watson Research Center (lead institution), V. N. Venkatakrishnan and Rigel Gjomemo at University of Illinois at Chicago, and Yan Chen at Northwestern University.
15. *Algorithm Diversity for Resilient Systems*, with Yanhong Liu (co-PI). Office of Naval Research, \$776,974, 2015–2019.
16. *Adaptive Runtime Verification and Recovery for Mission-Critical Software*, with Scott A. Smolka (Principal Investigator), Erez Zadok, Radu Grosu (Vienna University of Technology), and Klaus Havelund (JPL). Air Force Office of Scientific Research, \$502,044 (SBU share), 2014–2017.
17. *Towards Trustworthy Access Control Policies*. Single investigator. National Science Foundation, Trustworthy Computing (TWC) Program, \$341,410, 2014–2020.
18. *From Clarity to Efficiency for Distributed Algorithms*, with Yanhong A. Liu (Principal Investigator). National Science Foundation, CCF/SHF Program, \$1,300,006, 2014–2020.
19. *EAGER: From Clarity to Efficiency for Distributed Algorithms*, with Yanhong A. Liu (Principal Investigator). National Science Foundation, CCF/SHF EAGER Program, \$199,999, 2012–2014.

20. *NSF/TCPP Curriculum: Concurrent and Distributed Algorithms*, with Yanhong A. Liu (Principal Investigator). NSF/IEEE-TCPP Curriculum Initiative on Parallel and Distributed Computing, Early Adopter Program, \$2,000, Fall 2012.
21. Principal Investigator, *Java Client of the Model-Independent Analysis*. Brookhaven National Laboratory, \$12,765, 2010–2011.
22. *Survivable Software*, with Scott A. Smolka (Principal Investigator), Radu Grosu, Klaus Havelund, and Erez Zadok. Air Force Office of Scientific Research, \$687,692, 2009–2011.
23. Principal Investigator, *The Implementation of the Asynchronous Case of the EPICS-DDS Middleware for the Accelerator High-Level Environment*. Brookhaven National Laboratory, \$12,399, 2009–2009.
24. *Invariant Rules for Software Producibility and Assurance*, with Yanhong Liu (Principal Investigator). Office of Naval Research, Software and Cyberspace Information Assurance, \$282,719, 2009–2010.
25. *Proactive Techniques for Preserving System Integrity: A Basis for Robust Defense Against Malware*, with R. Sekar (Principal Investigator) and C.R. Ramakrishnan. National Science Foundation, Cybertrust Program, \$1,000,000, 2008–2015.
26. *Center for Information Protection: A Multi-University Industry/University Collaborative Research Center*, with R. Sekar (Principal Investigator), Tzi-cker Chiueh, Rob Johnson, C.R. Ramakrishnan, Radu Sion, and Erez Zadok. National Science Foundation, Industry/University Cooperative Research Centers (I/UCRC) Program, \$249,985, 2007–2012.
27. Principal Investigator, *A Framework for Analyzing and Ensuring Trust in Service-Oriented Architectures*, with R. Sekar and C.R. Ramakrishnan. Office of Naval Research, Multidisciplinary University Research Initiative (MURI), \$2,082,541, 2007–2012.
28. *Deductive Spreadsheets for Security Policy Specification and Analysis*, with C.R. Ramakrishnan (Principal Investigator), I.V. Ramakrishnan, and David Warren. National Science Foundation, Cybertrust Program, \$400,000, 2006–2010.
29. *Clarity and Efficiency in Design*, with Yanhong Liu (Principal Investigator). National Science Foundation, Science of Design Program, \$203,924, 2006–2008.
30. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computing Society*. Citigroup Foundation, \$15,000, 2006–2007.
31. Principal Investigator, *Tools for Detecting and Reconciling Security Policy Conflicts*, with Yanhong Liu. This is a subcontract from an Office of Naval Research (ONR) project in collaboration with Elizabeth Leonard, Myla Archer, and Connie Heitmeyer at the U.S. Naval Research Laboratory. \$145,000 (estimate), 2006–2008.
32. *A Plan for Developing a Multi-University Industry/University Collaborative Research Center on Cyber Security*, with R. Sekar (Principal Investigator), Tzi-cker Chiueh, C.R. Ramakrishnan, Radu Sion, and Erez Zadok. National Science Foundation, Industry/University Cooperative Research Centers (I/UCRC) Program, \$9,987, 2005–2006.
33. *Runtime-Monitoring and Model Checking for High-Confidence Systems Software*, with Erez Zadok (Principal Investigator), Radu Grosu, Yanhong Liu, and Scott A. Smolka. National Science Foundation, Computer Systems Research—Advanced Execution Systems, \$830,000, 2005–2009.
34. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computing Society*. Citigroup Foundation, \$15,000, 2005–2006.

35. Principal Investigator, *Generating Efficient Trust Management Software from Policies*, with Yanhong A. Liu. Office of Naval Research, Special Competition for Critical Infrastructure Protection (CIP) and High Confidence, Adaptable Software (SW) of the Multidisciplinary Research Program of the University Research Initiative (MURI), \$367,068, 2004–2006.
36. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computing Society*. Citigroup Foundation, \$15,000, 2004–2005.
37. *Scholarship for Service*, with R. Sekar (Principal Investigator), and Tzi-cker Chiueh, I.V. Ramakrishnan, and Erez Zadok. National Science Foundation, Federal Cyber Corps: Scholarship for Service, \$2,459,061, 2004–2011.
38. *Capacity Expansion in Information Assurance*, with R. Sekar (Principal Investigator), Yow-Jian Lin, I.V. Ramakrishnan, and Erez Zadok. National Science Foundation, Federal Cyber Corps: Scholarship for Service, \$199,883, 2003–2006.
39. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computer Science Society*. Citigroup Foundation, \$10,000, 2003–2004.
40. *Model Checking for Detecting Computer System Vulnerabilities*, with C.R. Ramakrishnan (Principal Investigator), I.V. Ramakrishnan, R. Sekar, and S. Smolka. National Science Foundation, Information Technology Research (ITR), \$925,000, 2002–2007.
41. Principal Investigator, *Checking Critical Software for Concurrent, Distributed, Open, Secure Systems*. Office of Naval Research, Young Investigator Program, \$300,000, 2002–2006.
42. *Enterprise Protection Planning*, with Tzi-cker Chiueh, R. Sekar, and Erez Zadok. National Institute of Justice, subcontract from Dolphin Technologies, \$90,000, 2003–2003.
43. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computer Science Society*. Citigroup Foundation, \$10,000, 2002–2003.
44. *Program Transformation and Analysis for Reactive Systems*, with Yanhong A. Liu (Principal Investigator). Office of Naval Research, \$337,691, 2000–2003.
45. Principal Investigator, *Automated Analysis of Security and Fault-Tolerance of Distributed Systems*. National Science Foundation, CAREER Award, \$205,000, 1999–2003.
46. Principal Investigator, *Transformational Development of Reactive Systems*. Office of Naval Research, \$121,521, 1999–2002. This is one part of a 3-part grant with Yanhong A. Liu and Robert A. Paige as Principal Investigators on the other parts.
47. *A General and Powerful Method for Program Optimization*, with Yanhong A. Liu (Principal Investigator). National Science Foundation, \$130,038, 1997–2000.

## PUBLICATIONS

### Ph.D. Thesis

1. Scott D. Stoller. *A Method and Tool for Analyzing Fault-Tolerance in Systems*. Cornell University, Ithaca, NY, May 1997.

## Journal Publications

1. Yanhong A. Liu, Scott D. Stoller, Yi Tong, and Bo Lin. Integrating Logic Rules with Everything Else, Seamlessly. *Theory and Practice of Logic Programming* 23(4):678-695, special issue for selected papers from the 39th International Conference on Logic Programming (ICLP 2023), July 2023. An extended version, with appendices describing formal semantics and compiler optimizations for Alda, is available as arXiv 2305.19202.
2. Usama Mehmood, Shouvik Roy, Amol Damare, Radu Grosu, Scott A. Smolka, and Scott D. Stoller. A Distributed Simplex Architecture for Multi-Agent Systems. *Journal of Systems Architecture* 134, January 2023.
3. Yanhong A. Liu and Scott D. Stoller. Recursive Rules with Aggregation: A Simple Unified Semantics. *Journal of Logic and Computation* 32(8):1659–1693, November 2022.
4. Luca Bortolussi, Francesca Cairoli, Nicola Paoletti, Scott A. Smolka, and Scott D. Stoller. Neural Predictive Monitoring and a Comparison of Frequentist and Bayesian Approaches. *International Journal on Software Tools for Technology Transfer* 23:615–640, May 2021.
5. Yanhong A. Liu and Scott D. Stoller. Knowledge of Uncertain Worlds: Programming with Logical Constraints. *Journal of Logic and Computation* 31(1):193-212, January 2021.
6. Alevtina Dubovitskaya, Rohit Shukla, Pratik Sushil Zambani, Michael Schumacher, Karl Aberer, Zhi-gang Xu, Nitesh Idnani, Rahul Lachhani, Fusheng Wang, Arun Swaminathan, Md Jahangir, Furqan Baig, Khadija Chowdhry, Samuel Ryu, and Scott D. Stoller. ACTION-EHR: Patient-Centric Blockchain-Based EHR Data Management for Cancer Care. *Journal of Medical Internet Research* 22(8), August 2020.
7. Yanhong A. Liu and Scott D. Stoller. The Founded Semantics and Constraint Semantics of Logic Rules. *Journal of Logic and Computation* 30(8), October 2020.
8. Thang Bui, Scott D. Stoller, and Jiajie Li. Greedy and Evolutionary Algorithms for Mining Relationship-Based Access Control Policies. *Computers & Security*, 80:317-333, January 2019.
9. Scott D. Stoller and Thang Bui. Mining Hierarchical Temporal Roles with Multiple Metrics. *Journal of Computer Security* 26(1):121-142, 2018.
10. Dung Phan, Junxing Yang, Denise Ratasich, Radu Grosu, Scott A. Smolka, and Scott D. Stoller. Collision Avoidance for Mobile Robots with Limited Sensing and Limited Information about Moving Obstacles. *Formal Methods in System Design* 51(1):62-86, August 2017.
11. Yanhong A. Liu, Scott D. Stoller, and Bo Lin. From Clarity to Efficiency for Distributed Algorithms. *ACM Transactions on Programming Languages and Systems* 39(3), 2017.
12. Zhongyuan Xu and Scott D. Stoller. Mining Attribute-based Access Control Policies. *IEEE Transactions on Dependable and Secure Computing*, 12(5):533-545, September-October 2015.
13. Ping Yang, Mikhail Gofman, Scott D. Stoller, and Zijiang Yang. Policy Analysis for Administrative Role Based Access Control without Separate Administration. *Journal of Computer Security* 23(1), March 2015.
14. Puneet Gupta, Scott D. Stoller, and Zhongyuan Xu. Abductive Analysis of Administrative Policies in Rule-based Access Control. *IEEE Transactions on Dependable and Secure Computing* 11(5):412-424, September-October 2014.
15. Justin Seyster, Ketan Dixit, Xiaowan Huang, Radu Grosu, Klaus Havelund, Scott A. Smolka, Scott D. Stoller, and Erez Zadok. InterAspect: Aspect-Oriented Instrumentation with GCC. *Formal Methods in System Design* 41(3):295-320, December 2012.

16. Amit Sasturkar, Ping Yang, Scott D. Stoller, and C. R. Ramakrishnan. Policy Analysis for Administrative Role Based Access Control. *Theoretical Computer Science* 412(44):6208-6234, October 2011.
17. Xiaowan Huang, Justin Seyster, Sean Callanan, Ketan Dixit, Radu Grosu, Scott A. Smolka, Scott D. Stoller, and Erez Zadok. Software Monitoring with Controllable Overhead. *International Journal on Software Tools for Technology Transfer*, 2012.
18. Scott D. Stoller, Ping Yang, Mikhail Gofman, and C. R. Ramakrishnan. Symbolic Reachability Analysis for Parameterized Administrative Role Based Access Control. *Computers & Security* 30(2-3):148-164, March-May 2011.
19. Rahul Agarwal, Saddek Bensalem, Eitan Farchi, Klaus Havelund, Yarden Nir-Buchbinder, Scott D. Stoller, Shmuel Ur, and Liqiang Wang. Detection of Deadlock Potentials in Multi-Threaded Programs. *IBM Journal of Research and Development* 54(5), September/October 2010.
20. Yanhong A. Liu and Scott D. Stoller. From Datalog Rules to Efficient Programs with Time and Space Guarantees. *ACM Transactions on Programming Languages and Systems*, 31(6):1-38, August 2009.
21. Yaniv Eytani, Klaus Havelund, Scott D. Stoller, and Shmuel Ur. Toward a Framework and Benchmark for Testing Tools for Multi-Threaded Programs. *Concurrency and Computation: Practice & Experience*, 19(3):267-279, August 2006.
22. Scott D. Stoller and Ernie Cohen. Optimistic Synchronization-Based State-Space Reduction. *Formal Methods in System Design*, 28(3):263-289, May 2006.
23. Liqiang Wang and Scott D. Stoller. Runtime Analysis of Atomicity for Multi-threaded Programs. *IEEE Transactions on Software Engineering*, 32(2):93-110, February 2006.
24. Scott D. Stoller and Fred B. Schneider. Automated Analysis of Fault-Tolerance in Distributed Systems. *Formal Methods in System Design*, 26(2):183-196, March 2005.
25. Yanhong A. Liu, Scott D. Stoller, Ning Li, and Tom Rothamel. Optimizing Aggregate Array Computations in Loops. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 27(1):91-125, January 2005.
26. Yanhong A. Liu and Scott D. Stoller. Eliminating Dead Code on Recursive Data. *Science of Computer Programming*, 47(2-3):221-242, May-June 2003.
27. Yanhong A. Liu and Scott D. Stoller. Dynamic Programming via Static Incrementalization. *Higher-Order and Symbolic Computation*, 16(1-2):37-62, March-June 2003.
28. Scott D. Stoller. Model-Checking Multi-Threaded Distributed Java Programs. *International Journal on Software Tools for Technology Transfer*, 4(1):71-91, October 2002.
29. Yanhong A. Liu, Scott D. Stoller, and Tim Teitelbaum. Strengthening Invariants for Efficient Computation. *Science of Computer Programming*, 41(2):139-172, October 2001.
30. Scott D. Stoller. Detecting Global Predicates in Distributed Systems with Clocks. *Distributed Computing*, 13(2):85-98, April 2000.
31. Scott D. Stoller. Leader election in asynchronous distributed systems. *IEEE Transactions on Computers*, 49(3):283-284, March 2000.
32. Yanhong A. Liu, Scott D. Stoller, and Tim Teitelbaum. Static Caching for Incremental Computation. *ACM Transactions on Programming Languages and Systems*, 20(3):546-585, May 1998.
33. Scott D. Stoller and Fred B. Schneider. Verifying programs that use causally-ordered message-passing. *Science of Computer Programming*, 24(2):105-128, 1995.

34. Scott D. Stoller. Addendum to “Proof rules for flush channels”. *IEEE Transactions on Software Engineering*, 20(8):664, August 1994.
35. Scott D. Stoller, William Happer, and Freeman J. Dyson. Transverse spin relaxation in inhomogeneous magnetic fields. *Physical Review A*, 44(11):7459–7477, 1991.
36. Pao-Lo Liu, Bing-Jin Li, Paul J. Cressman, John R. Debesis, and Scott D. Stoller. Comparison of Measured Losses of Ti:LiNbO<sub>3</sub> Channel Waveguide Bends. *Photonics Technology Letters* 3(8):755–756, August 1991.

### Patents and Patent Applications

1. System and method associated with expedient detection and reconstruction of cyber events in a compact scenario representation using provenance tags and customizable policy. Patent No. 11,601,442. Filed August 19, 2019, published February 20, 2020, granted March 7, 2023. Inventors: Ramasubramanian Sekar, Junao Wang, Md Nahid Hossain, Sadeqh M. Milajerdi, Birhanu Eshete, Rigel Gjomemo, V.N. Venkatakrishnan, and Scott Stoller.
2. A Barrier Certificate-based Simplex Architecture. Provisional Patent Application. Filed May 2023. Inventors: Amol Damare, Shouvik Roy, Scott A. Smolka, and Scott D. Stoller.

### Encyclopedia Articles

1. Scott D. Stoller. Trust Management in Databases. In Sushil Jajodia, Pierangela Samarati, and Moti Yung, editors, *Encyclopedia of Cryptography, Security, and Privacy*, 3rd edition. Springer, 2024.
2. Scott D. Stoller. Trust Management in Databases. In Henk C. A. van Tilborg and Sushil Jajodia, editors, *Encyclopedia of Cryptography and Security*, 2nd edition, pages 1326-1327. Springer, 2011.
3. Scott D. Stoller. Computer Communications Software. In John G. Webster, editor, *Encyclopedia of Electrical and Electronics Engineering*, volume 3. John Wiley & Sons, 1999.

### Book Chapters

1. Peng Zhang, Yifan Zhou, Scott A. Smolka, Scott D. Stoller, Xin Wang, and Rong Zhao, Yucheng Xing, Shouvik Roy, and Amol Damare. AI-Grid: AI-Enabled, Smart Programmable Microgrids. In *Microgrids: Theory and Practice*. Peng Zhang, editor. Wiley, January 2024.
2. Priyanka Mishra, Peng Zhang, Scott A. Smolka, Scott D. Stoller, Yifan Zhou, Yacov A. Shamash, Douglas L. Van Bossuyt, William W. Anderson, Jr. In Situ Resilience Quantification for Microgrids. In *Microgrids: Theory and Practice*. Peng Zhang, editor. Wiley, January 2024.
3. Yanhong A. Liu and Scott D. Stoller. Dynamic Programming via Static Incrementalization. In Olivier Danvy, Harry Mairson, Fritz Henglein, and Alberto Pettorossi, editors, *Automatic Program Development: A Tribute to Robert Paige*. Springer-Verlag, 2008.
4. Yanhong A. Liu and Scott D. Stoller. Role-Based Access Control: A Corrected and Simplified Specification. In Cliff Wang, Steven King, Ralph Wachter, Robert Herklotz, Chris Arney, Gary Toth, David Hislop, Sharon Heise, and Todd Combs, editors, *Department of Defense Sponsored Information Security Research: New Methods for Protecting Against Cyber Threats*. Wiley, 2007.
5. Devika Subramanian, Cheuk-San Wang, Scott Stoller, Arjun Kapur, and Ka-Pui Chai. Creative synthesis of mechanisms from specification. In Steven Kim, editor, *Creativity in Design: Methods, Models and Tools*. Morgan Kaufmann, 1992.

## NSF Workshop Reports

1. Scott D. Stoller, Michael Carbin, Sarita Adve, Kunal Agrawal, Guy Blelloch, Dan Stanzione, Katherine Yelick, and Matei Zaharia. Future Directions for Parallel and Distributed Computing: SPX 2019 Workshop Report. October 2019. Published in NSF Public Access Repository and NSF ACM Digital Library.

## Edited Volumes

1. Jorge Lobo, Scott D. Stoller, and Peng Liu, editors. *Proceedings of the 25th ACM Symposium on Access Control Models and Technologies (SACMAT 2020)*. ACM, 2020.

## Refereed Conference and Workshop Publications

1. Andreas Brandstätter, Scott A. Smolka, Scott D. Stoller, Ashish Tiwari and Radu Grosu. Formation Control of Multi-Agent Systems using Imperfect Relative Distance Measurements. 2024 IEEE International Conference on Robotics and Automation (ICRA). IEEE, 2024.
2. Joon-young Gwak, Priti Wakodikar, Meng Wang, Guanhua Yan, Xiaokui Shu, Scott D. Stoller, and Ping Yang. Debugging Malware Classification Models Based on Audit Logs with Explainable AI. The 2023 ICDM Workshop on Causal and Explainable Artificial Intelligence (CXAI). IEEE Computer Society Press, 2023.
3. Yanhong A. Liu, Scott D. Stoller, Yi Tong, and Bo Lin. Integrating Logic Rules with Everything Else, Seamlessly. 39th International Conference on Logic Programming (ICLP 2023). Accepted regular papers are published in the journal *Theory and Practice of Logic Programming*.
4. Yanhong A. Liu, Scott D. Stoller, Yi Tong and K. Tuncay Tekle. Benchmarking for Integrating Logic Rules with Everything Else. 39th International Conference on Logic Programming (ICLP 2023), Technical Communications track. Electronic Proceedings in Theoretical Computer Science (EPTCS), volume TBD, 2023.
5. Andreas Brandstätter, Scott A. Smolka, Scott D. Stoller, Ashish Tiwari and Radu Grosu. Multi-Agent Spatial Predictive Control with Application to Drone Flocking. 2023 IEEE International Conference on Robotics and Automation (ICRA). IEEE, 2023.
6. Amol Damare, Shouvik Roy, Scott A. Smolka and Scott D. Stoller. A Barrier Certificate-based Simplex Architecture with Application to Microgrids. 22nd International Conference on Runtime Verification (RV 2022), volume 13498 of Lecture Notes in Computer Science, pages 105-123. Springer-Verlag, 2022.
7. Usama Mehmood, Sanaz Sheikhi, Stanley Bak, Scott A. Smolka, and Scott D. Stoller. The Black-Box Simplex Architecture for Runtime Assurance of Autonomous CPS. In *Proceedings of the 14th NASA Formal Methods Symposium (NFM 2022)*, volume 13260 of Lecture Notes in Computer Science, pages 231-250. Springer-Verlag, 2022.
8. Yanhong A. Liu and Scott D. Stoller. Recursive Rules with Aggregation: A Simple Unified Semantics. In *Proceedings of the 2022 Symposium on Logical Foundations of Computer Science (LFCS '22)*, volume 13137 of Lecture Notes in Computer Science, pages 156–179. Springer-Verlag, 2022. A full version is available on arXiv (see “arXiv Publications” section below).
9. Usama Mehmood, Scott D. Stoller, Radu Grosu, Shouvik Roy, Amol Damare, and Scott A. Smolka. A Distributed Simplex Architecture for Multi-Agent Systems. In *Proceedings of the 7th International Symposium on Dependable Software Engineering: Theories, Tools and Applications (SETTA 2021)*, volume 13071 of Lecture Notes in Computer Science, pages 239-257. Springer-Verlag, 2021.

10. Usama Mehmood, Stanley Bak, Scott A. Smolka and Scott D. Stoller. Safe CPS from Unsafe Controllers (Extended Abstract). In *Proceedings of the 2021 Workshop on Computation-Aware Algorithmic Design for Cyber-Physical Systems (CAADCPS)*. ACM Press, 2021. This is a preliminary version of the work described in our NFM 2022 paper.
11. Shouvik Roy, Usama Mehmood, Radu Grosu, Scott A. Smolka, Scott D. Stoller, and Ashish Tiwari. Distributed Control for Flocking Maneuvers via Acceleration-Weighted Neighborhooding. In *Proceedings of the 2021 American Control Conference (ACC)*, pages 2745-2750. IEEE Press, 2021.
12. Thang Bui and Scott D. Stoller. Learning Attribute-Based and Relationship-Based Access Control Policies with Unknown Values. In *Proceedings of the 16th International Conference on Information Systems Security*, volume 12553 of Lecture Notes in Computer Science, pages 23-44. Springer-Verlag, 2020.
13. Yanhong A. Liu and Scott D. Stoller. Assurance of Distributed Algorithms and Systems: Runtime Checking of Safety and Liveness. Tutorial paper. In *Proceedings of the 20th International Conference on Runtime Verification (RV 2020)*, volume 12399 of Lecture Notes in Computer Science, pages 47-66. Springer-Verlag, 2020.
14. Yanhong A. Liu and Scott D. Stoller. Recursive Rules with Aggregation: A Simple Unified Semantics (Extended Abstract). *Proceedings 36th International Conference on Logic Programming (ICLP 2020) (Technical Communications)*, Electronic Proceedings in Theoretical Computer Science (EPTCS), volume 325. A full version is available on arXiv (see “arXiv Publications” section below).
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## Other Conference and Workshop Publications

1. Scott D. Stoller. WebSheets: A New Privacy-Centric Framework for Web Applications. *28th ACM Symposium on Access Control Models and Technologies (SACMAT 2023)*. ACM Press, 2023.
2. Andreas Brandstätter, Scott A. Smolka, Scott D. Stoller, Ashish Tiwari, and Radu Grosu. Towards Drone Flocking using Relative Distance Measurements. In *Rigorous Engineering of Collective Adaptive Systems (REoCAS) track of 11th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation (ISoLA 2022)*. volume 13703 of Lecture Notes in Computer Science. Springer-Verlag, 2022.
3. Usama Mehmood, Scott D. Stoller, Radu Grosu, and Scott A. Smolka. Collision-Free 3D Flocking Using the Distributed Simplex Architecture. In *Formal Methods for Outer Space: Essays Dedicated to Klaus Havelund on the Occasion of His 65th Birthday*, volume 13065 of Lecture Notes in Computer Science. Springer-Verlag, 2021.
4. Luca Bortolussi, Francesca Cairoli, Nicola Paoletti, Scott Smolka and Scott D. Stoller. Bayesian Neural Predictive Monitoring. In *Proceedings of the 2nd Workshop on Artificial Intelligence and fOrmal VERification, Logic, Automata, and sYnthesis (OVERLAY 2020)*, volume 2785 of CEUR Workshop Proceedings, 2020.
5. Yanhong A. Liu and Scott D. Stoller. Knowledge of Uncertain Worlds: Programming with Logical Constraints: An Overview. Sister Conferences and Journal Presentation Track. *Proceedings 36th International Conference on Logic Programming (ICLP 2020) (Technical Communications)*, Electronic Proceedings in Theoretical Computer Science (EPTCS), volume 325, 2020. <https://arxiv.org/abs/2009.09158>
6. Yanhong A. Liu and Scott D. Stoller. Knowledge of Uncertain Worlds: Programming with Logical Constraints: An Overview. Recently Published Research Track. 17th International Conference on Principles of Knowledge Representation and Reasoning (KR 2020). <https://kr2020.inf.unibz.it/>
7. Yanhong A. Liu and Scott D. Stoller. Rules with Negation in Recursion: Founded Semantics and Constraint Semantics. Sister Conferences and Journal Presentation Track. *Proceedings 35th International Conference on Logic Programming (ICLP 2019) (Technical Communications)*, Electronic Proceedings in Theoretical Computer Science (EPTCS), volume 306. <https://arxiv.org/abs/1909.07646>
8. Usama Mehmood, Shouvik Roy, Radu Grosu, Scott A. Smolka, Scott D. Stoller, and Ashish Tiwari. Neural Flocking: MPC-based Supervised Learning of Flocking Controllers. In *Proceedings of the 23rd International Conference on Foundations of Software Science and Computation Structures (FoSSaCS 2020)*, volume 12077 of Lecture Notes in Computer Science. Springer-Verlag, 2020.
9. Luca Bortolussi, Francesca Cairoli, Nicola Paoletti and Scott D. Stoller. Conformal Predictions for Hybrid System State Classification. In *From Reactive Systems to Cyber-Physical Systems*, volume 11500 of *Lecture Notes in Computer Science*. Springer-Verlag, 2019.
10. Dung Phan, Nicola Paoletti, Timothy Zhang, Radu Grosu, Scott A. Smolka, and Scott D. Stoller. Neural State Classification for Hybrid Systems. Invited contribution. In *Proceedings of the Fifth International Workshop on Symbolic-Numeric Methods for Reasoning about CPS and IoT (SNR 2019)*, part of CPS-IoT Week 2019.
11. Yanhong A. Liu, Scott D. Stoller, Saksham Chand, and Xuetian Weng. Invariants in Distributed Algorithms. In *Proceedings of the 2018 TLA+ Community Meeting*, part of *Proceedings of FLoC 2018*.
12. Yanhong A. Liu and Scott D. Stoller. Easier Rules and Constraints for Programming (Position paper). In *Proceedings of the 2018 Logic and Practice of Programming (LPOP) Workshop*, part of *Proceedings of FLoC 2018*.

13. Radu Grosu, Doron Peled, C.R. Ramakrishnan, Scott A. Smolka, Scott D. Stoller, and Junxing Yang. Compositional Branching-Time Measurements. In *From Programs to Systems—The Systems Perspective in Computing, Proceedings of ETAPS Workshop in honor of Joseph Sifakis*, volume 8415 of *Lecture Notes in Computer Science*. Springer-Verlag, 2014.
14. Yanhong A. Liu, Bo Lin, and Scott D. Stoller. Programming and Optimizing Distributed Algorithms: An Overview. In *Proceedings of the 8th International Conference & Expo on Emerging Technologies for a Smarter World (CEWIT 2011)*. IEEE Press, 2011.
15. Sean Callanan, Daniel J. Dean, Michael Gorbovitski, Radu Grosu, Justin Seyster, Scott A. Smolka, Scott D. Stoller, and Erez Zadok. Software Monitoring with Bounded Overhead. In *Proceedings of the 2008 NSF Workshop on Next Generation Software (NGS)*. IEEE Computer Society Press, 2008.
16. Scott D. Stoller and Yanhong A. Liu. Security Policy Languages and Enforcement. In *Proceedings of the Third Russian National Conference on Mathematics and Information Technology Security (MaBIT)*, October 2004.
17. Klaus Havelund, Scott D. Stoller, and Shmuel Ur. Benchmark and Framework for Encouraging Research on Multi-Threaded Testing Tools. In *Proceedings of the Workshop on Parallel and Distributed Systems: Testing and Debugging (PADTAD)*, April 2003.
18. Scott D. Stoller. A Reduction for Automated Verification of Authentication Protocols. In *Proceedings of the 1999 Workshop on Formal Methods and Security Protocols (FMSP)*, July 1999.
19. Scott D. Stoller. Brief Announcement: Lower and Upper Bounds for Attacks on Authentication Protocols. In *Proceedings of the Eighteenth ACM Symposium on Principles of Distributed Computing (PODC)*, May 1999.
20. Scott D. Stoller. Justifying Finite Resources for Adversaries in Automated Analysis of Authentication Protocols. In *Proceedings of the 1998 Workshop on Formal Methods and Security Protocols (FMSP)*, June 1998.

#### arXiv Publications

1. Yanhong A. Liu, Scott D. Stoller, Yi Tong, and Bo Lin. Integrating Logic Rules with Everything Else, Seamlessly. May 2023. <http://arxiv.org/abs/2305.19202>. This is our TPLP 2023 paper extended with appendices presenting formal semantics and compiler optimizations for Alda.
2. Yanhong A. Liu, Scott D. Stoller, Yi Tong, Bo Lin, and K. Tuncay Tekle. Programming with Rules and Everything Else, Seamlessly. May 2022. <http://arxiv.org/abs/2205.15204>.
3. Andreas Brandstätter, Scott A. Smolka, Scott D. Stoller, Ashish Tiwari, and Radu Grosu. Multi-Agent Spatial Predictive Control with Application to Drone Flocking (Extended Version). March 2022. <http://arxiv.org/abs/2203.16960>.
4. Amol Damare, Shouvik Roy, Scott A. Smolka, and Scott D. Stoller. A Barrier Certificate-based Simplex Architecture with Application to Microgrids. February 2022 (updated June 2022). <https://arxiv.org/abs/2202.09710>.
5. Usama Mehmood, Sanaz Sheikhi, Stanley Bak, Scott A. Smolka, and Scott D. Stoller. The Black-Box Simplex Architecture for Runtime Assurance of Autonomous CPS. Title of first version: Safe CPS from Unsafe Controllers. February 2021 (updated May 2022). <http://arxiv.org/abs/2102.12981>.
6. Usama Mehmood, Scott D. Stoller, Radu Grosu, Shouvik Roy, Amol Damare, and Scott A. Smolka. A Distributed Simplex Architecture for Multi-Agent Systems. December 2020. <http://arxiv.org/abs/2012.10153>.

7. Yanhong A. Liu and Scott D. Stoller. Assurance of Distributed Algorithms and Systems: Runtime Checking of Safety and Liveness. August 2020. <https://arxiv.org/abs/2008.09735>.
8. Thang Bui and Scott D. Stoller. Learning Attribute-Based and Relationship-Based Access Control Policies with Unknown Values. August 2020. <https://arxiv.org/abs/2008.08444>.
9. Yanhong A. Liu and Scott D. Stoller. Recursive Rules with Aggregation: A Simple Unified Semantics. July 2020 (updated October 2021). <https://arxiv.org/abs/2007.13053>.
10. Thang Bui and Scott D. Stoller. A Decision Tree Learning Approach for Mining Relationship-Based Access Control Policies. September 2019 (revised April 2020). <https://arxiv.org/abs/1909.12095>.
11. Yanhong A. Liu and Scott D. Stoller. Knowledge of Uncertain Worlds: Programming with Logical Constraints. October 2019 (updated June 2020). <https://arxiv.org/abs/1910.10346>.
12. Shouvik Roy, Usama Mehmood, Radu Grosu, Scott A. Smolka, Scott D. Stoller, and Ashish Tiwari. Neural Flocking: MPC-based Supervised Learning of Flocking Controllers. August 2019. <https://arxiv.org/abs/1908.09813>.
13. Christopher Kane, Bo Lin, Saksham Chand, Scott D. Stoller and Yanhong A. Liu. High-level Cryptographic Abstractions. October 2018 (revised August 2019). <https://arxiv.org/abs/1810.09065>.
14. Dung Phan, Nicola Paoletti, Radu Grosu, Nils Jansen, Scott A. Smolka, and Scott D. Stoller. Neural Simplex Architecture. August 2019. <https://arxiv.org/abs/1908.00528>.
15. Scott D. Stoller and Yanhong A. Liu. Algorithm Diversity for Resilient Systems. April 2019. <https://arxiv.org/abs/1904.12409>.
16. Thang Bui, Scott D. Stoller, and Hieu Le. Efficient and Extensible Policy Mining for Relationship-Based Access Control. March 2019 (updated April 2019). <https://arxiv.org/abs/1903.07530>.
17. Dung Phan, Nicola Paoletti, Timothy Zhang, Radu Grosu, Scott A. Smolka, and Scott D. Stoller. Neural State Classification for Hybrid Systems. July 2018. <https://arxiv.org/abs/1807.09901>.
18. Dung Phan, Radu Grosu, Nicola Paoletti, Scott A. Smolka, and Scott D. Stoller. How to Learn a Model Checker. August 2017. <https://arxiv.org/abs/1712.01935>.
19. Thang Bui, Scott D. Stoller, and Jiajie Li. Mining Relationship-Based Access Control Policies. August 2017. <https://arxiv.org/abs/1708.04749>.
20. Dung Phan, Junxing Yang, Matthew Clark, Radu Grosu, John Schierman, Scott A. Smolka, and Scott D. Stoller. A Component-Based Simplex Architecture for High-Assurance Cyber-Physical Systems. April 2017. <https://arxiv.org/abs/1704.04759>.
21. Saksham Chand, Yanhong A. Liu, and Scott D. Stoller. Moderately Complex Paxos Made Simple: High-Level Specification of Distributed Algorithms. March 2017. <https://arxiv.org/abs/1704.00082>.
22. Dung Phan, Scott A. Smolka, Radu Grosu, Usama Mehmood, Scott D. Stoller, and Junxing Yang. Model Checking Cyber-Physical Systems using Particle Swarm Optimization. March 2017. <https://arxiv.org/abs/1703.01257>.
23. Birhanu Eshete, Rigel Gjomemo, Md Nahid Hossain, Sadegh Momeni, R. Sekar, Scott Stoller, V.N. Venkatakrishnan, and Junao Wang. Attack Analysis Results for Adversarial Engagement 1 of the DARPA Transparent Computing Program. October 2016. <https://arxiv.org/abs/1610.06936>.
24. Saksham Chand, Yanhong A. Liu, and Scott D. Stoller. Formal Verification of Multi-Paxos for Distributed Consensus. June 2016 (revised November 2019). <https://arxiv.org/abs/1606.01387>.

25. Yanhong A. Liu and Scott D. Stoller. The Founded Semantics and Constraint Semantics of Logic Rules. June 2016. <https://arxiv.org/abs/1606.06269>.
26. Scott D. Stoller and Thang Bui. Mining Hierarchical Temporal Roles with Multiple Metrics. February 2016 (revised April 2017). <https://arxiv.org/abs/1603.02640>.
27. Yanhong A. Liu, Jon Brandvein, Scott D. Stoller, and Bo Lin. Demand-Driven Incremental Object Queries. November 2015. <https://arxiv.org/abs/1511.04583>.
28. Hung Pham, Scott A. Smolka, Scott D. Stoller, Dung Phan, and Junxing Yang. A survey on unmanned aerial vehicle collision avoidance systems. August 2015. <https://arxiv.org/abs/1508.07723>.
29. Yanhong A. Liu, Scott D. Stoller, and Bo Lin. From Clarity to Efficiency for Distributed Algorithms. December 2014. <https://arxiv.org/abs/1412.8461>.
30. Zhongyuan Xu and Scott D. Stoller. Mining Attribute-based Access Control Policies From Logs. March 2014. <https://arxiv.org/abs/1403.5715>. This is a longer version of our DBSec 2014 paper.
31. Zhongyuan Xu and Scott D. Stoller. Mining Attribute-based Access Control Policies. June 2013. <https://arxiv.org/abs/1306.2401>. A revised version appeared in *IEEE Transactions on Dependable and Secure Computing*.

### Miscellaneous Publications

1. Shmuel Ur and Scott D. Stoller. Workshop Summary: 6th Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD). In *Proceedings of the 2008 International Symposium on Software Testing and Analysis (ISSTA)*. ACM Press, 2008.
2. Scott D. Stoller. Automated Analysis of Security and Fault-Tolerance of Distributed Systems. *ACM SIGSOFT Software Engineering Notes* 25(1), January 2000.
3. Y. Annie Liu and Scott D. Stoller. ETAPS'99 Report. *ACM SIGPLAN Notices*, 34(6):16-17, June 1999, and *Bulletin of the EATCS*, 68:196-197, June 1999.
4. Scott D. Stoller. Conference Report: Twelfth IEEE Computer Security Foundations Workshop. In Paul Syverson, editor, *Cipher: Newsletter of the IEEE Computer Society's Technical Committee on Security and Privacy*, Electronic Issue 33, August 12, 1999.
5. Scott D. Stoller. Conference Report: Workshop on Formal Methods and Security Protocols. In Avi Rubin and Paul Syverson, editors, *Cipher: Newsletter of the IEEE Computer Society's Technical Committee on Security and Privacy*, Electronic Issue 28, July 13, 1998.

### Posters

1. Scott D. Stoller. Access Control Policy Mining and Management. NSF Secure and Trustworthy Cyberspace (SaTC) PI meeting, Alexandria, VA, October 28, 2019.
2. Thang Bui, Scott D. Stoller, and Hieu Le. Policy Mining for Relationship-Based Access Control. 24th ACM Symposium on Access Control Models and Technologies (SACMAT 2019), Toronto, Canada, June 2019.
3. Thang Bui, Scott D. Stoller, and Jiajie Li. Mining Relationship-Based Access Control Policies. 13th International Conference on Emerging Technologies for a Smarter World, Stony Brook, NY, November 7, 2017.
4. Thang Bui, Scott D. Stoller, and Jiajie Li. Mining Relationship-Based Access Control Policies. Security and Privacy Day (Greater New York Area Edition), New York, NY, October 13, 2017.

5. Scott D. Stoller. Access Control Policy Mining and Management. NSF Secure and Trustworthy Cyberspace (SaTC) PI meeting, Arlington, VA, January 9, 2017.
6. Scott D. Stoller. Management of Attribute-Based Access Control. NSF Secure and Trustworthy Cyberspace (SaTC) PI meeting, Arlington, VA, January 6, 2015.
7. Ishan Mehta, Zhongyuan Xu, and Scott D. Stoller. Mining Attribute-Based Access Control Policies. Computer Science Technology Day, Stony Brook University, September 12, 2014.
8. Zhongyuan Xu and Scott D. Stoller. Role Mining with Multiple Metrics. At the 8th International Conference & Expo on Emerging Technologies for a Smarter World (CEWIT 2011), November 3, 2011.
9. Puneet Gupta, Scott D. Stoller, and Zhongyuan Xu. Decentralized Administration of Rule-Based Security Policies. At the 8th International Conference & Expo on Emerging Technologies for a Smarter World (CEWIT 2011), November 3, 2011.
10. Y. Annie Liu, K. Tuncay Tekle, and Scott D. Stoller. Role Activation Analysis for Trust Management Policies. At the 2009 CEWIT Conference, October 1, 2009.
11. Leena Unnikrishnan and Scott D. Stoller. Parametric Heap Usage Analysis for Functional Programs. At the 10th Annual IBM Programming Languages Day, IBM T.J. Watson Research Center, Hawthorne, NY, May 7, 2009.
12. Puneet Gupta and Scott D. Stoller. Security Policy Enforcement in Enterprise Systems. At the 2008 CEWIT Conference, October 16, 2008.
13. Puneet Gupta and Scott D. Stoller. Security Policy Enforcement in Enterprise Systems. At the Digital Identity Systems Workshop (DISW), September 20, 2007.
14. Rahul Agarwal, Amit Sasturkar, Liqiang Wang, and Scott D. Stoller. Optimized Run-time Race Detection and Atomicity Checking Using Partial Discovered Types. At the ACM SIGPLAN 2005 Conference on Programming Language Design and Implementation (PLDI), June 12, 2005.
15. Michael Gorbovitski, Tom Rothamel, Yanhong Liu, and Scott D. Stoller. Implementing Incrementalization Across Object Abstraction. At the ACM SIGPLAN 2005 Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA), October 17-20, 2005.

## TUTORIALS

1. High-Level Executable Specification and Reasoning for Improving Distributed Algorithms. With Yanhong A. Liu. Associated with 44th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2023) and 42nd ACM Symposium on Principles of Distributed Computing (PODC 2023) at ACM Federated Computing Research Conference (FCRC 2023), Orlando, FL, June 2023.
2. Assurance of Distributed Algorithms and Systems: Runtime Checking of Safety and Liveness. With Yanhong A. Liu. At 20th International Conference on Runtime Verification (RV '20), Los Angeles, CA, October 2020.
3. From Classical to Blockchain Consensus: What Are the Exact Algorithms? With Yanhong A. Liu. At 38th ACM Symposium on Principles of Distributed Computing (PODC 2019), Toronto, Canada, July 2019.
4. High-Level Specification of Distributed Algorithms. With Yanhong A. Liu and Bo Lin. At 36th ACM Symposium on Principles of Distributed Computing (PODC 2017), Washington, D.C., July 28, 2017.

5. Programming Distributed Algorithms. With Yanhong A. Liu and Bo Lin. At ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity (SPLASH 2014) Fall School, Portland, OR, October 24, 2014.
6. Programming Distributed Algorithms. With Yanhong A. Liu and Bo Lin. At 19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, Orlando, FL, February 16, 2014.
7. Runtime Verification for Parallel Programs. At 19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, Orlando, FL, February 15, 2014.
8. Trust Management. MITRE Corp., McLean, VA, May 24, 2006.
9. Trust Management. MITRE Corp., Bedford, MA, May 23, 2006.
10. Trust Management. At 21st Annual Computer Security Applications Conference (ACSAC), Tucson, AZ, December 5, 2005.

## PRESENTATIONS

### Invited Presentations at Conferences and Meetings

1. WebSheets: A New Privacy-Centric Framework for Web Applications. Keynote presentation at 28th ACM Symposium on Access Control Models and Technologies (SACMAT 2023), Trento, Italy, June 7, 2023.
2. Security Policy Analysis. IBM Research / Stevens / Columbia Security and Privacy Day, IBM T. J. Watson Research Center, Hawthorne, NY, November 13, 2006.
3. Checking Atomicity in Concurrent Java Programs. Parallel and Distributed Systems: Testing and Debugging (PADTAD) Track of the 2005 Haifa Verification Conference, Haifa, Israel, November 15, 2005.
4. Software Model Checking: Where It Is and Where It's Heading. Software Testing Track of the 2005 Haifa Verification Conference, Haifa, Israel, November 14, 2005.
5. Research Directions for Improving Development of High-Assurance High-Performance Software Systems. Panel on Software Development, Quality, and Metrics. DoD University Research Initiative (URI) Workshop on Critical Infrastructure Protection and High Confidence, Adaptable Software, Annapolis, MD, August 18, 2004.
6. Towards Automated Verification of Software Through Type Discovery. Third International Workshop on Automated Verification of Infinite-State Systems (AVIS), Barcelona, Spain, April 4, 2004.

### Other Presentations at Conferences and Meetings

7. GuRoom: Google Drive Sharing Manager. Lightning talk at 28th ACM Symposium on Access Control Models and Technologies (SACMAT 2023), Trento, Italy, June 9, 2023.
8. A Barrier Certificate-based Simplex Architecture with Application to Microgrids. 22nd International Conference on Runtime Verification (RV 2022), Tbilisi, Georgia, September 29, 2022. Presentation given remotely.
9. High-level Cryptographic Abstractions. ACM SIGSAC 14th Workshop on Programming Languages and Analysis for Security (PLAS '19), London, U.K., November 15, 2019.
10. Conformal Predictions for Hybrid System State Classification. Conference in Honour of S.A. Smolka on the Occasion of his 65th Birthday, Stony Brook, NY, August 2019.

11. Algorithm Diversity for Resilient Systems. 33rd Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2019), Charleston, SC, July 2019.
12. Invariants in Distributed Algorithms. TLA+ Community Meeting, co-located with FM 2018, part of FLoC 2018, Oxford, U.K., July 18, 2018.
13. Dependence-Preserving Data Compaction for Scalable Forensic Analysis. 2nd Provenance-based Security Workshop, part of Provenance Week 2018, London, U.K., July 13, 2018.
14. Mining Hierarchical Temporal Roles with Multiple Metrics. 30th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2016), Trento, Italy, July 19, 2016.
15. An Administrative Model for Relationship-Based Access Control. 29th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2015), Fairfax, VA, July 13, 2015.
16. Mining Attribute-Based Access Control Policies from Logs. 28th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2014), Vienna, Austria, July 16, 2014.
17. Mining Attribute-Based Access Control Policies from Role-Based Policies. 10th International Conference & Expo on Emerging Technologies for a Smarter World (CEWIT 2013), October 22, 2013.
18. Symbolic Reachability Analysis for Parameterized Administrative Role-Based Access Control. Security and Privacy Day, The City University of New York (CUNY), May 20, 2011.
19. Symbolic Reachability Analysis for Parameterized Administrative Role Based Access Control. 14th ACM Symposium on Access Control Models and Technologies (SACMAT), Stresa, Italy, June 4, 2009.
20. Trust Management and Trust Negotiation in an Extension of SQL. 4th International Symposium on Trustworthy Global Computing (TGC), Barcelona, Spain, November 3, 2008.
21. Software Monitoring with Bounded Overhead. 2008 NSF Workshop on Next Generation Software (NGS), Miami, FL, April 13, 2008.
22. Efficient Policy Analysis for Administrative Role Based Access Control. 14th ACM Conference on Computer and Communications Security (CCS), Alexandria, VA, October 31, 2007.
23. Efficient Policy Analysis for Administrative Role Based Access Control. Third Northeastern Verification Meeting, NEC Laboratories America, Princeton, NJ, May 18, 2007.
24. Security Policy Analysis. Second Northeast Verification Meeting, New York University, New York, NY, October 13, 2006.
25. Efficient Type Inference for Secure Information Flow. 2006 ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS), Ottawa, Canada, June 10, 2006.
26. Detecting Potential Deadlocks with Static Analysis and Runtime Monitoring. Parallel and Distributed Systems: Testing and Debugging (PADTAD) Track of the 2005 Haifa Verification Conference, Haifa, Israel, November 15, 2005.
27. Checking Atomicity in Concurrent Java Programs. IFIP Working Group 2.2 (Formal Description of Programming Concepts) Meeting, Kandestederne, Denmark, September 2005.
28. Security Policy Languages and Enforcement. Third Russian National Conference on Mathematics and Information Technology Security (MaBIT), Moscow, Russia, October 28, 2004.
29. Policy Analysis for Security-Enhanced Linux. 2004 Workshop on Issues in the Theory of Security (WITS), Barcelona, Spain, April 3, 2004.

30. Optimistic Synchronization-Based State-Space Reduction. 9th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), Warsaw, Poland, April 11, 2003.
31. Optimistic Synchronization-Based State-Space Reduction. 57th Meeting of IFIP Working Group 2.1 (Algorithmic Languages and Calculi), New York, NY, April 2, 2003.
32. A Bound on Attacks on Authentication Protocols. 2nd IFIP International Conference on Theoretical Computer Science (TCS), part of the 17th IFIP World Computer Congress, Montreal, Canada, August 27, 2002.
33. Testing Concurrent Java Programs Using Randomized Scheduling. Second Workshop on Runtime Verification (RV), Copenhagen, Denmark, July 26, 2002.
34. Domain Partitioning for Open Reactive Systems. International Symposium on Software Testing and Analysis (ISSTA), Rome, Italy, July 22, 2002.
35. Domain Partitioning for Open Reactive Systems. Third Annual IBM Programming Languages Day, IBM T.J. Watson Research Center, Hawthorne, NY, May 7, 2002.
36. Generation of Environments for Distributed Programs. Seminar on Specification and Analysis of Secure Cryptographic Protocols, Schloß Dagstuhl, Germany, September 25, 2001.
37. A Bound on Attacks on Payment Protocols. 16th Annual IEEE Symposium on Logic in Computer Science (LICS), Boston, MA, June 16, 2001.
38. Transformations for Model Checking Distributed Java Programs. 8th International SPIN Workshop on Model Checking of Software, Toronto, Canada, May 20, 2001.
39. Model-Checking Multi-Threaded Distributed Java Programs. 7th International SPIN Workshop on Model Checking of Software, Palo Alto, CA, September 1, 2000.
40. Efficient Detection of Global Properties in Distributed Systems Using Partial-Order Methods. 12th International Conference on Computer-Aided Verification (CAV), Chicago, IL, July 17, 2000.
41. From Recursion to Iteration: What Are the Optimizations? 2000 ACM SIGPLAN Workshop on Partial Evaluation and Semantics-Based Program Manipulation (PEPM), Boston, MA, January 22, 2000.
42. Eliminating Dead Code on Recursive Data. Sixth International Static Analysis Symposium (SAS), Venice, Italy, September 23, 1999.
43. Automated Symbolic Timing Analysis for Distributed Systems. Fifth International Conference for Young Computer Scientists (ICYCS), Nanjing, China, August 19, 1999.
44. A Reduction for Automated Verification of Authentication Protocols. Workshop on Formal Methods and Security Protocols (FMSP), Trento, Italy, July 5, 1999.
45. Automated Stream-Based Analysis of Fault-Tolerance. Fifth International Symposium on Formal Techniques in Real-Time and Fault-Tolerant Systems (FTRTFT), Lyngby, Denmark, September 17, 1998.
46. Efficient Symbolic Detection of Global Properties in Distributed Systems. Tenth International Conference on Computer-Aided Verification (CAV), Vancouver, Canada, July 1, 1998.
47. Justifying Finite Resources for Adversaries in Automated Analysis of Authentication Protocols. Workshop on Formal Methods and Security Protocols (FMSP), Indianapolis, IN, June 25, 1998.
48. Automated Analysis of Authentication Protocols. IFIP Working Group 2.3 (Programming Methodology) Meeting, Bloomington, IN, June 2, 1998.

49. Detecting Global Predicates in Distributed Systems with Clocks. Eleventh International Workshop on Distributed Algorithms (WDAG), Saarbrücken, Germany, September 25, 1997.
50. Automated Analysis of Fault-Tolerance in Distributed Systems. First ACM Workshop on Automated Analysis of Software (AAS), Paris, France, January 14, 1997.
51. Faster Possibility Detection by Combining Two Approaches. Ninth International Workshop on Distributed Algorithms (WDAG), Le Mont St. Michel, France, September 15, 1995.
52. Storage Replication and Layout in Video-on-Demand Servers. Fifth International Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV), Durham, NH, April 21, 1995.
53. An Operational Approach to Combining Classical Set Theory and Functional Programming Languages. Theoretical Aspects of Computer Software (TACS), Sendai, Japan, April 19, 1994.

#### **Invited Talks at Universities and Research Institutes**

54. Symbolic Reachability Analysis for Parameterized Administrative Role Based Access Control. University of Toronto, Toronto, Canada, July 21, 2009.
55. Efficient Policy Analysis for Administrative Role Based Access Control. Institute of Software, Chinese Academy of Sciences, Beijing, China, August 26, 2008.
  - Checking Atomicity in Concurrent Java Programs
    56. Microsoft Research Asia, Beijing, China, August 21, 2007.
    57. MIT, Cambridge, MA, May 22, 2006.
    58. Yale University, New Haven, CT, September 9, 2005.
    59. Institute of Software, Chinese Academy of Sciences, Beijing, China, June 24, 2005.
60. Static and Dynamic Analysis of Atomicity in Concurrent Programs. Microsoft Research, Redmond, WA, December 6, 2004.
61. Towards Automated Verification of Software Through Type Discovery. University of Toronto, Toronto, Canada, June 21, 2004.
62. Domain Partitioning for Open Reactive Systems. Stevens Institute of Technology, Hoboken, NY, November 17, 2003.
63. Checking Java Programs for Concurrent, Distributed, Open, Secure Systems. Polytechnic University, Brooklyn, NY, January 25, 2002.
64. Pretending Atomicity Based on a Common Locking Discipline. University of Pennsylvania, Philadelphia, PA, April 23, 2001.
  - Automated Verification of Security Protocols
    65. University of Pennsylvania, Philadelphia, PA, April 23, 2001.
    66. Stony Brook University, Stony Brook, NY, April 3, 2000.
  - A Bound on Attacks on Authentication Protocols
    67. University of Illinois at Chicago, Chicago, IL, November 19, 1999.
    68. Bell Laboratories (Lucent Technologies), Naperville, IL, November 18, 1999.
    69. Stony Brook University, Stony Brook, NY, October 15, 1999.

- Automated Verification of Authentication Protocols
  70. École Normale Supérieure, Paris, France, March 19, 1999.
  71. Carnegie-Mellon University, Pittsburgh, PA, November 30, 1998.
  72. AT&T Labs Research, Florham Park, NJ, August 18, 1998.
  73. Bell Laboratories (Lucent Technologies), Murray Hill, NJ, August 19, 1998.
- Automated Analysis of Fault-Tolerance in Distributed Systems
  74. Graduate School of the University of Science and Technology of China, Beijing, China, May 8, 1998.
  75. Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, May 19, 1997.
- A Method and Tool for Analysis of Fault-Tolerance
  76. University of California at Davis, Davis, CA, May 9, 1996.
  77. Bell Laboratories (Lucent Technologies), Murray Hill, NJ, May 7, 1996.
  78. Pennsylvania State University, University Park, PA, May 3, 1996.
  79. University of Waterloo, Waterloo, Ontario, Canada, April 16, 1996.
  80. New York University, New York, NY, April 12, 1996.
  81. Indiana University, Bloomington, IN, April 1, 1996.
  82. AT&T Research, Murray Hill, NJ, March 25, 1996.

## PROFESSIONAL ACTIVITIES

### General Chair

22nd IEEE Computer Security Foundations Symposium (CSF), Port Jefferson, New York, July 2009.

### Co-Chair

NSF Workshop on Future Directions for Parallel and Distributed Computing, June 2019. Part of FCRC.  
Co-chaired with Michael Carbin.

Security and Privacy Day at Stony Brook, May 2008. Co-chaired with Radu Sion and R. Sekar.

3rd Workshop on Software Model Checking, Edinburgh, UK, July 2005.  
Co-chaired with Willem Visser and Byron Cook.

2nd Workshop on Software Model Checking, Boulder, Colorado, July 2003.  
Co-chaired with Willem Visser and Byron Cook.

Workshop on Software Model Checking, Paris, France, July 2001. Co-chaired with Willem Visser.

### Program Chair or Program Co-Chair

25th ACM Symposium on Access Control Models and Technologies (SACMAT 2020), Barcelona, Spain, June 2020.

6th Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD), Seattle, Washington, July 2008

### Publicity Chair

International SPIN Symposium on Model Checking of Software (SPIN 2013), Stony Brook, New York, July 2013

### **Member of Steering Committee**

IEEE Computer Security Foundations Symposium (CSF), 2009–2019

### **Member of Editorial Board**

*Foundations and Trends in Programming Languages (FnT Programming Languages)*, Now Publishers

*Frontiers in Big Data*, Frontiers Media (Associate Editor for Cybersecurity & Privacy)

*International Journal on Software Tools for Technology Transfer (STTT)*, Springer Verlag

### **Co-Editor**

Proceedings of the 6th Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD), 2008. ACM Press.

Proceedings of the 3rd Workshop on Software Model Checking. *Electronic Notes in Theoretical Computer Science*, 144(3), 2006. Elsevier.

*Formal Methods in System Design*, 26(2), March 2005. Special issue on Software Model Checking. Kluwer.

Proceedings of the 2nd Workshop on Software Model Checking. *Electronic Notes in Theoretical Computer Science*, 89(3), 2003. Elsevier.

Proceedings of the Workshop on Software Model Checking. *Electronic Notes in Theoretical Computer Science*, 55(3), 2001. Elsevier.

### **Member of Program Committee**

38th Annual IFIP WG 11.3 Conference on Data and Applications Security and Privacy (DBSec 2024), San Jose, CA, July 2024

29th ACM Symposium on Access Control Models and Technologies (SACMAT 2024), San Antonio, TX, May 2024

22nd Workshop on Privacy in the Electronic Society (WPES 2023), Copenhagen, Denmark, Nov. 2023

37th Annual IFIP WG 11.3 Conference on Data and Applications Security and Privacy (DBSec 2023), Sophia Antipolis, France, July 2023

28th ACM Symposium on Access Control Models and Technologies (SACMAT 2023), Trento, Italy, June 2023

21st Workshop on Privacy in the Electronic Society (WPES 2022), Los Angeles, CA, November 2022

36th Annual IFIP WG 11.3 Conference on Data and Applications Security and Privacy (DBSec 2022), Chicago, IL, July 2022

27th ACM Symposium on Access Control Models and Technologies (SACMAT 2022), New York, NY, June 2022

17th International Conference on Information Systems Security (ICISS 2021), Patna, India, December 2021

35th Annual IFIP WG 11.3 Conference on Data and Applications Security and Privacy (DBSec 2021), Calgary, Canada, July 2021

26th ACM Symposium on Access Control Models and Technologies (SACMAT 2021), Barcelona, Spain, June 2021

2021 USENIX Annual Technical Conference (ATC'21) Extended Review Program Committee, Santa Clara, CA, July 2021

16th International Conference on Information Systems Security (ICISS 2020), Jammu, India, December 2020

34th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2020), Regensburg, Germany, July 2020

2020 USENIX Annual Technical Conference (ATC'20), Boston, MA, July 2020

Conference in Honour of S.A. Smolka on the Occasion of his 65th Birthday (ScottFest 2019), Stony Brook, NY, August 2019

19th International Conference on Runtime Verification (RV 2019), Porto, Portugal, October 2019

15th International Conference on Information Systems Security (ICISS 2019), Hyderabad, India, December 2019

24th ACM Symposium on Access Control Models and Technologies (SACMAT 2019), Toronto, June 2019

33rd Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2019), Charleston, SC, July 2019

32nd Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2018), Bergamo, Italy, July 2018

18th International Conference on Runtime Verification (RV 2018), Limassol, Cyprus, November 2018

23rd ACM Symposium on Access Control Models and Technologies (SACMAT 2018), Indianapolis, Indiana, June 2018

8th ACM Conference on Data and Application Security and Privacy (CODASPY 2018), Tempe, AZ March 2018

13th International Conference on Information Systems Security (ICISS 2017), Mumbai, India, December 2017

32nd International Conference on ICT Systems Security and Privacy Protection (IFIP SEC 2017), Rome, Italy, May 2017

17th International Conference on Runtime Verification (RV 2017), Seattle, Washington, September 2017

31st Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2017), Philadelphia, Pennsylvania, July 2017.

22nd ACM Symposium on Access Control Models and Technologies (SACMAT 2017), Indianapolis, Indiana, June 2017

International SPIN Symposium on Model Checking of Software (SPIN 2017), Santa Barbara, California, July 2017

2nd IEEE Workshop on Security and Privacy in the Cloud (SPC 2016), Philadelphia, Pennsylvania, October 2016.

12th International Conference on Information Systems Security (ICISS 2016), Jaipur, India, December 2016

30th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2016), Trento, Italy, July 2016.

16th International Conference on Runtime Verification (RV 2016), Madrid, Spain, September 2016

11th International Conference on Information Systems Security (ICISS 2015), Kolkata, India, December 2015

29th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy

(DBSec 2015), July 2015.

Multicore Software Engineering, Performance, Applications, and Tools (MUSEPAT) track of the 30th ACM/SIGAPP Symposium on Applied Computing (SAC 2015), Salamanca, Spain, April 2015

20th ACM Symposium on Access Control Models and Technologies (SACMAT), Vienna, Austria, June 2015

15th International Conference on Runtime Verification (RV 2015), Vienna, Austria, September 2015

10th ACM Symposium on Information, Computer and Communications Security (ASIACCS 2015), Singapore, April 2015

10th International Conference on Information Systems Security (ICISS 2014), Hyderabad, India, December 2014

International Conference on Multicore Software Engineering, Performance, and Tools (MUSEPAT 2014), Hong Kong, China, November 2014

19th ACM Symposium on Access Control Models and Technologies (SACMAT), London, Ontario, Canada, June 2014

International SPIN Symposium on Model Checking of Software (SPIN 2014), San Jose, California, July 2014

5th International Conference on Runtime Verification (RV 2014), Toronto, Canada, September 2014

9th International Conference on Information Systems Security (ICISS 2013), Kolkata, India, December 2013

International Conference on Multicore Software Engineering, Performance, and Tools (MUSEPAT 2013), Saint Petersburg, Russia, August 2013

International SPIN Symposium on Model Checking of Software (SPIN 2013), Stony Brook, New York, July 2013

18th ACM Symposium on Access Control Models and Technologies (SACMAT), Amsterdam, The Netherlands, June 2013

8th International Conference on Information Systems Security (ICISS 2012), Guwahati, India, December 2012

10th Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD), Minneapolis, Minnesota, July 2012

17th ACM Symposium on Access Control Models and Technologies (SACMAT), Newark, New Jersey, June 2012

9th Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD), Toronto, Canada, July 2011

18th International SPIN Workshop on Model Checking of Software (SPIN), Snowbird, Utah, July 2011

Fourth International Workshop on Multicore Software Engineering (IWMSE11), Honolulu, Hawaii, May 2011

16th ACM Symposium on Access Control Models and Technologies (SACMAT), Innsbruck, Austria, June 2011

ACM SIGPLAN 2011 Workshop on Partial Evaluation and Semantics-Based Program Manipulation (PEPM), Austin, Texas, January 2011

17th International SPIN Workshop on Model Checking of Software (SPIN), Enschede, The Netherlands, September 2010

8th Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD), Trento, Italy, July 2010

2nd IEEE International Symposium on Ubisafe Computing (UbiSafe-09), Chengdu, China, December 2009

2009 Haifa Verification Conference (HVC), Haifa, Israel, October 2009

22nd IEEE Computer Security Foundations Symposium (CSF), Port Jefferson, New York, July 2009.

7th Workshop on Parallel and Distributed Systems: Testing, Analysis, and Debugging (PADTAD), Chicago, Illinois, July 2009

16th International SPIN Workshop on Model Checking Software (SPIN), Grenoble, France, June 2009

2009 Workshop on Run-Time Verification (RV 2009), Grenoble, France, June 2009

2008 Haifa Verification Conference (HVC), Haifa, Israel, October 2008

3rd International Workshop on Flexible Database and Information Systems Technology (FlexDBIST-08), Turin, Italy, September 2008.

2008 ACM Symposium on Access Control Models and Technologies (SACMAT), Estes Park, Colorado, June 2008

2008 Workshop on Run-Time Verification (RV 2008), Budapest, Hungary, March 2008

2nd Workshop on Automated Formal Methods (AFM 2007), Atlanta, Georgia, November 2007

2007 Haifa Verification Conference (HVC), Haifa, Israel, October 2007

Workshop on Parallel and Distributed Systems: Testing and Debugging (PADTAD), London, England, July 2007

2007 Workshop on Run-Time Verification (RV 2007), Vancouver, Canada, March 2007

8th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), Nice, France, January 2007

2006 Haifa Verification Conference (HVC), Haifa, Israel, October 2006

Workshop on Formal Aspects of Testing and Runtime Verification (FATES/RV), Seattle, Washington, August 2006

Workshop on Multithreading in Hardware and Software: Formal Approaches to Design and Verification (TV), Seattle, Washington, August 2006

ACM SIGPLAN 2006 Conference on Programming Language Design and Implementation (PLDI), Canada, June 2006

Workshop on Parallel and Distributed Systems: Testing and Debugging (PADTAD), Portland, Maine, July 2006

13th International SPIN Workshop on Model Checking Software (SPIN), Vienna, Austria, March 2006

7th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), Charleston, South Carolina, January 2006.

Workshop on Parallel and Distributed Systems: Testing and Debugging (PADTAD), Haifa, Israel, November 2005

6th International Symposium on Automated and Analysis-driven Debugging (AADEBUG), Monterey, California, September 2005

5th Workshop on Run-Time Verification (RV 2005), Edinburgh, Scotland, July 2005  
14th European Symposium on Programming (ESOP 2005), Edinburgh, Scotland, April 2005  
2nd International Workshop on Automated Technology for Verification and Analysis (ATVA), Taipei, Taiwan, November 2004  
International Symposium on Software Testing and Analysis (ISSTA 2004), Boston, Massachusetts, July 2004  
Workshop on Parallel and Distributed Systems: Testing and Debugging (PADTAD), Santa Fe, New Mexico, April 2004  
4th Workshop on Run-Time Verification (RV 2004), Barcelona, Spain, April 2004  
11th International SPIN Workshop on Model Checking Software (SPIN 2004), Barcelona, Spain, April 2004  
3rd Workshop on Run-Time Verification (RV 2003), Boulder, Colorado, July 2003  
10th International SPIN Workshop on Model Checking Software (SPIN 2003), Portland, Oregon, May 2003  
Workshop on Parallel and Distributed Systems: Testing and Debugging (PADTAD), Nice, France, April 2003  
Workshop on Logical Aspects of Cryptographic Protocol Verification, Paris, France, July 2001  
Workshop on Formal Methods and Computer Security, Chicago, Illinois, July 2000

**Reviewer (other than Member of Program Committee) for Conferences**

APLAS: ASIAN Symposium on Programming Languages and Systems (2007)  
ATVA: International Workshop on Automated Technology for Verification and Analysis (2005)  
CAV: International Conference on Computer-Aided Verification (2000, 2006, 2008, 2011)  
CC: International Conference on Compiler Construction (2004, 2011)  
CCS: ACM Conference on Computer and Communications Security (2002, 2008)  
CONCUR: International Conference on Concurrency Theory (2002)  
DISC: International Symposium on Distributed Computing (2002, 2006)  
DSN: IEEE/IFIP International Conference on Dependable Systems and Networks (2001)  
ESOP: European Symposium on Programming (2002)  
ESORICS: European Symposium on Research in Computer Security (2023)  
FSTTCS: International Conference on Foundations of Software Technology and Theoretical Computer Science (2002)  
ICDCS: International Conference on Distributed Computing Systems (2001, 2003)  
ICISS: International Conference on Information Systems Security (2008)  
ICLP: International Conference on Logic Programming (2006)  
iFM: International Conference on integrated Formal Methods (2016)  
IPPS: IEEE International Parallel Processing Symposium (1998)  
ISOLA: International Symposium On Leveraging Applications of Formal Methods, Verification and Validation (2014)

LCOTES: ACM SIGPLAN Workshop on Languages, Compilers, and Tools for Embedded Systems (1998, 1999, 2001, 2002)

LICS: IEEE Symposium on Logic in Computer Science (2000)

NDSS: Network & Distributed System Security Symposium (2009)

Oakland: IEEE Symposium on Security and Privacy (2000)

PACT: International Conference on Parallel Architectures and Compilation Techniques (2006)

PADL: International Workshop on Practical Aspects of Declarative Languages (2001)

PARA: State of the Art in Scientific and Parallel Computing (2010)

PASTE: ACM SIGPLAN-SIGSOFT Workshop on Program Analysis for Software Tools and Engineering (1999)

PLAS: ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (2006)

PLDI: ACM SIGPLAN Conference on Programming Language Design and Implementation (2002, 2003, 2007, 2008)

PODC: ACM Symposium on Principles of Distributed Computing (1998, 2002, 2003)

POPL: ACM SIGPLAN Conference on Principles of Programming Languages (2003, 2007, 2008, 2009)

PPoPP: ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (2005, 2006)

SPDP: IEEE Symposium on Parallel and Distributed Processing (1996)

TACAS: International Conference on Tools and Algorithms for the Construction and Analysis of Systems (2010, 2011, 2013, 2015)

USENIX Security Symposium (2005, 2006)

VLDB: International Conference on Very Large Data Bases (2004)

VMCAI: Int'l. Conference on Verification, Model Checking and Abstract Interpretation (2003, 2009)

WDAG: International Workshop on Distributed Algorithms (1996)

### **Reviewer for Awards**

ACM SIGPLAN Dissertation Award Committee Member

### **Reviewer for Journals**

*ACM Computing Surveys*

*ACM Transactions on Embedded Computing Systems (TECS)*

*ACM Transactions on Information and Systems Security (TISSEC)*

*ACM Transactions on Programming Languages and Systems (TOPLAS)*

*ACM Transactions on Software Engineering and Methodology (TOSEM)*

*Artificial Intelligence*

*Computers & Security*

*Concurrency and Computation: Practice and Experience*

*Distributed Computing*

*Formal Aspects of Computing*

*Formal Methods in System Design*  
*Higher-Order and Symbolic Computation*  
*IEEE Transactions on Computer-Aided Design*  
*IEEE Transactions on Information Forensics & Security*  
*IEEE Transactions on Dependable and Secure Computing*  
*IEEE Transactions on Parallel and Distributed Systems*  
*IEEE Transactions on Software Engineering*  
*Information and Computation*  
*Information Processing Letters*  
*International Journal of Foundations of Computer Science*  
*International Journal on Software Tools for Technology Transfer*  
*Journal of Computer Security*  
*Journal of Logic and Computation*  
*Journal of Parallel and Distributed Computing*  
*Journal of the ACM*  
*Science of Computer Programming*  
*Software Quality Journal*  
*Software Testing, Verification and Reliability*

#### **Reviewer for Funding Agencies**

Austrian Science Fund, 2002, 2006  
Czech Science Foundation, 2011  
Fonds Québécois de la Recherche sur la Nature et les Technologies, 2010  
Israel Science Foundation, 2006, 2013  
Maryland Industrial Partnerships Program, 2007  
National Science Foundation, Committee of Visitors for Computer and Network Systems Division, 2009  
National Science Foundation, Grant Proposal Review Panels, 1999, 2002, 2003, 2005, 2011, 2012, 2013, 2014, 2015, 2016, 2017 ( $\times 2$ ), 2019, 2021, 2022  
National Science Foundation, Grant Proposal Ad-Hoc Reviewer, 2014, 2018, 2021  
National Science Foundation, site visit committee for a Frontier project, 2015  
Portuguese Foundation for Science and Technology (FCT), 2012  
Qatar National Research Fund, 2014  
Research Council of Norway, 2002, 2003  
United States-Israel Binational Science Foundation, 2005, 2007

#### **Reviewer for Promotion & Tenure Cases**

University of Texas at San Antonio  
University of Missouri—Columbia

#### **Reviewer for Publishers**

Addison-Wesley, 2007

Cambridge University Press, 2017  
Prentice-Hall, 2006  
Wiley, 2001, 2004, 2013

### **Invited Participant**

IFIP Working Group 2.2 (Formal Description of Programming Concepts) Meeting, Kandestederne, Denmark, August 31–September 3, 2005.

IFIP Working Group 2.1 (Algorithmic Languages and Calculi) Meeting, New York, NY, March 30–April 3, 2003.

Seminar on Specification and Analysis of Secure Cryptographic Protocols, Schloß Dagstuhl, Germany, September 23–28, 2001.

U. of Washington / Microsoft Research Summer Institute on Specifying and Checking Properties of Software, Sleeping Lady Conference Center, WA, August 12–16, 2001.

IFIP Working Group 2.3 (Programming Methodology) Meeting, Bloomington, IN, June 1–5, 1998.

IFIP Working Group 2.3 (Programming Methodology) Meeting, Ithaca, NY, July 24–28, 1995.

### **Participant**

Int'l. Summer School on Deductive Program Design, Marktobendorf, Germany, 1994  
Int'l. Summer School on Program Design Calculi, Marktobendorf, Germany, 1992

## **COURSES TAUGHT**

*All courses were taught at Stony Brook University unless indicated otherwise.*

Advanced Computer Security (CSE 608), Fall 2008  
Advanced Operating Systems (P536), Indiana University, Fall 1996, 1997, 1998, 1999  
Computer Security: Attacks and Defenses (ITS 102), Spring 2009, 2010, 2011  
Computer Security Seminar (CSE 659, co-taught), Fall 2015, Spring 2016, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Fall 2022, Spring 2023  
Cyber-Physical Systems and Verification Seminar (CSE643, co-taught), Fall 2021.  
Distributed Systems (B649), Indiana University, Spring 1997  
Distributed Systems, Spring 2006 (CSE 590), Fall 2012 (CSE 594)  
Distributed Systems / Asynchronous Systems (CSE 535), Fall 2014, Fall 2016, Fall 2017, Fall 2021  
Fault-Tolerance and Security in Distributed Systems (B649), Indiana University, Spring 1999  
Information System Design (ISE 440), Spring 2001  
Network Programming (CSE 533), Fall 2001  
Operating Systems (P436), Indiana University, Fall 1996, 1997, 1998, 1999  
Operating Systems (CSE 306), Spring 2006  
Principles of Concurrent Systems (B649), Indiana University, Spring 2000  
Principles of Programming Languages (CSE 526), Spring 2003  
Robust Distributed Software (CSE 647), Spring 2002  
Security in Distributed Systems (B649), Indiana University, Spring 1998

Security Policy Frameworks (CSE 394), Fall 2005  
Security Policy Frameworks (CSE 591/592), Spring 2005, Fall 2007  
Software Engineering (CSE 308/ISE 308), Fall 2002, Spring 2004, Spring 2008, Spring 2009 (2 sections),  
Fall 2010 (2 sections), Fall 2011 (2 sections), Fall 2013 (2 sections), Spring 2015,  
Fall 2015 (2 sections), Fall 2018  
Software Engineering (CSE 416), Spring 2020, Spring 2021, Fall 2022, Spring 2023  
Testing and Verification of Software (CSE 647), Fall 2000

## **SERVICE TO THE COLLEGE AND UNIVERSITY**

College of Engineering and Applied Sciences (CEAS) Personnel Policy Committee, 2014-present  
Mentor for Junior Faculty: Yifan Zhou (ECE), 2023-present  
Search Committee for CEAS Associate Dean for Academic Affairs and International Programs, 2021  
SUNY Chancellor's Award for Excellence in Scholarship and Creative Activity,  
Selection Committee, 2012-2015 and 2018-2021.

## **SERVICE TO THE DEPARTMENT**

*Service is at Stony Brook University unless indicated otherwise.*

Instructor Recruiting Committee, 2023.  
Undergraduate Curriculum Committee, 2009–present  
Continuous Improvement Committee, 2009–present  
Mentor for Junior Faculty: Dongyoon Lee, 2020-2023; Stanley Bak, 2021-present.  
SUNY Korea Faculty Recruiting Committee, 2017–2022  
Graduate Admissions Committee, 2010–2014  
Faculty Recruiting Committee, 2009–2010  
New Computer Science Building Committee, 2008–2011  
Ph.D. Qualifier Committee, 2008–2011  
School of Computing Committee, Chair, 2008–2010  
Computer Science Honor Society (Upsilon Pi Epsilon), Faculty Advisor, 2001–2006  
Distinguished Lecture Series, Organizer, 2000–2006  
Stony Brook Computing Society (student chapter of ACM), Faculty Advisor, 2001–2006  
Undergraduate Research Liaison for Computer Science, 2001–2006  
Faculty Recruiting Committee, 2001–2005  
Ph.D. Qualifying Exam Committee, 2000–2001  
Facilities Committee, Indiana University, 1996–2000  
Faculty Affairs Committee, Indiana University, 1998–2000  
Graduate Education Committee, Indiana University, 1998–2000  
Hiring Committee, Indiana University, 1997–1998  
Merit Review Committee, Indiana University, 1996–1997  
Qualifying Exam Committee, Indiana University, 1996–2000

## **GRADUATE STUDENT SUPERVISION**

*Graduate student supervision is at Stony Brook University unless indicated otherwise.*

## Ph.D. Advisees

- Amol Damare, Thesis title TBD. Co-advised with Scott A. Smolka (secondary advisor). 9/2020–present.
- Shouvik Roy. Neural Controllers and Safety Assurance for Cyber-Physical Systems. Co-advised with Scott A. Smolka (primary advisor). 2018–2023.
- Thang Bui. Mining Relationship-Based Access Control Policies. 9/2017–2/2021.
- Usama Mehmood. Advances in Safety Assurances for Multi-Agent Systems. Co-advised with Scott A. Smolka (primary advisor). 5/2016–1/2021.
- Dung Phan. Advances in Safety Assurances for Cyber-Physical Systems. Co-advised with Scott A. Smolka. 5/2014–8/2018.
- Zhongyuan Xu. Mining Meaningful Role-Based and Attribute-Based Access Control Policies. 6/2010–8/2014.
- Puneet Gupta. Verification of Security Policy Administration and Enforcement in Enterprise Systems. 6/2007–12/2011.
- Michael Gorbovitski. A System for Invariant-Driven Transformations. 1/2008–5/2010. Co-advised with Yanhong Liu (primary advisor).
- Leena Unnikrishnan. Automatic Live Memory Bound Analysis for High-Level Languages. 6/1996–8/2009.
- Katia Hristova. From Rules to Efficient Algorithms for Cyber Trust Applications. Co-advised with Yanhong Liu. 6/2006–12/2007.
- Rahul Agarwal. Combining Static Analysis and Run-Time Analysis for Verification and Testing of Multi-Threaded Programs. 6/2002–12/2006.
- Liqiang Wang. Analysis of Synchronization Errors for Multi-Threaded Programs. 1/2002–8/2006.

## M.S. Thesis Advisees

- Prakash Sekar. WebSheets: A New Privacy-Centric Framework for Web Applications. 8/2023–5/2024.

## M.S. Project Advisees

- Balaji Jayasankar. Resilience through distribution and replication. 1/2022–12/2022.
- Radhika Dhawan. Enforcement of Attribute-Based Access Control in Legacy Systems. 1/2019–12/2019.
- Junao Wang. Intrusion detection and forensics. 5/2016–12/2018.
- Shalaka Sidmul. Distributed coordination algorithms and software diversity. 1/2018–12/2018.
- Swetha Tatavarthy. Software monitoring and software diversity. 1/2018–12/2018.
- Jiajie Li. Evolutionary algorithms for access control policy mining. 9/2017–12/2017.
- Rahul Gadi. Software diversity metrics. 6/2017–12/2017.
- Shikhar Sharma. Distributed access control policy evaluation. Software diversity. 1/2017–12/2017.
- Shubham Singhal. Software diversity metrics. 6/2016–12/2016.
- Thang Bui. Mining relationship-based access control policies. 6/2016–12/2016.
- Sujan Boliseti. Verification of distributed algorithms. 1/2015–12/2015.
- Ishan Mehta. Security policy mining. 6/2014–5/2015.
- Aman Jain. Program similarity detection. 1/2010–12/2010.
- Axatha Jayadev Jalimarada. Combining static and dynamic analysis for C programs. 1/2010–12/2010.
- Xiaomeng Chen. Java client of the model-independent analysis. 1/2010–12/2010.
- Niranjan Hasabnis. EPICS-based Data Distribution Service. 1/2009–12/2009.

Raveesh Ahuja. Security of service-oriented systems. 1/2009–12/2009.  
Christopher Widak. Detection of potential deadlocks in C programs. 9/2008–5/2009.  
William Anzovino. Policy enforcement in enterprise systems. 9/2008–5/2009.  
Jung Hoon (Dennis) Lee. Security policy analysis. Trust management for databases. 6/2007–5/2008.  
Gregory Shackles. Security policy analysis. Trust management for databases. 1/2007–12/2007.  
Deepanshu Sandhuria. Dynamic detection of potential deadlocks in C programs. 9/2006–12/2006.  
Shrinand Javadekar. Instrumentation of synchronization in C programs using CIL. 5/2006–8/2006.  
Amit Sasturkar. Security policies for decentralized systems. 9/2003–12/2005.  
Nikhil Mahajan. Environment generation for open systems. 9/2002–5/2003.  
Xi Zhang. Verification of Byzantine quorums for distributed systems. 6/2001–5/2002.  
Han Li. Lock-based state-space reduction for Java. 6/2001–12/2001.  
Kshitiz Sharma. Model checking with tree-structured data. Indiana U. 9/1998–12/1998.  
Lars Hofhansl. Efficient reliable broadcasts with total ordering. Indiana U. 6/1997–8/1997.  
Ramanathan Venkatapathy. Eventually-consistent replication. Indiana U. 9/1996–12/1996.

### **Undergraduate Research Supervision**

Tszhim Chan. WebSheets: A New Privacy-Centric Framework for Web Applications. 8/2023–5/2024.  
Yooha Bae. Cloud drive sharing manager. 1/2023–5/2023.  
Ha-Eun Park. Cloud drive sharing manager. 1/2023–5/2023.  
Jiajie Li. Mining relationship-based access control policies. 9/2016–5/2017.  
Thang Bui. Mining temporal access control policies. 5/2015–5/2016.  
Sherry Shi. Mining ABAC policies with lattice-valued attributes. 8/2015–12/2015.  
Christian Hesselbach. Security policy mining using inductive logic programming and author-topic models. 1/2014–5/2014.  
David Sardarian. Automatic identification of chatbots. 6/2010–1/2011.  
David Sardarian. Security in cloud computing. 6/2009–8/2009.  
Jung Hoon (Dennis) Lee. Security policy analysis. 6/2006–5/2007.  
Sangwoo Im. Security policy analysis. 6/2006–8/2006.  
Sam Stern. Email relay for Instant Messaging. 6/2003-7/2003.  
Eve Fon Wu. UML for web application development. 10/2003-12/2003.

### **High School Student Research Supervision**

Madison Ramos. Mining relationship-based access control policies using decision trees. 6/2019–8/2019.

### **External Examiner for Dissertation**

Niloofer Razavi. Effective Heuristic-Based Test Generation Techniques for Concurrent Software. University of Toronto. 10/2013.  
Ohad Shacham. Verifying Atomicity of Composed Concurrent Operations. Tel Aviv University. 3/2012.  
Rodrigo Ferreira. Memory Consistency and Program Verification. Yale University. 4/2010.  
Jun Chen. Guided Testing of Concurrent Programs Using Value Schedules. University of Waterloo. 8/2009.  
Eran Yahav. Property-Guided Verification of Concurrent Heap-Manipulating Programs. Tel Aviv University. 11/2004.

### **Dissertation Committee Member**

*(for students at Stony Brook University other than advisees)*

Md Nahid Hossain. A New Tag-Based Approach for Real-Time Detection of Sophisticated Cyber Attacks. 1/2022.

Saksham Chand. Safety and Liveness of Distributed Consensus Algorithms. 9/2019.

Zhen Cao. A Practical, Real-Time Auto-Tuning Framework for Storage Systems. 1/2019.

Yifeng Sun. Protection Mechanisms for Virtual Machines on Virtualized Servers. 5/2017.

Ming Chen. KURMA: Geo-Distributed Secure Middlewares for Cloud-Backed Network Attached Storage. 4/2017.

Laszlo Szekeres. Memory corruption mitigation via hardening and testing. 1/2017.

Andrey Gorlin. Verification of Probabilistic Branching Time Systems. 11/2016.

Jonathan Glenn Brandvein. Demand-Driven Incremental Computation of Object Queries. 5/2016.

Riccardo Pelizzi. Securing Web Applications. 3/2016.

Reza Basseda. Planning with Transaction Logic. 11/2015.

Zhichao Li. GreenDM: A Versatile Tiering Hybrid Drive for the Trade-Off Evaluation of Performance, Energy, and Endurance. 4/2014.

Tushar Deshpande. Stochastic Game-Based Analysis of DNS Bandwidth Amplification Attack Countermeasures. 8/2013.

Jennia Hizver. Applications of Virtual Machine Introspection. 8/2013.

Justin Seyster. Runtime Verification of Kernel-Level Concurrency Using Compiler-Based Instrumentation. 11/2012.

Michael Hart. Content-Based Access Control and Issues of Privacy and Policy Control in the Web 2.0. 5/2011.

Xiaowan Huang. Compiler-Assisted Software Monitoring and Model Checking. 12/2010.

Wenxin Song. Using Horn Clauses and Binary Decisions Diagrams for Program Analysis. 8/2010.

Anu Singh. Modeling and Verification Techniques for Ad Hoc Network Protocols. 8/2009.

Wei Xu. Program Transformation Techniques for Automated Runtime Detection of Software Exploits. 8/2009.

Sean Callanan. Flexible Debugging with Controllable Overhead. 2/2009.

Tom Rothamel. Automatic Incrementalization of Queries in Object-Oriented Programs. 6/2008.

Weiqing Sun. Practical Information Flow Based Techniques to Safeguard Host Integrity. 5/2008.

Yang Yu. OS-level Virtualization and Its Applications. 11/2007.

Sandeep Bhatkar. Defeating Memory Error Exploits Using Automated Software Diversity. 9/2007.

Nikolai Joukov. Versatile, Portable, and Efficient File System Profiling. 11/2006.

Yu Ma. A Modular Scientific Data Management Architecture. Indiana U. 11/2006.

Diptikalyan Saha. Incremental Evaluation of Tabled Logic Programs. 8/2006.

Ping Yang. Verification Techniques for Mobile Processes and Security Protocols. 8/2006.

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