

Radu Sion

Assistant Professor, Computer Science, Stony Brook University. Director, Stony Brook Network Security and Applied Cryptography (**NSAC**) Laboratory, Trusted Hardware Laboratory (**THL**)

Education

Ph.D., *Computer Science*, Purdue University 2004, with M. Atallah (main advisor), S. Prabhakar

M.Sc., *Computer Science*, "Politehnica" University of Bucharest 1999, with Irina Athanasiu

B.Sc., *Computer Science*, "Politehnica" University of Bucharest 1998, with Nicolae Tapus

Interests

Cyber-Security, Efficient Computing

Invited Talks and Seminars (conference talks and tutorials not included)

1. TBD, North East Security and Privacy Day, December 2009
2. "Security vs. Costs and Energy in Clouds", **CMU Cylab**, October 2009
3. "Clouds at the crossroads of Computing Costs, Energy and Security", **UC Berkeley TRUST/CS**, September 2009
4. "Let's Talk About Clouds", **TU Berlin CS**, June 2009
5. "Regulatory Compliance in Information Systems", **INRIA Paris, Rocquencourt**, Sep. 2008
6. "Trusted Hardware in Systems", **Universita di Roma La Sapienza, CS**, May 2008
7. "On Trusted Hardware and Privacy Systems", **Brooklyn Polytech CS**, March 2008
8. "Towards Regulatory Compliance in Data Management", **UIUC CS**, October 2007
9. "Towards Regulatory Compliance in Data Management", **UC Berkeley CS**, October 2007
10. "Towards Regulatory Compliance in Data Management", **U. Arizona**, October 2007
11. "Towards Regulatory Compliance in Data Management", **BAE Systems**, July 2007
12. "Regulatory Compliance in Data Management", **Hong Kong Polytechnic CS**, June 2007
13. "Conditional Electronic Payments with Transferability", **Stanford CS**, April 2007
14. "Enterprise DRM Infrastructure for Cellular Contexts", **Motorola Labs**, April 2007
15. "Conditional Electronic Payments with Transferability", **Purdue CS**, April 2007
16. "Regulatory Compliance in Data Management", **IBM Research (Almaden)**, April 2007
17. "Forensic Watermarks in Mobile Devices", in the **MIT Technology Review**, December 2006
18. "On the Practicality of Private Information Retrieval", **Johns Hopkins CS**, December 2006
19. "Cyber Security Research at Stony Brook", **Politehnica U. of Bucharest CS**, June 2006
20. "Secure Data Outsourcing: Search and Query", **IBM Research (Watson)**, May 2005
21. "Rights Protection for Digital Data", **U. of Florida CS**, Gainesville, February 2004
22. "Rights Protection for Digital Data", **Ohio State CS**, February 2004
23. "Rights Protection beyond Multimedia", CS, **Wisconsin**, Madison, February 2004
24. "Rights Protection beyond Multimedia", CS, **Illinois at Urbana-Champaign**, January 2004
25. "Watermarking Data Aggregates", University of **Nevada**, Las Vegas, April 2002
26. "Jet Virtual Medium", **BINARY98**, (special prize of the Ministry of Research), October 1998
27. "Talking Objects", **ACM Summer School on Software Engineering**, May 1998

Invited Tutorials

1. R. Sion, "*A Quick Intro to Trusted Hardware*", invited tutorial at the IEEE Symposium on Security and Privacy **S&P 2009**, Berkeley, California, May 2009
2. R. Sion, "*Trusted Hardware*", invited tutorial at the ACM Conference on Computer and Communications Security **CCS 2008**, Alexandria, Virginia, October 2008
3. R. Sion, S. Smith, "*Understanding and Deploying Trusted Hardware*", invited tutorial at the **USENIX Security Symposium 2008**, San Jose, California, July 2008
4. R. Sion, M. Winslett, "*Regulatory Compliance in Data Management*", invited tutorial at the 33rd International Conference on Very Large Databases **VLDB 2007**, pages 1433-1434, Vienna, Austria, September 2007
5. R. Sion, "*Secure Data Outsourcing*", invited tutorial at the 33rd International Conference on Very Large Databases **VLDB 2007**, pages 1431-1432, Vienna, Austria, September 2007
6. R. Sion, M. Winslett, "*Regulatory Compliance in Data Management*", invited tutorial at the ACM Conference on Computer and Communications Security **CCS 2007**, Alexandria, Virginia, USA, October 2007
7. R. Sion, "*Secure Data Outsourcing*", invited tutorial at the 13th International Conference on Management of Data **COMAD 2006**, IIT Delhi, New Delhi, December 2006
8. R. Sion, "*Database Watermarking*", invited tutorial at the 11th International Conference on Database Systems for Advanced Applications **DASFAA 2006**, Singapore, April 2006

Journal Publications (published)

1. R. Hasan, R. Sion, M. Winslett, "*Secure Provenance*", to appear in the ACM Transactions on Storage **TOS** 2009 subject to revisions.
2. R. Sion, J. Gao, S. Lederer, "*Collaborative Location Certification for Sensor Networks*", to appear in the ACM Transactions on Sensor Networks **TOSN** 2009 subject to revisions.
3. S. Bhatt, R. Sion, B. Carbunar, "*The Motorola Personal Mobile DRM Manager*", in the Elsevier Journal of Computers and Security **JCS**, Volume 28, Issue 3, April 2009
4. R. Sion, "*Digital Rights Management*", in the Encyclopedia of Database Systems **EDS** 2007 (Ling Liu and Tamer Ozsu, Editors)
5. R. Sion, "*Regulatory Compliance in Data Management*", in the Encyclopedia of Database Systems **EDS** 2007 (Ling Liu and Tamer Ozsu, Editors)
6. R. Sion, M. Atallah, S. Prabhakar, "*Rights Protection for Discrete Numeric Streams*", Journal of Transactions on Knowledge and Data Engineering **IEEE TKDE**, Vol. 18, No. 5, pages 699-714, May 2006
7. R. Natarajan, R. Sion, C. Apte, I. Narang, "*A Grid-based Approach for Enterprise-Scale Data Mining*", Future Generation Computer Systems, Volume 23, pages 48-54, January 2007
8. R. Sion, M. Atallah, S. Prabhakar, "*Ownership Proofs for Categorical Data*", IEEE Journal of Transactions on Knowledge and Data Engineering **IEEE TKDE**, Vol. 17, No. 7, pages 912-926, July 2005
9. R. Sion, M. Atallah, S. Prabhakar, "*Protecting Rights for Relational Data using Watermarking*", Journal of Transactions on Knowledge and Data Engineering **IEEE TKDE**, Vol. 16, No. 6, pages 1509-1525, June 2004

Refereed Book Chapters

1. R. Sion, "*Regulatory Compliance in Information Systems*", chapter in the Handbook of Financial Cryptography, Burt Rosenberg (editor), 2009
2. R. Hasan, M. Winslett, S. Mitra, W. Hsu, R. Sion, "*Trustworthy Record Retention*", invited/refereed chapter in the "Handbook of Database Security: Applications and Trends", M. Gertz and S. Jajodia (editors), Springer Verlag 2008, XIV, ISBN: 978-0-387-48532-4
3. R. Sion, "*Secure Data Outsourcing*", invited/refereed chapter to appear in the "Handbook of Database Security: Applications and Trends", M. Gertz and S. Jajodia (editors), Springer Verlag 2008, XIV, ISBN: 978-0-387-48532-4
4. R. Sion, "*Database Watermarking*", invited/refereed chapter to appear in the "Handbook of Database Security: Applications and Trends", M. Gertz and S. Jajodia (editors), Springer Verlag 2008, XIV, ISBN: 978-0-387-48532-4
5. R. Sion, "*Rights Assessment for Relational Data*", invited/refereed chapter in "Secure Data Management in Decentralized Systems", T. Yu and S. Jajodia (editors), Springer Verlag 2007, pages 427-457

Patent Disclosures

1. six patent disclosures at Stony Brook
2. at IBM Research, with T. Phan, K. Ranganathan, I. Narang, "Co-Scheduling Job Assignments and Data Replication in Wide-Area Systems using a Genetic Algorithm" (ARC920060018), 2006
3. at IBM Research, with R. Natarajan, I. Narang, "Enterprise-Scale Parallel Data Mining System" (YOR920050516US1), 2004
4. at Purdue University, with M. Atallah, S. Prabhakar, "Method and System for Rights Assessment over Digital Data through Watermarking", US Patent 7,539,872 in 2003

Refereed Conference and Workshop Papers

1. R. Hasan, R. Sion, M. Winslett, "The Case of the Fake Picasso: Preventing History Forgery with Secure Provenance", USENIX Conference on File and Storage Technologies **FAST 2009**, pages 1-14, San Francisco, California, February 2009 (acceptance rate: 22.5%, 23/102)
2. P. Williams, R. Sion, D. Shasha, "The Blind Stone Tablet: Outsourcing Durability", Network and Distributed Systems Security Symposium **NDSS 2009**, San Diego, California, February 2009 (acceptance rate: 11%, 20/171)
3. Y. Chen, R. Sion, B. Carbunar, "*XPay: Practical anonymous payments for Tor routing and other networked services*", Workshop on Privacy in the Electronic Society **WPES 2009**, Chicago, Illinois, November 2009 (full paper acceptance rate: 27%, 8/29)
4. R. Hasan, R. Sion, M. Winslett, "*Remembrance: The Unbearable Sentience of Being Digital*", Biennial Conference on Innovative Data Systems Research **CIDR 2009**, Asilomar, Monterey, California, January 2009 (acceptance rate: 27%, 19/70)
5. P. Williams, R. Sion, B. Carbunar, "Building Castles out of Mud: Practical Access Pattern Privacy and Correctness on Untrusted Storage", ACM Conference on Computer and Communications Security **CCS 2008**, pages 139-148, Alexandria, Virginia, October 2008 (acceptance rate: 15.3%, 43/281)

6. R. Sion, "Strong WORM", International Conference on Distributed Computing Systems **ICDCS 2008**, pages 69-86, Beijing, China, June 2008 (acceptance rate: 15%, 102/638)
7. P. Williams, R. Sion, "Usable PIR", Network and Distributed Systems Security Symposium **NDSS 2008**, San Diego, California, February 2008 (acceptance rate: 16%, 20/121)
8. R. Sion, S. Bajaj, B. Carbunar, S. Katzenbeisser, "NS2: Networked Searchable Store with Privacy and Correctness", The Very Large Databases Conference, **VLDB 2007**, pages 1342-1345, Vienna, Austria, September 2007 (demo)
9. S. Lederer, J. Gao, R. Sion, "On Certifying Location claims in Sensor Networks", Applied Cryptography and Network Security **ACNS 2007**, Zhuhai, China, June 2007 (industrial track, acceptance rate: 27%, 60/220)
10. L. Shi, B. Carbunar, R. Sion, "Conditional E-Cash", Financial Cryptography and Data Security Conference **FC 2007**, pages 15-28, Scarborough, Trinidad and Tobago, February 2007 (acceptance rate: 18%, 16/85)
11. S. Bhatt, B. Carbunar, R. Sion, V. Vasudevan, "The Motorola Personal Digital Rights Manager", Financial Cryptography and Data Security Conference (demo) **FC 2007**, pages 246-248, , Scarborough, Trinidad and Tobago, February 2007 (acceptance rate: 18%, 16/85)
12. R. Sion, B. Carbunar, "On the Computational Practicality of Private Information Retrieval", Network and Distributed Systems Security Symposium **NDSS 2007**, San Diego, California, February 2007 (acceptance rate: 15%, 18/125)
13. R. Hasan, R. Sion, M. Winslett, "*Introducing Secure Provenance: Problems and Challenges*", International Workshop on Storage Security and Survivability **StorageSS 2007**, in conjunction with CCS, pages 13-18, Alexandria, Virginia, October 2007
14. R. Hasan, M. Winslett, R. Sion, "*Requirements of Secure Storage Systems for Health-care Records*", International Workshop on Secure Data Management **SDM 2007**, in conjunction with VLDB, pages 174-180, Vienna, Austria, September 2007
15. B. Carbunar, R. Sion, "*Uncheatable Reputation for Distributed Computation Markets*", Financial Cryptography and Data Security Conference **FC 2006**, pages 96-110, Anguilla, British West Indies, February 2006 (acceptance rate: 22%)
16. R. Sion, R. Natarajan, I. Narang, T. Phan, "*XG: A Grid-Enabled Query Processing Engine*", International Conference on Extending Database Technology **EDBT 2006**, pages 1115-1120, Munich, Germany, March 2006 (acceptance rate: 34%, 20/58), also in **Lecture Notes in Computer Sciences** 3896 Springer 2006
17. R. Sion, "*Query Execution Assurance for Outsourced Databases*", The Very Large Databases Conference, **VLDB 2005**, pages 601-612, Trondheim, Norway, August 2005 (acceptance rate: 16%, 32/195)
18. T. Phan, K. Ranganathan, R. Sion, "*Evolving to the Perfect Schedule: Co-scheduling Job Assignments and Data Replication in Wide-Area Systems Using a Genetic Algorithm*", Workshop on Job Scheduling Strategies for Parallel Processing **JSSPP 2005**, pages 173-193, in Conjunction with the ACM International Conference on Supercomputing **ICS 2005**, Cambridge, Massachusetts, June 2005
19. R. Sion, R. Natarajan, I. Narang, W. Li, T. Phan, "*XG: A Data-driven Computation Grid for Enterprise-Scale Mining*", International Conference on Database and Expert Systems Applications **DEXA 2005**, pages 828-837, Linz, Austria, September 2005 (acceptance rate: 23%, 92/390)

20. R. Sion, J. Tatemura, "*Dynamic Stochastic Models for Workflow Response Optimization*", IEEE International Conference on Web Services (Industry Track) **ICWS 2005**, pages 657-664, Orlando, Florida, July 2005 (acceptance rate: 18%, 37/199)
21. R. Sion, M. Atallah, S. Prabhakar, "*Resilient Rights Proofs for Sensor Streams*", Proceedings of the Conference on Very Large Databases **VLDB 2004**, pages 732-743, Toronto, Canada, August 2004 (acceptance rate: 16%, 81/504)
22. R. Sion, "*Proving Ownership over Categorical Data*", Proceedings of the IEEE Intl. Conference on Data Engineering **IEEE ICDE 2004**, pages 584-596, Boston, Massachusetts, March 2004 (acceptance rate: 14%, 63/441)
23. Y. Tu, S. Prabhakar, A. Elmagarmid, R. Sion, "*QuaSAQ: An Approach to Enabling End-to-End QoS for Multimedia Databases*", International Conference on Extending Database Technology **EDBT 2004**, pages 694-711, Heraklion, Crete, Greece, March 2004 (acceptance rate: 14%, 42/294)
24. R. Sion, M. Atallah, S. Prabhakar, "*wmdb.*: Rights Protection for Numeric Relational Data*", Proceedings of the IEEE Intl. Conference on Data Engineering (demo) **IEEE ICDE 2004**, pages 863-864, Boston, Massachusetts, March 2004
25. R. Natarajan, R. Sion, C. Apte, I. Narang, "*A Grid Based Approach for Enterprise-Scale Data Mining*", Data Mining and The Grid Workshop (**DM-Grid**), at the IEEE International Conference on Data Mining **ICDM 2004**, Brighton, United Kingdom, November 2004
26. R. Sion, "*Rights Protection beyond Multimedia*", Proceedings of the **EDBT/ICDE** PhD Workshop, pp. 109-118, Boston, March 2004 (acceptance rate: 25.5%, 22/86)
27. R. Sion, M. Atallah, "*Attacking Digital Watermarks*", Proceedings of the Symposium on Electronic Imaging (Security, Steganography, and Watermarking of Multimedia Contents) **SPIE 2004**, pages 848-858, San Jose, California, January 2004
28. R. Sion, M. Atallah, S. Prabhakar, "*On-the-fly Intrusion Detection for Web Portals*", IEEE Coding and Computing, **ITCC 2003**, pages 325-330, Las Vegas, Nevada, April 2003, **IEEE Computer Society Press**
29. R. Sion, M. Atallah, S. Prabhakar, "*Rights Protection for Relational Data*", Proceedings of the ACM Special Interest Group on Management of Data, **ACM SIGMOD 2003**, pages 98-109, San Diego, California, May 2003 (acceptance rate: 15%, 52/342)
30. R. Sion, M. Atallah, S. Prabhakar, "*Resilient Information Hiding for Abstract Semi-Structures*", Intl. Workshop on Digital Watermarking **IWDW 2003**, pages 143-158, Seoul, Korea, October 2003, and also in **Lecture Notes in Computer Sciences (LNCS)** 2939 Springer 2004
31. R. Sion, M. Atallah, S. Prabhakar, "*Power: A Metric for Evaluating Watermarking Algorithms*", IEEE Coding and Computing, **ITCC 2002**, Las Vegas, Nevada, April 2002, **IEEE Computer Society Press** PR01506, pp. 95-99
32. W. Li, W. Hsiung, D.V. Kalashnikov, R. Sion, O. Po, D. Agrawal, K. S. Candan, "*Issues and Evaluations of Caching Solutions for Web Application Acceleration*", Proceedings of the Conference on Very Large Databases **VLDB 2002**, pages 1019-1030, Hong Kong, China, August 2002 (acceptance rate: 17%). NEC CachePortal won the **Best of CeBIT award** in the **Enterprise Platform Software** category in May 2004.
33. R. Sion, M. Atallah, S. Prabhakar, "*On Watermarking Numeric Sets*", Intl. Workshop on Digital Watermarking **IWDW 2002**, Seoul, Korea, November 2002, and also in **Lecture Notes in Computer Science (LNCS)** 2613, pages 130-146, Springer-Verlag 2003

34. M. Atallah, V. Raskin, C. F. Hempelmann, M. Karahan, R. Sion, K. E. Triezenberg, U. Topkara, "*Natural Language Watermarking and Tamperproofing*", Information Hiding Workshop **IH 2002**, Noordwijkerhout, The Netherlands, October 2002, **Lecture Notes in Computer Science (LNCS)** 2578 Springer-Verlag 2003, pages 196-212, ISBN 3-540-00421-1 (acceptance rate: 34%, 27/78)
35. L. Boloni, K. Jun, D. Marinescu, K. Palacz, R. Sion, "*The BOND Agent System and Applications*", in **ASA/MA 2000**, Zurich, Switzerland, September 2000, and in "*Agent Systems, Mobile Agents, and Applications*", (D. Kotz and F. Mattern, editors), **Lecture Notes in Computer Science (LNCS)** 1882, pages 99-112, Springer-Verlag (acceptance rate: 18%, 20/107)

Selected Invited Papers, Refereed Posters and Panels

1. R. Hasan, R. Sion, M. Winslett, "*SPROV: A Secure Provenance Library*", **USENIX Annual Technical Conference 2009**, San Diego, California, June 2009
2. S. Lederer, J. Gao, R. Sion, "*Collaborative Location Certification for Sensor Networks*", invited paper at the **IEEE Sarnoff Symposium 2008**, Princeton, New Jersey, April 2008
3. Panel chair for the "*Cellular Network Security*" panel with Ron Buskey, John Larson, Simon Mizikovsky, Hao Chen, Thomas La Porta, Patrick Traynor at **USENIX Security 2007**, Boston, Massachusetts, August 2007
4. R. Sion, "*Private and Correct Networked Secure Searchable Storage*", **USENIX Security 2007**, Boston, Massachusetts, August 2007
5. R. Sion (panel chair), W. Gasarch, A. Kiayias, G. di Crescenzo, "*Achieving Practical Private Information Retrieval*", panel at **SecureComm 2006**, Baltimore, Maryland, August 2006
6. S. Lederer, J. Gao, R. Sion, "*Collaborative Location Certification for Sensor Nets*", **SecureComm 2006**, Baltimore, Maryland, August 2006
7. "*NS3: Networked Secure Searchable Storage*", **USENIX Security 2006**, Vancouver, British Columbia, August 2006
8. "*Personal DRM Systems in mobile environments*", **Symposium on Security & Privacy 2006**, Oakland, California, May 2006
9. "*Mechanisms for Secure Reputation*", **IEEE Symposium on Security & Privacy 2005**, Oakland, California, May 2005
10. "*Ensuring Fair Trust in Reputation Based Systems*", **USENIX Security 2004**, San Diego, California, August 2004
11. M. Atallah, S. Prabhakar, K. Frikken, R. Sion, "*Digital Rights Protection*", invited paper for the **IEEE Data Engineering Bulletin**, pages 19-25, 2004
12. "*Provable Access Accounting for Content Distribution Networks*", **ACSAC 2003**, Las Vegas, Nevada, December 2003
13. "*Intrusion Detection for Networked Hyper-Data*", **IFIP Communications and Multimedia 2002**, Portoroz, Slovenia, September 2002
14. R. Sion, L. Boloni, "*MicroServers*", **Congress on Evolutionary Computation, Session on Evolutionary Intelligent Agents, CEC 2000, IEEE Computer Society Press**, San Diego, California 2000
15. "*Network Distribution, Java and Multi-platform Networking*", **SunSITE iNET Workshop 1997**

16. *"Exceptions and Networking Support in Java"*, The First Java Workshop, P.U.B. Press 1996

Books and Translations

1. I. Athanasiu, D. Raiciu, R. Sion, I. Mocanu, *"Formal Languages. An Applications Guide"*, Matrix ROM Publishing, ISBN 973-685-407-8
2. A. S. Tanenbaum, *"Computer Systems Structure, fifth Edition, 1999"*, invited to participate in the first time English to Romanian translation, Agora Press, 1999
3. with D. Lada, *"Introduction to the Internet"*, course materials at the Romanian Chamber of Commerce and Industry, Business Information Center, 1st Edition 1995, reprinted 1996

Theses

1. R. Sion, *"Rights Assessment for Discrete Digital Data"*, PhD dissertation in Computer Science at Purdue University, August 2004
2. R. Sion, *"Talking Objects"*, MS thesis in Computer Science at the "Politehnica" University of Bucharest, May 1999

Magazine Publications

1. R. Hasan, R. Sion, M. Winslett, *"Secure Provenance: Protecting the Genealogy of Bits"*, ;login: The USENIX Magazine, June 2009
2. *"Electronic Commerce: JavaCard"*, PC-Report , Sep. 1999
3. *"The JINI vision"*, BYTE Romania, Nov. 1998
4. *"JINI, a new beginning"*, PC-Report, Oct. 1998
5. *"Internet Serving"*, PC-Report , Sep. 1998
6. *"Modern Portable Software Design"*, PC-Report, Aug. 1998
7. *"Introduction to VRML 2.0"*, PC-Report, May 1998

Selected Projects

- **Green Security:** Cost and Energy-Award Computation and Security Primitives (NSF)
- **Secure Provenance in Clouds and High Performance Computing Systems** (NSF)
- **Trusted Hardware Lab:** a central academic expertise and research knowledge repository on secure hardware, a nation-wide first of its kind. Provides direct hands-on or networked access to remote or visiting research community members. (NSF)
- **Privacy for Outsourcing:** robust, efficient and scalable content-search mechanisms for networked data access with data confidentiality, search pattern privacy and retrieval correctness. (NSF)
- **cDB:** Regulatory compliant data management (UIUC, Arizona, NSF)
- **SecureWORM:** Strong Regulatory-Compliant Data Management: regulatory-compliant data management suite with guaranteed data retention, secure deletion, quick lookup and compliant migration. (UIUC, IBM Research, NSF)
- **Personal DRM in Cellular Contexts:** DRM infrastructure for highly mobile environments and hardware. Users are able to assert and control dissemination rights of produced content as it traverses remote, possibly un-trusted consumer environments. (Motorola)

- **Sensor Networks Security:** (i) Secure Location Certification – location claims assurances for data flows in hostile environments, (ii) Stealthy Routing – mechanisms for routing with destination privacy, (iii) Trusted Hardware – TPMs on sensors.
- **Secure Data Outsourcing:** assurances of query execution, correctness and completeness for outsourced data frameworks. (IBM Research)
- **Secure Provenance Awareness:** security mechanisms for provenance tagging of inter and intra-platform information flows. (UIUC,NSF)
- **Relational Data Watermarking:** Information Hiding based digital rights protection framework for relational data. (Purdue)
- **Micro-payments, conditional E-Cash:** Electronic cash instruments allowing (micro) payments conditional on outcomes of future events. Applications: Wall-Street, the Next Generation Internet.

Acquired Funding

1. *NSF CAREER: Practical Privacy for Outsourcing Systems* (NSF, 2009-14)
2. *Supplement for Cyber-Security Collaboration with TU Darmstadt* (NSF IIS, 2009-12)
3. *NSF HEC: Secure Provenance in High End Computing Systems* (NSF CCF 0937833, lead-PI for Stony Brook, with Erez Zadok, collaboration with Marianne Winslett at UIUC and Patrick McDaniel at PSU, 2009-12)
4. *Microsoft Gift Grant* for organizing the Cloud Computing Security Workshop (2009)
5. *III-COR Medium: Collaborative Research: Achieving Compliant Databases* (NSF IIS 0803197, lead PI for Stony Brook, in collaboration with Marianne Winslett at UIUC and Rick Snodgrass at Arizona, 2008-12)
6. *Regulatory Compliant Document Management* (NYS Brooklyn Polytech CATT, 2008)
7. *Regulatory Compliant Document Management* (Xerox research gift, 2008-11)
8. *Acquisition of a Trusted Hardware Infrastructure for Secure Data Management* (NSF CRI CNS 0708025, sole PI, 2007-10)
9. *SecureWORM: Strong Regulatory-Compliant Storage* (NSF Cyber Trust CNS 0716608, lead PI for Stony Brook, collaboration with M. Winslett at UIUC, 2007-10)
10. *Center for Information Protection: A Multi-University Industry/University Collaborative Research Center* (NSF IIP 0733935, Co-PI with R. Sekar, E. Zadok, S. Stoller, and T. Chiueh, 2007-10)
11. *NS3: Networked Secure Searchable Storage* (NSF CNS 0627554, lead PI, with E. Zadok, 2006-09)
12. *Personal DRM and Content Security in Mobile Frameworks* (Motorola Research, 2006)
13. *A Plan for Developing an Industry/University Collaborative Research Center on Cyber Security* (NSF IUCRC EEC 0532030, Co-PI with R. Sekar, E. Zadok, S. Stoller, T. Chiueh, 2005-06)
14. *Secure Data Aggregation in Wireless Sensor Networks* (CEWIT Award, Co-PI with J. Gao, 2006-07)
15. *Cyber-Security: Tools and Techniques for Fail-Safe Systems* (NYSTAR, Co-PI with R. Sekar, T. Chiueh, S. Stoller, C.R. Ramakrishnan, and E. Zadok, 2005-06)

Research Community Service

1. **Financial Crypto 2010**, Program Chair
2. **IEEE Security and Privacy Symposium 2010**, PC Member
3. **IEEE ICDE 2010** Intl. Conf. on Data Engineering (Security Track), PC Member
4. **IEEE ICDCS 2010** Intl. Conf. on Distributed Computing Systems (Security Track), PC Member
5. Network and Distributed System Security Symposium **NDSS 2010**, PC Member
6. **ACNS 2010** Intl. Conf. on Applied Cryptography and Network Security, PC Member
7. USENIX Workshop on Green/Sustainable IT **Cool-IT 2010**, PC Member
8. International Conference on Trusted Computing **TRUST 2010**, PC Member
9. **ACM WPES 2009** Workshop at CCS, Session Chair
10. **IEEE Security and Privacy Symposium 2009**, Session Chair
11. **ACM CCS 2009** Computer and Communications Security Conference, Session Chair
12. Cloud Computing Security Workshop (**CCSW**) at **CCS 2009**, Steering and Program Chair
13. NSF: multiple panels on **Trustworthy Computing 2009**
14. **Invitational**: 2009 NSF/EC Intl. Workshop on Co-operation in Trustworthy Systems: Security, Privacy and Trust in Large-Scale Global Networks & Services as Part of the Future Internet.
15. **ACM CCS 2009** Computer and Communications Security Conference, PC Member
16. **IEEE Security and Privacy Symposium 2009**, PC Member
17. **ACM SIGMOD 2009**, Intl. Conf. of the SIG on Management of Data, PC Member
18. **Financial Crypto 2009**, PC Member, Session Chair
19. Network and Distributed System Security Symposium (**NDSS**) Steering Group 2009-2012
20. **ACM WPES 2009** Workshop at CCS, PC Member
21. NSF: panel in the **CyberTrust 2008** program
22. **Financial Crypto 2008**, General Chair
23. **ACM CCS 2008** Computer and Communications Security Conference, PC Member
24. **ACM SIGMOD 2008**, Intl. Conf. of the SIG on Management of Data, PC Member
25. **ICISS 2008**, Intl. Conf. on Information Systems Security, PC Member
26. **ACM DRM 2008** Workshop at CCS, PC Member
27. **ACM WPES 2008** Workshop at CCS, PC Member
28. **EDBT 2008 PhD Workshop**, PC Member
29. Reviewer for the **Estonian Science Foundation (ETF)**, 2008
30. Reviewer for the **Office of the Senior Science Advisor to the US Department of State** for the Moscow International ISTC and the Ukraine Science and Technology Centers 2007
31. **Invitational Workshop**: DOE Cyber Security Research Needs for Open Science 2007
32. **USENIX Security 2007**, Poster Chair
33. **North East DB/IR Day Fall 2007** at Stony Brook, Chair
34. NSF: multiple panels on **Cyber Trust** and **Information and Intelligent Systems 2007**
35. **ACM CCS 2007** Computer and Communications Security Conference, PC Member
36. **IEEE ICDE 2007** Intl. Conf. on Data Engineering (Security Track), PC Member
37. **IEEE ICDCS 2007** Intl. Conf. on Distributed Computing Systems (Security Track), PC Member
38. **WISA 2007** Workshop on Information Security Applications, PC Member
39. **Financial Crypto 2007**, PC Member, Session Chair
40. **ACNS 2007** Intl. Conf. on Applied Cryptography and Network Security, Session Chair

41. **USENIX Security 2006**, Poster Chair
42. **SKM 2006** Secure Knowledge Management Workshop, Publicity Chair, Session Chair
43. **ACM StorageSS** Storage Security and Survivability Workshop **2006** (at CCS), PC Member
44. **WISA 2006** Workshop on Information Security Applications, PC Member
45. **NPSec 2006** Workshop on Secure Network Protocols, PC Member
46. **WIDM 2006** Workshop on Web Information and Data Management at CIKM, PC Member
47. Reviewer for the Netherlands Council of Physical Sciences, Organization for Scientific Research (NWO) 2005

University Service

1. *Director* of CEWIT Cloud Computing Center (2009-)
2. *Chair* of Stony Brook Computer Science **Career Committee** (2006-09)
3. *Director* of NSAC Lab, Trusted Hardware Lab
4. *Organizer* of yearly CS **Career Day**, Career Web Portal (2006-07)
5. Stony Brook Computer Science **Honors Committee** (2006-07)
6. Stony Brook Computer Science **Graduate Admission Committee** (2005-09)
7. Participated on the Stony Brook Graduate School Student Interviewing Team for Asia (2008)
8. Stony Brook Computer Science **Graduate Evaluation Committee** (2006)
9. Stony Brook Computer Science **Qualifying Examinations Committee** (2005,2007)
10. **Research Proficiency Examination Committee**: Amit Sastukar (2005), Joy Dutta (2005), Gopalan Sivathanu (2005), Sol Lederer (2006, chair), Rick Spillane (2008)
11. *Supervised under-represented minority undergraduates* in the **SUNY Alliance for Graduate Education and the Professorate (AGEP)** Summer Research Institute (SRI) in 2005
12. **Master Thesis Committee**: V. Katta (chair,2006), S. Bhatt (2007), A. Anand (2009)
13. **Preliminary Examination Committee**: Katia Hristova (2007), Weiqin Sun (2007)

Additional External Peer-Review Service

ACSAC (Annual Computer Security Applications Conference), **IEEE TDSC** (Transactions on Dependable and Secure Computing), Cluster SEC, **ACM TISSEC** (Transactions on Information and Systems Security), **ACM SACMAT** (Symposium on Access Control Models and Technologies), **IEEE S&P** (IEEE Security and Privacy), **VLDB Journal** (Very Large Databases Endowment), **ACM TODS** (Transactions on Database Systems), **TKDE** (Transactions on Knowledge and Data Engineering), **EuroPAR** (International Conference on Parallel and Distributed Computing), **ACM SAC** (ACM Symposium on Applied Computing), **HIPC** (High Performance Computing), **IEEE IPSJ** (IEEE Symposium on Applications and the Internet), **IS** (Journal of Information Sciences), **SE&P** (Software Engineering and Practice), **IEEE SP** (Transactions on Signal Processing), **JDL** (Journal of Digital Libraries), **DAPD** (Journal on Distributed and Parallel Databases), **MMSJ** (Multimedia Systems Journal), **JIS** (EURASIP Journal on Information Security), **IS** (Elsevier Journal on Information Systems), **IEEE TC** (Transactions on Computers), **ACM TWEB** (Transactions on the Web), **JOMS** (Journal of Medical Systems), **ACM CSUR** (Computing Surveys), **IEEE/ACM TON** (Transactions on Networking)

Students

▪ Current

- Peter Williams (PhD, expected graduation: May 2011)
- Yao Chen (PhD, expected graduation: May 2011)
- Rajarshi Agnihotri (PhD, expected graduation: December 2012)
- Miroslava Sotakova (postdoctoral researcher, since Fall 2009)
- Minnu Tom (MS, since Spring 2009)
- Rimmi Devgan (MS, since Spring 2009)
- Ajay Venkateshan (MS, since Spring 2009)
- Pranavarun Jadhav (MS, Spring 2009)

▪ Alumni

- Ragib Hasan **at UIUC** (co-advised PhD, graduated in September 2009, main advisor: Marianne Winslett at UIUC, postdoc at Johns Hopkins)
- Smitha Thomas (graduated MS, Spring 2008-Fall 2008, NYC Bloomberg)
- Ashish Anand (PhD, graduated with MS, Fall 2007 – Spring 2009)
- Feng Song (PhD, worked with me in Fall 2008)
- Isaac Chanin (PhD, worked with me in Summer 2008)
- Siddharth Bhatt (graduated MS, graduated May 2007)
- Sumeet Bajaj (MS, graduated Dec 2006, Citigroup, SAP Research)
- Berook Alemayehu (minority undergrad from UMBC, lab intern in Summer 2005)
- Peter Spano (undergraduate, graduated in Fall 2007)

Teaching (at Stony Brook, initial enrollment shown)

1. **CSE508** (Graduate Network Security): F08 (43), F07 (43), F06 (60), F05 (48-55)
2. **CSE509** (Graduate System Security): S05 (33-35)
3. **CSE408** (Network Security): F08 (15), F07 (19)
4. **CSE409** (System Security): S08 (12), S07 (20), S06 (12), S05 (11)
5. **CSE690** (Advanced Data Security): F09 (45, co-listed at UIUC)
6. **CSE690** (Secure Data Management): S08 (25, co-listed at UIUC)
7. **CSE590** (Storage Security, *with E. Zadok*): S07 (15-20)
8. **CSE659** (Security Seminar): F06 (5, 30 on mailing list)
9. **CSE659** (Wireless Security Seminar): S06 (8, 26+ on mailing list)
10. **CSE684** (Special Topics: Foundations of Cryptography): F05 (5-9)
11. **CSE661** (Data Privacy Seminar): S05 (4-12)

Selected Work Experience

- Assistant Professor, *Stony Brook University* (since Jan 2005)
- Visiting Researcher, *IBM Almaden Research Center* (Mar-Dec 2004)
- Research Assistant, *Purdue Computer Science and CERIAS* (Aug 2001 – Aug 2004)
- Research Scientist, *NEC Labs* (San Jose, intern, May-Aug 2001, Jun 2002, May-Aug 2003)
- Software Engineer, *IBM* (Pittsburgh, intern, May-Aug 2000)
- Research Assistant, *Purdue Computer Science*, BOND Agent System Lab (Spring 2000)
- Teaching Assistant, *Purdue Computer Science* (Fall 1999, 2000)

- Teaching Assistant, *Politehnica U. of Bucharest Computer Science* (1997-99)
- Research Assistant, *Politehnica U. of Bucharest Digital Signal Processing Lab* (1994-97)

Awards

- National Science Foundation CAREER Award 2009-2014
- Xerox University Affairs Research Award 2008-2011 (under 10% awarded)
- Nominated for the 2004 ACM Dissertation Award by Purdue University
- Recipient of the 2004 CERIAS Diamond Award for Academic Excellence

Contact

Address: Computer Sciences, Stony Brook University, Stony Brook, NY 11794-4400

Email: *sion@cs.stonybrook.edu*

Web: *http://www.cs.stonybrook.edu/~sion*

Network Security and Applied Cryptography (NSAC) Laboratory

Web: *http://crypto.cs.stonybrook.edu*

Trusted Hardware Laboratory

Web: *http://thl.cs.stonybrook.edu*

September 2009