Scott D. Stoller

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October 12, 2020

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 Marlowe

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. *NSF Convergence Accelerator—Track D: AI-Enabled Provably Resilient Networked Microgrids*, with Peng Zhang (PI), Scott A. Smolka, and Xin Wang. National Science Foundation, Convergence Accelerator Program, $1,000,000, 2020-2021.
2. *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.
3. *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.

4. *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.

5. Google Cloud Platform Education Grant, $5,000 2018–2019.

6. Google Cloud Platform Education Grant, $5,250 2017–2018.

7. *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.

8. *Algorithm Diversity for Resilient Systems*, with Yanhong Liu (co-PI). Office of Naval Research, $776,974, 2015–2019.

9. *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.

10. *Towards Trustworthy Access Control Policies.* Single investigator. National Science Foundation, Trustworthy Computing (TWC) Program, $341,410, 2014–2020.

11. *From Clarity to Efficiency for Distributed Algorithms*, with Yanhong A. Liu (Principal Investigator). National Science Foundation, CCF/SHF Program, $1,300,006, 2014–2020.

12. *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.

13. *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.

14. Principal Investigator, *Java Client of the Model-Independent Analysis.* Brookhaven National Laboratory, $12,765, 2010–2011.

15. *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.

16. 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.

17. *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.

18. *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.

19. *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.

20. Principal Investigator, *A Framework for Analyzing and Ensuring Trust in Service-Oriented Architectures*, with R. Sekar and C.R. Ramakrishnan. Office of Naval Research, Multidisplinary University Research Initiative (MURI), $2,082,541, 2007–2012.

21. *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.

22. *Clarity and Efficiency in Design*, with Yanhong Liu (Principal Investigator). National Science Foundation, Science of Design Program, $203,924, 2006–2008.

23. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computing Society.* Citigroup Foundation, $15,000, 2006–2007.

24. 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.

25. *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.

26. *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.

27. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computing Society.* Citigroup Foundation, $15,000, 2005–2006.

28. 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 Multidisplinary Research Program of the University Research Initiative (MURI), $367,068, 2004–2006.

29. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computing Society.* Citigroup Foundation, $15,000, 2004–2005.

30. *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.

31. *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.

32. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computer Science Society.* Citigroup Foundation, $10,000, 2003–2004.

33. *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.

34. Principal Investigator, *Checking Critical Software for Concurrent, Distributed, Open, Secure Systems.* Office of Naval Research, Young Investigator Program, $300,000, 2002–2006.

35. *Enterprise Protection Planning*, with Tzi-cker Chiueh, R. Sekar, and Erez Zadok. National Institute of Justice, subcontract from Dolphin Technologies, $90,000, 2003–2003.

36. Project Director, *Grant for Distinguished Lecture Series and Stony Brook Computer Science Society*. Citigroup Foundation, $10,000, 2002–2003.

37. *Program Transformation and Analysis for Reactive Systems*, with Yanhong A. Liu (Principal Investigator). Office of Naval Research, $337,691, 2000–2003.

38. Principal Investigator, *Automated Analysis of Security and Fault-Tolerance of Distributed Systems*. National Science Foundation, CAREER Award, $205,000, 1999–2003.

39. 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.

40. *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. 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*, to appear.

2. Alevtina Dubovitskaya, Rohit Shukla, Pratik Sushil Zambani, Michael Schumacher, Karl Aberer, Zhigang 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.

3. 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.

4. 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.

5. Scott D. Stoller and Thang Bui. Mining Hierarchical Temporal Roles with Multiple Metrics. *Journal of Computer Security* 26(1):121-142, 2018.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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.

17. 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.

18. Scott D. Stoller and Ernie Cohen. Optimistic Synchronization-Based State-Space Reduction. *Formal Methods in System Design*, 28(3):263-289, May 2006.

19. 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.

20. 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.

21. 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.

22. 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.

23. 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.

24. Scott D. Stoller. Model-Checking Multi-Threaded Distributed Java Programs. *International Journal on Software Tools for Technology Transfer*, 4(1):71-91, October 2002.

25. Yanhong A. Liu, Scott D. Stoller, and Tim Teitelbaum. Strengthening Invariants for Efficient Computation. *Science of Computer Programming*, 41(2):139-172, October 2001.

26. Scott D. Stoller. Detecting Global Predicates in Distributed Systems with Clocks. *Distributed Computing*, 13(2):85–98, April 2000.

27. Scott D. Stoller. Leader election in asynchronous distributed systems. *IEEE Transactions on Computers*, 49(3):283-284, March 2000.

28. 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.

29. Scott D. Stoller and Fred B. Schneider. Verifying programs that use causally-ordered message-passing. *Science of Computer Programming*, 24(2):105–128, 1995.

30. Scott D. Stoller. Addendum to "Proof rules for flush channels". *IEEE Transactions on Software Engineering*, 20(8):664, August 1994.

31. Scott D. Stoller, William Happer, and Freeman J. Dyson. Transverse spin relaxation in inhomogeneous magnetic fields. *Physical Review A*, 44(11):7459–7477, 1991.

32. Pao-Lo Liu, Bing-Jin Li, Paul J. Cressman, John R. Debesis, and Scott D. Stoller. Comparison of Measured Losses of Ti:$LiNbO_3$ Channel Waveguide Bends. *Photonics Technology Letters* 3(8):755–756, August 1991.

Patents

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 Number US 2020/0059481, filed Aug 19, 2019, awarded Feb 20, 2020. Inventors: Ramasubramanian Sekar, Junao Wang, Md Nahid Hossain, Sadegh M. Milajerdi, Birhanu Eshete, Rigel Gjomemo, V.N. Venkatakrishnan, and Scott Stoller.

Encyclopedia Articles

1. 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.

2. 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. 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.

2. 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.

3. 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. 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 TBD of Lecture Notes in Computer Science. Springer-Verlag, 2020.

2. 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.

3. 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).

4. Shouvik Roy, Usama Mehmood, Radu Grosu, Scott A. Smolka, Scott D. Stoller, and Ashish Tiwari. Learning Distributed Controllers for V-Formation. In *Proceedings of the 1st IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS 2020).* IEEE, 2020.

5. Thang Bui and Scott D. Stoller. A Decision Tree Learning Approach for Mining Relationship-Based Access Control Policies. In *Proceedings of the 25th ACM Symposium on Access Control Models and Technologies (SACMAT 2020).* ACM Press, 2020.

6. Dung Phan, Radu Grosu, Nils Jansen, Nicola Paoletti, Scott A. Smolka, and Scott D. Stoller. Neural Simplex Architecture. In *Proceedings of the 12th NASA Formal Methods Symposium (NFM 2020)*, volume 12229 of Lecture Notes in Computer Science, pages 97-114. Springer-Verlag, 2020.

7. Yanhong A. Liu and Scott D. Stoller. Knowledge of Uncertain Worlds: Programming with Logical Constraints. In *Proceedings of the 2020 Symposium on Logical Foundations of Computer Science (LFCS '20)*, volume 11972 of Lecture Notes in Computer Science, pages 111-217. Springer-Verlag, 2020.

8. Christopher Kane, Bo Lin, Saksham Chand, Scott D. Stoller and Yanhong A. Liu. High-level Cryptographic Abstractions. In *Proceedings of the ACM SIGSAC 14th Workshop on Programming Languages and Analysis for Security (PLAS '19).* ACM Press, 2019.

9. Luca Bortolussi, Francesca Cairoli, Nicola Paoletti, Scott A. Smolka, and Scott D. Stoller. Neural Predictive Monitoring. In *Proceedings of the 19th International Conference on Runtime Verification (RV 2019)*, volume 11757 of Lecture Notes in Computer Science. Springer-Verlag, 2019.

10. Yanhong A. Liu, Saksham Chand, and Scott D. Stoller. Moderately Complex Paxos Made Simple: High-Level Executable Specification of Distributed Algorithms. In *Proceedings of the 21st International Symposium on Principles and Practice of Declarative Programming (PPDP'19).* ACM Press, 2019.

11. Scott D. Stoller and Yanhong A. Liu. Algorithm Diversity for Resilient Systems. In *Proceedings of the 33rd Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2019)*, volume 11559 of Lecture Notes in Computer Science. Springer-Verlag, 2019.

12. Thang Bui, Scott D. Stoller, and Hieu Le. Efficient and Extensible Policy Mining for Relationship-Based Access Control. In *Proceedings of the 24th ACM Symposium on Access Control Models and Technologies (SACMAT 2019).* ACM Press, 2019.

13. Thang Bui, Scott D. Stoller and Jiajie Li. Mining Relationship-Based Access Control Policies from Incomplete and Noisy Data. In *Proceedings of the 11th International Symposium on Foundations & Practice of Security (FPS 2018)*, volume 11358 of Lecture Notes in Computer Science, pages 267-284. Springer-Verlag, 2019.

14. Dung Phan, Nicola Paoletti, Timothy Zhang, Radu Grosu, Scott A. Smolka, and Scott D. Stoller. Neural State Classification for Hybrid Systems. In *Proceedings of the 16th International Symposium on Automated Technology for Verification and Analysis (ATVA 2018)*. Springer-Verlag, 2018.

15. Md. Nahid Hossain, Junao Wang, R. Sekar, and Scott D. Stoller. Dependence-Preserving Data Compaction for Scalable Forensic Analysis. In *Proceedings of the 27th USENIX Security Symposium*. USENIX Association, 2018.

16. Usama Mehmood, Nicola Paoletti, Dung Phan, Radu Grosu, Shan Lin, Scott D. Stoller, Ashish Tiwari, Junxing Yang, and Scott A. Smolka. Declarative vs Rule-based Control for Flocking Dynamics. In *Proceedings of the 2018 ACM Symposium on Applied Computing (SAC 2018)*, Intelligent Robotics and Multi-Agent Systems (IRMAS) track. ACM Press, 2018.

17. Yanhong A. Liu and Scott D. Stoller. The Founded Semantics and Constraint Semantics of Logic Rules. In *Proceedings of the 2018 Symposium on Logical Foundations of Computer Science (LFCS '18)*, volume 10703 of Lecture Notes in Computer Science, pages 221-241. Springer-Verlag, 2018.

18. Md Nahid Hossain, Sadegh M. Milajerdi, Junao Wang, Birhanu Eshete, Rigel Gjomemo, R. Sekar, Scott D. Stoller, and V.N. Venkatakrishnan. SLEUTH: Automated Attack Scenario Reconstruction from COTS Audit Data. In *Proceedings of the 26th USENIX Security Symposium*. USENIX Association, 2017.

19. Junxing Yang, Md. Ariful Islam, Abhishek Murthy, Scott A. Smolka, and Scott D. Stoller. A Simplex Architecture for Hybrid Systems using Barrier Certificates. In *Proceedings of the 36th International Conference on Computer Safety, Reliability, and Security (SAFECOMP 2017)*, volume 10488 of Lecture Notes in Computer Science. Springer-Verlag, 2017.

20. Thang Bui, Scott D. Stoller, and Shikhar Sharma. Fast Distributed Evaluation of Stateful Attribute-Based Access Control Policies. In *Proceedings of the 31st Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2017)*, volume 9766 of Lecture Notes in Computer Science. Springer-Verlag, 2017.

21. Thang Bui, Scott D. Stoller, and Jiajie Li. Mining Relationship-Based Access Control Policies. In *Proceedings of the 22nd ACM Symposium on Access Control Models and Technologies (SACMAT 2017)*. ACM Press, 2017.

22. 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. In *Proceedings of the 17th International Conference on Application of Concurrency to System Design (ACSD 2017)*. IEEE Computer Society Press, 2017.

23. Saksham Chand, Yanhong A. Liu, and Scott D. Stoller. Formal Verification of Multi-Paxos for Distributed Consensus. In *Proceedings of the 21st International Symposium on Formal Methods (FM 2016)*. Springer-Verlag, pages 119-136. Springer, 2016.

24. Yanhong A. Liu, Jon Brandvein, Scott D. Stoller, and Bo Lin. Demand-Driven Incremental Object Queries. In *Proceedings of the 18th International Symposium on Principles and Practice of Declarative Programming (PPDP 2016)*. ACM Press, 2016.

25. Scott D. Stoller and Thang Bui. Mining Hierarchical Temporal Roles with Multiple Metrics. In *Proceedings of the 30th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2016)*, volume 9766 of Lecture Notes in Computer Science, pages 79-95. Springer-Verlag, 2016. Received the conference's Best Paper Award.

26. Dung Phan, Junxing Yang, Denise Ratasich, Radu Grosu, Scott Smolka, and Scott D. Stoller. Collision Avoidance for Mobile Robots with Limited Sensing and Limited Information about the Environment. In *Proceedings of the Fifteenth International Conference on Runtime Verification (RV 2015)*, volume 9333 of Lecture Notes in Computer Science, pages 201-215. Springer-Verlag, 2015.

27. Scott D. Stoller. An Administrative Model for Relationship-Based Access Control. In *Proceedings of the 29th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2015)*, volume 9149 of Lecture Notes in Computer Science, pages 53-68. Springer-Verlag, 2015.

28. Radu Grosu, Doron Peled, Scott A. Smolka, Scott D. Stoller, C. R. Ramakrishnan, and Junxing Yang. Using Statistical Model Checking for Measuring Systems. In *Proceedings of the 6th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation (ISOLA 2014)*, volume 8803 of Lecture Notes in Computer Science. Springer-Verlag, 2014.

29. Zhongyuan Xu and Scott D. Stoller. Mining Attribute-Based Access Control Policies from Logs. In *Proceedings of the 28th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec 2014)*, volume 8566 of Lecture Notes in Computer Science, pages 276-291. Springer-Verlag, 2014.

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Other Conference and Workshop Publications

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2. 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 TBD, 2020.

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15. 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.

16. 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.

17. 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.

18. 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.

19. Yanhong A. Liu and Scott D. Stoller. The Founded Semantics and Constraint Semantics of Logic Rules. June 2016. https://arxiv.org/abs/1606.06269.

20. Scott D. Stoller and Thang Bui. Mining Hierarchical Temporal Roles with Multiple Metrics. February 2016 (revised April 2017). https://arxiv.org/abs/1603.02640.

21. Yanhong A. Liu, Jon Brandvein, Scott D. Stoller, and Bo Lin. Demand-Driven Incremental Object Queries. November 2015. https://arxiv.org/abs/1511.04583.

22. 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.

23. Yanhong A. Liu, Scott D. Stoller, and Bo Lin. From Clarity to Efficiency for Distributed Algorithms. December 2014. https://arxiv.org/abs/1412.8461.

24. 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.

25. 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. Assurance of Distributed Algorithms and Systems: Runtime Checking of Safety and Liveness. With Yanhong A. Liu. 20th International Conference on Runtime Verification (RV '20), Los Angeles, CA, October 2020.

2. From Classical to Blockchain Consensus: What Are the Exact Algorithms? With Yanhong A. Liu. 38th ACM Symposium on Principles of Distributed Computing (PODC 2019), Toronto, Canada, July 2019.

3. High-Level Specification of Distributed Algorithms. With Yanhong A. Liu and Bo Lin. 36th ACM Symposium on Principles of Distributed Computing (PODC 2017), Washington, D.C., July 28, 2017.

4. Programming Distributed Algorithms. With Yanhong A. Liu and Bo Lin. ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity (SPLASH 2014) Fall School, Portland, OR, October 24, 2014.

5. Programming Distributed Algorithms. With Yanhong A. Liu and Bo Lin. 19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, Orlando, FL, February 16, 2014.

6. Runtime Verification for Parallel Programs. 19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, Orlando, FL, February 15, 2014.

7. Trust Management. MITRE Corp., McLean, VA, May 24, 2006.

8. Trust Management. MITRE Corp., Bedford, MA, May 23, 2006.

9. Trust Management. 21st Annual Computer Security Applications Conference (ACSAC), Tucson, AZ, December 5, 2005.

PRESENTATIONS

Invited Presentations at Conferences and Meetings

1. Security Policy Analysis. IBM Research / Stevens / Columbia Security and Privacy Day, IBM T. J. Watson Research Center, Hawthorne, NY, November 13, 2006.

2. 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.

3. 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.

4. 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.

5. 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

6. High-level Cryptographic Abstractions. ACM SIGSAC 14th Workshop on Programming Languages and Analysis for Security (PLAS '19), London, U.K., November 15, 2019.

7. 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.

8. 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.

9. Invariants in Distributed Algorithms. TLA+ Community Meeting, co-located with FM 2018, part of FLoC 2018, Oxford, U.K., July 18, 2018.

10. Dependence-Preserving Data Compaction for Scalable Forensic Analysis. 2nd Provenance-based Security Workshop, part of Provenance Week 2018, London, U.K., July 13, 2018.

11. 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.

12. 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.

13. 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.

14. 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.

15. Symbolic Reachability Analysis for Parameterized Administrative Role-Based Access Control. Security and Privacy Day, The City University of New York (CUNY), May 20, 2011.

16. 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.

17. Trust Management and Trust Negotiation in an Extension of SQL. 4th International Symposium on Trustworthy Global Computing (TGC), Barcelona, Spain, November 3, 2008.

18. Software Monitoring with Bounded Overhead. 2008 NSF Workshop on Next Generation Software (NGS), Miami, FL, April 13, 2008.

19. Efficient Policy Analysis for Administrative Role Based Access Control. 14th ACM Conference on Computer and Communications Security (CCS), Alexandria, VA, October 31, 2007.

20. Efficient Policy Analysis for Administrative Role Based Access Control. Third Northeastern Verification Meeting, NEC Laboratories America, Princeton, NJ, May 18, 2007.

21. Security Policy Analysis. Second Northeast Verification Meeting, New York University, New York, NY, October 13, 2006.

22. Efficient Type Inference for Secure Information Flow. 2006 ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS), Ottawa, Canada, June 10, 2006.

23. 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.

24. Checking Atomicity in Concurrent Java Programs. IFIP Working Group 2.2 (Formal Description of Programming Concepts) Meeting, Kandestederne, Denmark, September 2005.

25. Security Policy Languages and Enforcement. Third Russian National Conference on Mathematics and Information Technology Security (MaBIT), Moscow, Russia, October 28, 2004.

26. Policy Analysis for Security-Enhanced Linux. 2004 Workshop on Issues in the Theory of Security (WITS), Barcelona, Spain, April 3, 2004.

27. 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.

28. Optimistic Synchronization-Based State-Space Reduction. 57th Meeting of IFIP Working Group 2.1 (Algorithmic Languages and Calculi), New York, NY, April 2, 2003.

29. 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.

30. Testing Concurrent Java Programs Using Randomized Scheduling. Second Workshop on Runtime Verification (RV), Copenhagen, Denmark, July 26, 2002.

31. Domain Partitioning for Open Reactive Systems. International Symposium on Software Testing and Analysis (ISSTA), Rome, Italy, July 22, 2002.

32. Domain Partitioning for Open Reactive Systems. Third Annual IBM Programming Languages Day, IBM T.J. Watson Research Center, Hawthorne, NY, May 7, 2002.

33. Generation of Environments for Distributed Programs. Seminar on Specification and Analysis of Secure Cryptographic Protocols, Schloß Dagstuhl, Germany, September 25, 2001.

34. A Bound on Attacks on Payment Protocols. 16th Annual IEEE Symposium on Logic in Computer Science (LICS), Boston, MA, June 16, 2001.

35. Transformations for Model Checking Distributed Java Programs. 8th International SPIN Workshop on Model Checking of Software, Toronto, Canada, May 20, 2001.

36. Model-Checking Multi-Threaded Distributed Java Programs. 7th International SPIN Workshop on Model Checking of Software, Palo Alto, CA, September 1, 2000.

37. 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.

38. 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.

39. Eliminating Dead Code on Recursive Data. Sixth International Static Analysis Symposium (SAS), Venice, Italy, September 23, 1999.

40. Automated Symbolic Timing Analysis for Distributed Systems. Fifth International Conference for Young Computer Scientists (ICYCS), Nanjing, China, August 19, 1999.

41. A Reduction for Automated Verification of Authentication Protocols. Workshop on Formal Methods and Security Protocols (FMSP), Trento, Italy, July 5, 1999.

42. 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.

43. Efficient Symbolic Detection of Global Properties in Distributed Systems. Tenth International Conference on Computer-Aided Verification (CAV), Vancouver, Canada, July 1, 1998.

44. Justifying Finite Resources for Adversaries in Automated Analysis of Authentication Protocols. Workshop on Formal Methods and Security Protocols (FMSP), Indianapolis, IN, June 25, 1998.

45. Automated Analysis of Authentication Protocols. IFIP Working Group 2.3 (Programming Methodology) Meeting, Bloomington, IN, June 2, 1998.

46. Detecting Global Predicates in Distributed Systems with Clocks. Eleventh International Workshop on Distributed Algorithms (WDAG), Saarbrücken, Germany, September 25, 1997.

47. Automated Analysis of Fault-Tolerance in Distributed Systems. First ACM Workshop on Automated Analysis of Software (AAS), Paris, France, January 14, 1997.

48. Faster Possibility Detection by Combining Two Approaches. Ninth International Workshop on Distributed Algorithms (WDAG), Le Mont St. Michel, France, September 15, 1995.

49. 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.

50. 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

51. Symbolic Reachability Analysis for Parameterized Administrative Role Based Access Control. University of Toronto, Toronto, Canada, July 21, 2009.

52. 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

    53. Microsoft Research Asia, Beijing, China, August 21, 2007.
    54. MIT, Cambridge, MA, May 22, 2006.
    55. Yale University, New Haven, CT, September 9, 2005.
    56. Institute of Software, Chinese Academy of Sciences, Beijing, China, June 24, 2005.

57. Static and Dynamic Analysis of Atomicity in Concurrent Programs. Microsoft Research, Redmond, WA, December 6, 2004.

58. Towards Automated Verification of Software Through Type Discovery. University of Toronto, Toronto, Canada, June 21, 2004.

59. Domain Partitioning for Open Reactive Systems. Stevens Institute of Technology, Hoboken, NY, November 17, 2003.

60. Checking Java Programs for Concurrent, Distributed, Open, Secure Systems. Polytechnic University, Brooklyn, NY, January 25, 2002.

61. Pretending Atomicity Based on a Common Locking Discipline. University of Pennsylvania, Philadelphia, PA, April 23, 2001.

- Automated Verification of Security Protocols

62. University of Pennsylvania, Philadelphia, PA, April 23, 2001.
63. Stony Brook University, Stony Brook, NY, April 3, 2000.

- A Bound on Attacks on Authentication Protocols

64. University of Illinois at Chicago, Chicago, IL, November 19, 1999.
65. Bell Laboratories (Lucent Technologies), Naperville, IL, November 18, 1999.
66. Stony Brook University, Stony Brook, NY, October 15, 1999.

- Automated Verification of Authentication Protocols

67. École Normale Supérieure, Paris, France, March 19, 1999.
68. Carnegie-Mellon University, Pittsburgh, PA, November 30, 1998.
69. AT&T Labs Research, Florham Park, NJ, August 18, 1998.
70. Bell Laboratories (Lucent Technologies), Murray Hill, NJ, August 19, 1998.

- Automated Analysis of Fault-Tolerance in Distributed Systems

71. Graduate School of the University of Science and Technology of China, Beijing, China, May 8, 1998.
72. Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, May 19, 1997.

- A Method and Tool for Analysis of Fault-Tolerance

73. University of California at Davis, Davis, CA, May 9, 1996.
74. Bell Laboratories (Lucent Technologies), Murray Hill, NJ, May 7, 1996.
75. Pennsylvania State University, University Park, PA, May 3, 1996.
76. University of Waterloo, Waterloo, Ontario, Canada, April 16, 1996.
77. New York University, New York, NY, April 12, 1996.
78. Indiana University, Bloomington, IN, April 1, 1996.
79. 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

2020 USENIX Annual Technical Conference (ATC'20) 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)

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)

LCTES: 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)
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 (×2), 2019
National Science Foundation, Grant Proposal Ad-Hoc Reviewer, 2014, 2018
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, Marktoberdorf, Germany, 1994

Int'l. Summer School on Program Design Calculi, Marktoberdorf, 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

Asynchronous Systems / Distributed Systems (CSE 535), Fall 2014, 2016

Computer Security: Attacks and Defenses (ITS 102), Spring 2009, 2010, 2011

Computer Security Seminar (CSE 659), Fall 2015, Spring 2016, Spring 2018, Fall 2018

Distributed Systems (B649), Indiana University, Spring 1997

Distributed Systems, Spring 2006 (CSE 590), Fall 2012 (CSE 594)

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

Testing and Verification of Software (CSE 647), Fall 2000

SERVICE TO THE UNIVERSITY

College of Engineering and Applied Sciences (CEAS) Personnel Policy Committee, 2014-present

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.

SUNY Korea Faculty Recruiting Committee, 2017–present

Undergraduate Curriculum Committee, 2009–present

Continuous Improvement Committee, 2009–present

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. Students

Usama Mehmood. Thesis title TBD. Co-advised with Scott A. Smolka (primary advisor). 5/2016–12/2020.

Thang Bui. Mining Relationship-Based Access Control Policies. 9/2017–12/2020.

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.

Master's Students

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 Bolisetti. 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.

External Examiner for Dissertation

Niloofar 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)

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.
Gang Peng. Availability, Fairness, and Performance Optimization in Storage Virtualization Systems. 7/2006.
Dezhuang Zhang. Model Checking for Data-Based Concurrent Systems. 12/2005.
Lap Chung Lam. Program Transformation Techniques for Host-based Intrusion Prevention. 12/2005.
Beata Sarna-Starosta. Constraint-based Analysis of Security Properties. 12/2005.
Arnab Ray, Compositional Modeling of Interaction-Centric Concurrent Systems. 7/2004.
Yifei Dong, Performance and Usability Issues in Model Checking. 8/2003.
Prem Uppuluri, Intrusion Detection/Prevention Using Behavior Specifications. 8/2003.
Bikram Sengupta, Triggered Message Sequence Charts. 7/2003.
Shridhar Diwan, Open HPC++: An Open Programming Environment for High-Performance Distributed Applications. Indiana U. 6/1999.

Ph.D. Candidate Oral Exam Committee Member

Usama Mehmood. Advances in Safety Assurances for Multi-Agent Systems. 9/2020.
Md Nahid Hossain. Tag-Based Real-Time Detection and Forensic Analysis of Sophisticated Attacks. 8/2020.
Sanaz Sheikhi. Attack Detection and Forensic Reconstruction of Cyber Attack Campaigns. 1/2020.
Yi Tong. A Survey of Constraint Satisfaction and Optimization Methods. 8/2019.
Shouvik Roy. Analysis and Applications of Flocking Algorithms. 1/2019.
Zhen Cao. A Practical, Real-time Auto-tuning Framework for Storage Systems. 4/2018.
Md. Nahid Hossain. Application Layer Intrusion Detection. 9/2016.
Junao Wang. Alert Correlation. 9/2016.

Christopher Kane. Raising the Level of Abstraction for Security Protocols and Secure Applications. 8/2016.
Zhen Cao. Parametric Optimization of Storage Systems. 12/2015.
Ming Chen. KURMA: Geo-Distributed Secure Middlewares for Cloud-Backed Network Attached Storage. 12/2015.
Richard DeFrancisco. Towards a GPGPU-Parallel SPIN Model Checker. 8/2015.
Riccardo Pelizzi. Securing Web Applications. 8/2015.
Reza Basseda. Planning With Transaction Logic. 3/2015.
Xuetian Weng. Verification of distributed algorithms. 8/2014.
Junxing Yang. Quantitative verification. 8/2014.
Yifeng Sun. Protection mechanisms for virtual machines on virtualized servers. 5/2014.
Zhongyuan Xu, Mining meaningful role-based and attribute-based access control policies. 8/2013.
Zhichao Li. System-aware resource scheduling for performance, energy, and reliability in tiered storage systems. 5/2013.
Puripant Ruchikachorn. Interaction in visual analytics. 8/2012.
Tushar Deshpande. Towards simplex for the hybrid systems using simulation distances. 12/2011.
Justin Seyster. Runtime verification of kernel-level concurrency using compiler-based instrumentation. 12/2011.
Puneet Gupta. Verification of Security Policy Administration and Enforcement in Enterprise Systems. 9/2011.
Mingwei Zhang. Binary instrumentation for software security. 9/2011.
Xiang Gao. Targeted on-line advertising. 9/2011.
Zhichao Li. Power and performance in compression systems: A control theoretical approach with evaluation. 9/2011.
Bo Lin. Distributed programming languages. 6/2011.
Riccardo Pelizzi. Web vulnerabilities. 5/2011.
Michael Hart. Content-based access control. 3/2011.
Xiaowan Huang. Compiler-assisted software monitoring and model checking. 9/2010.
Jonathan G. Brandvein. Methods of systematic incrementalization. 5/2010.
Michael Gorbovitski. A system for invariant-driven transformations. 11/2009.
Jun Yuan. Type-based security verification and program transformation. 9/2009.
Anu Singh. Modeling and verification techniques for ad hoc network protocols. 12/2008.
Wenxin Song. Using Horn clauses and binary decisions diagrams for program analysis. 5/2008.
Peter Williams. Private information retrieval. 5/2008.
Puneet Gupta. Security policy enforcement and analysis. 5/2008.
Sean Callanan. Remote debugging with controllable overhead. 3/2008.
Justin Seyster. Techniques for visualizing software execution. 3/2008.
Avishay Traeger. Analyzing root causes of latency distributions. 2/2008.
Michael Hart. Access control in the Web 2.0. 9/2007.
Katia Hristova. From rules to efficient algorithms for cyber trust applications. 5/2007.
Deng Pan. Scheduling algorithms for high performance packet switches. 4/2007.
Tom Rothamel. Automatic incrementalization of object-set queries. 3/2007.
Sandeep Bhatkar. Defeating memory error exploits using automated software diversity. 9/2006.
Wei Xu. Program Transformation Techniques for Automated Runtime Detection of Software Exploits. 8/2006.
Rahul Agarwal. Combining static analysis and run-time analysis for verification and testing of multi-threaded programs. 6/2006.
Liqiang Wang. Analysis of synchronization errors for multithreaded programs. 5/2006.
Diptikalyan Saha. Incremental evaluation of tabled logic programs. 2/2006.
Michael Gorbovitski. A survey of program transformation languages and systems. 2/2006.
Ningning Zhu. Repairable file system and storage system. 8/2005.

Amit Sasturkar. A survey of trust management. 6/2005.
Abhishek Rai. On the role of static analysis in operating system checking and runtime verification. 5/2005.
Beata Sarna-Starosta. Constraint-based analysis of security properties. 3/2005.
Lap Chung Lam. Program transformation techniques for host-based intrusion prevention. 2/2005.
Jiawu Chen. A survey on routing security in mobile ad hoc networks. 2/2005.
Katia Hristova. Answering rule-based queries efficiently with complexity guarantees. 2/2005.
Abhishek Chaturvedi. Extracting security behavior models of programs. 1/2005.
Alexey Smirnov. DIRA: Automatic detection, identification and repair of control-hijacking attacks. 1/2005.
Yu Ma. A modular scientific data management architecture. Indiana U. 11/2004.
Gang Peng. Availability support and performance optimization in Stonehenge. 9/2004.
Yang Yu. Enterprise digital rights management: solutions against information theft by insiders. 9/2004.
Xiaowan Huang. Efficient search strategies for model checking large state spaces. 9/2004.
Hui Zhang. Multicast protocols in the mobile ad hoc networks: reliability and security. 9/2004.
Shengying Li. A survey on tools for binary code analysis. 8/2004.
Deng Pan. FIFO based multicast scheduling algorithm for virtual output queued packet switches. 8/2004.
Chi Ma. Energy efficient routing in wireless sensor networks. 8/2004.
Dezhuang Zhang. A model-checking framework for data-based systems. 7/2004.
Tom Rothamel. On automatic data structure selection. 6/2004.
Ping Yang. Verification and compilation techniques for mobile processes. 3/2004.
Zhenkai Liang. Biologically inspired adaptive approaches to computer security. 1/2004.
Wenxin Song. Symbolic representations of functions. 12/2003.
Zan Sun. Real-time model checking on finite path. 12/2003.
Diptikalyan Saha. Incremental maintenance of recursive views with applications to tabled logic programming. 9/2003.
Leena Unnikrishnan. Program analysis for memory usage. 9/2003.
Rahul Agarwal. Detecting race conditions in multithreaded programs. 9/2003.
Jing Luo. Automatic verification of business processes. 9/2003.
Liqiang Wang. Analyzing atomicity of concurrent programs. 8/2003.
Kartik Gopalan. Efficient network resource allocation with QoS Guarantees. 2/2003.
Ningning Zhu. Data versioning. 2/2003.
Sandeep Bhatkar, Analysis and transformation of executable binaries. 2/2003.
Fuxiang Yu, Finite differencing and parametric regular path queries. 1/2003.
Arnab Ray, Hierarchical structure and compositional behavior of interaction-centric concurrent systems. 1/2003.
Yifei Dong, Efficiency and usability issues in model checking. 12/2002.
Bin Tang. Multicast switching networks: architecture, scheduling, and routing. 12/2002.
Prem Uppuluri. Intrusion detection and prevention using behavior specifications. 12/2002.
Beata Sarna-Starosta. Data independence. 6/2002.
Bikram Sengupta, Triggered message sequence charts. 4/2002.
Xiangdong Qin. Multicast in wavelength division multiplexed optical networks. 12/2001.
V. N. Venkatakrishnan. Mobile code security. 8/2001.
Leena Unnikrishnan. Live heap space bound analysis. 8/2001.
Chandrashekhar Shetty. Control-flow and data-flow analysis of higher-order languages. Indiana U. 5/1999.

Madhusudhan Govindaraju. Distributed scientific computing. Indiana U. 9/1999.
Marat Fairuzov. Visualization and distributed systems. Indiana U. 6/1998.

Master's Thesis Committee Member

Kavita Agarwal. A Study of Virtualization Overheads. 6/2015.
Arun Olappamanna Vasudevan. Finding the right balance — Security *vs.* Performance with Network Storage Systems. 5/2015.
Xiang Gao. Towards Seamless Resynchronization in Active-Active Database Clustering. 5/2013.
Hiep Minh Nguyen Vuong. A Study on Access Control, Trust Management, Constraints and Types of an EHR System. 12/2010.
Ketan Dixit. Tracecut – A Mechanism of Providing History Based Pointcuts on Top of InterAspect. 12/2010.
Anupama Chandwani. Light-weight proactive approach for safe execution of untrusted code. 5/2010.
Aravind Akella. Binary Streaming. 5/2010.
Tushar Deshpande. Model Checking the Kaminsky DNS Cache-Poisoning Attack Using PRISM. 5/2010.
Abhinav Duggal. Stopping Data Races using Redflag. 5/2010.
Bhuvan Mital. A Framework for Enforcing Information Flow Policies. 5/2010.
Santosh Sonawane. BEAST – Optimizations of BIRD, an Instrumentation Tool for Stripped Win32 Binaries and Its applications. 12/2009.
Subhadeep Sinha. Data Paladin—An Application Independent Rights Management System. 12/2008.
Prateek Saxena. Effective Sand-boxing Techniques using Fine-grained Taint Analysis. 6/2007.
David P. Quigley. PLEASE: Policy Language for Easy Administration of SELinux. 5/2007.
Siddharth Bhatt. Personal Digital Rights Management in Mobile Devices. 5/2007.
Gaurav Poothia. An Approach to Protecting System Integrity from Untrusted Applications. 6/2006.
Shabbir Dahodwala. Learning Pushdown System Models. 12/2002.

Undergraduate Research Supervision

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.