

Curriculum Vitae – Indrajit Ray (updated January 27, 2006)

Assistant Professor
Computer Science Department
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Professional Preparation

Ph.D. School of Information Technology, George Mason University, Fairfax, Virginia. Summer 1997.

Title An Advanced Transaction Model with Application to Multilevel Secure Systems

Advisor Professor Sushil Jajodia

M.E. in Computer Science and Engineering, Jadavpur University, Calcutta, India. May 1991

B.E. in Computer Science and Technology, Bengal Engineering College, University of Calcutta, Calcutta, India. June 1988

Awards

Member, Upsilon Pi Epsilon

National Scholar, State of West Bengal, India

Scholar, Association for Improvement of Mathematics Teaching, India

Employment History

Assistant Professor, CS Department, Colorado State University, August 2001 till present

Visiting Faculty, Air Force Research Laboratory, Rome, NY, Summer 2002

Assistant Professor, CIS Department, University of Michigan-Dearborn, September 1997 till July 2001.

Research Assistant, Center for Secure Information Systems, George Mason University, Fairfax, VA. June 1994 till July 1997.

Teaching Assistant, ISSE Department, George Mason University, Fairfax, VA. August 1993 till May 1994.

Programmer, Public Service Commission, State of Florida, Tallahassee, FL. August 1992 till August 1993.

Teaching Assistant, Computer Science Department, Florida State University, Tallahassee, FL. August 1991 till August 1992.

Systems Engineer, ORG Systems, Calcutta, India. March 1991 till August 1991.

Customer Engineer, ORG Systems, Calcutta, India. June 1988 till August 1989.

Research Interests

Computer Security, Digital Forensics, Computer Networks, E-Commerce Protocols, Transaction Processing, Database Systems

**Professional
Activities**

Chair IFIP TC-11 WG 11.9 Digital Forensics, 2004–2007.

External Examiner for M.S. Department of Computer Science, University of Pretoria

Track Chair Systems Security Track, 2nd International Conference on Distributed Computing and Internet Technology, Bhubaneswar, India, December 2005.

General Chair Seventeenth IFIP TC-11 WG 11.3 Working Conference on Data and Applications Security, Estes Park, Colorado, August 2003.

Program Committee Member

1. Twenty First IFIP International Information Security Conference, Karstad, Sweden, May 2006.
2. First International Conference on Information Systems Security, Kolkata, India, December 2005.
3. First International Workshop on Information Assurance in Distributed Systems, Nanjing, China, November 2005.
4. Third International Conference on Formal Aspects of Security and Trust, Newcastle, UK, July 2005.
5. Fourth International Workshop on Security in Information Systems, Paphos, Cyprus, May 2005
6. Twentieth IEEE International Conference on Advanced Information Networking and Applications
7. Fifth Annual Information Security South Africa Conference, Johannesburg, South Africa, July 2006
8. Twentieth IFIP International Information Security Conference, Chiba, Japan, May 2005.
9. Nineteenth IFIP TC-11 WG 11.3 Working Conference on Data and Applications Security, Connecticut, USA, August 2005.
10. First International Conference on Distributed Computing and Internet Technology, Bhubaneswar, India, december 2004.
11. Workshop on Secure Knowledge Management, SUNY Buffalo, NY, September 2004.
12. Seventh Workshop on Mobility on Databases and Distributed Systems, Zaragosa, Spain, September 2004
13. Nineteenth IFIP International Information Security Conference, Toulouse, August 2004.
14. Eighteenth IFIP TC-11 WG 11.3 Working Conference on Data and Applications Security, Sitges, Spain, July 2004.
15. Third International Multiconference in Computer Science and Engineering, Las Vegas, June 2003.

Publicity Chair

1. Seventh IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control in Information Systems, Fairfax, Virginia, November 2004.
2. Fourteenth IEEE International Symposium on Software Reliability Engineering, Denver, Colorado, November 2003.

**Review
Activities****Grants**

1. Panelist, National Science Foundation, April 2004
2. Panelist, National Science Foundation, April 2003
3. Panelist, National Science Foundation, June 2002
4. Panelist, National Science Foundation, April 2000

Journals

1. The Computer Journal
2. OMEGA - The International Journal of Management Science

3. Knowledge Engineering Review
4. Communications of the ACM
5. IEEE Transactions on Dependable and Secure Computing
6. IEEE Transactions on Knowledge and Data Engineering
7. Information Sciences
8. VLDB Journal
9. ACM Transactions on Internet Computing
10. ACM Transactions on Information and Systems Security
11. Distributed and Parallel Databases: An International Journal
12. IEEE Transactions on Computers
13. Journal of Computer Security
14. Journal of Digital Library
15. IEEE Internet Magazine
16. IEEE Multimedia

Sponsored Research

External Grants

1. Indrajit Ray, "Towards a Proactive Approach to Defense Against and Recovery from Cyber Attacks", Air Force Research Laboratory, subcontracted through SUNY Buffalo, 2003-2004, \$36,907
2. Indrajit Ray and Indrakshi Ray, "A Framework for Secure and Survivable Transaction Processing", National Science Foundation Data and Applications Security program, 2003-2006, \$152,228
3. Indrajit Ray and Indrakshi Ray, "A Model of Trust for Developing Trustworthy Systems from Untrustworthy Actors", Air Force Reserach Laboratory and Federal Aviation Administration, 2003-2005, \$318,498
4. Indrajit Ray, Indrakshi Ray, Kiumi Akingbehin, Bruce Maxim and Qiang Zhu, "Acquisition of Instruments for Research in Computer and Network Security", National Science Foundation MRI program, 1999-2001, \$157,937.

Internal Grants

1. Indrakshi Ray and Indrajit Ray, "Designing Fail-Soft E-commerce Protocols Using Formal Methods", University of Michigan-Dearborn, Summer Research Grant, 2000, \$5,000
2. Indrakshi Ray, Indrajit Ray and Bruce Maxim, "Design and Verification of Secure E-commerce Protocols", University of Michigan-Dearborn, Faculty Research Grant, 1999 \$1,700
3. Bruce Maxim, Ken Modesitt, Indrakshi Ray and Indrajit Ray, "High Resolution Portable Multimedia", University of Michigan-Dearborn, Chancellor's Technology Grant, 1998, \$1,000

Publication

Refereed Journal Publications

1. Indrajit Ray and Hongjun Zhang, "Experience Developing a Secure and Optimistic Fair-exchange E-Commerce Protocol using Common Off-the-shelf Components", *Journal of Electronic Commerce Research and Application* (Accepted for publication)
2. Indrajit Ray, Eunjong Kim and Dan Massey, "A Framework to Facilitate Forensic Investigation for Falsely Advertised BGP Routes," *Journal of Information Systems Security* (Accepted for publication)
3. Indrajit Ray and Sudip Chakraborty, "Allowing Finer Control Over Personal Privacy on the Internet Using Trust as a Benchmark" *VLDB Journal* (Under review)
4. Indrajit Ray and Nayot Poolsappasit, "Modeling User Level Security Risks in Networked Environments Using Attack Trees", *IEE Proceedings on Information Security* (Under review)
5. Indrakshi Ray, Indrajit Ray and Sudip Chakraborty, "An Interoperable Context Sensitive Model of Trust", *Journal of Intelligent Information Systems* (Under review)
6. Omar Alahzmi, Yashwant Malaiya and Indrajit Ray, "Measuring Analyzing and Predicting Security Vulnerabilities in Software Systems" *Computers and Security* (Under review)
7. Indrajit Ray and Sudip Chakraborty, "A New Model of Trust for Developing Trustworthy Systems from Semi- or Un-trustworthy Components", *Information Sciences* (Under review).
8. Indrajit Ray and Nayot Poolsapassit, "A Quantitative Framework for Predicting Malicious Attacks from Authorized Insiders", *Computer Journal* (Under review).
9. Indrajit Ray, Indrakshi Ray and Narasimhamurthi Natarajan, "An Anonymous and Failure Resilient Fair-Exchange E-Commerce Protocol", *Decision Support Systems*, Vol 39(3), April 2005 Elsevier Publisher.
10. Indrajit Ray and Sonja Tideman, "A Secure TCP Connection Migration Protocol to Enable the Survivability of Client-Server Applications Under Malicious Attack", *Journal of Network and Systems Management*, Vol 12(2), June 2004. Kluwer Academic Publishers.
11. Indrajit Ray, Luigi Mancini, Sushil Jajodia and Elisa Bertino, "ASEP: A Secure and Flexible Commit Protocol for MLS Distributed Database Systems", *IEEE Transactions on Knowledge and Data Engineering*, Vol 12(6) November/December 2000, pp 880-899.
12. Luigi Mancini, Indrajit Ray, Sushil Jajodia and Elisa Bertino, "Flexible Transaction Dependencies in Database Systems", *Distributed and Parallel Databases, An International Journal*, Vol 8(4) October 2000, pp 399-446.
13. Elisa Bertino, Sushil Jajodia, Luigi Mancini and Indrajit Ray "Advanced Transaction Processing in Multilevel Secure File Stores", *IEEE Transactions on Knowledge and Data Engineering*, Vol 10(1) January/February 1998, pp 120-135.

Refereed Conference Publications

1. Indrajit Ray, Sudip Chakraborty and Indrakshi Ray, "VTrust: A Trust Management System Based on a Vector Model of Trust", *Proceedings of the 1st International Conference on Information Systems Security*, Kolkata, India, December 2005.
2. Indrajit Ray and Nayot Poolsapassit, "Using Attack Trees to Identify Malicious Attacks from Authorized Insiders," *Proceedings of the Tenth European Symposium on Research in Computer Security*, Milan, Italy, September 2005. (Acceptance ratio 26/158)
3. Dan Matheson, Indrakshi Ray, Indrajit Ray and Siv Hilde Houmb, "Building Security Requirement Patterns for Increased Effectiveness Early in the Development Process," *Proceedings of the Symposium on Requirements Engineering for Information Security*, Paris, France, August 2005.
4. Indrajit Ray, Eunjong Kim, Ross McConnell and Dan Massey, "Reliably, Securely and Efficiently Distributing Electronic Content Using Multicasting," *Proceedings of the Sixth International Conference on Electronic Commerce and Web Technologies*, Copenhagen, Denmark, August 2005. (Acceptance ratio 39/113)

5. Omar Alhazmi, Yashwant Malaiya and Indrajit Ray, "Security Vulnerabilities in Software Systems: A Quantitative Perspective," Proceedings of the Nineteenth IFIP TC-11 WG 11.3 Working Conference on Data and Applications Security, Storrs, CT, August 2005.
6. Eunjong Kim, Dan Massey and Indrajit Ray, "Global Internet Routing Forensics: Validation of BGP Paths Using ICMP Traceback," Proceedings of the First IFIP TC-11 WG 11.9 Working Conference on Digital Forensics, Orlando, FL, February 2005.
7. Vamsi Kambhampati, Indrajit Ray and Eunjong Kim, "A Secure Checkpointing Protocol for Survivable Server Design", in R.K. Ghosh and H. Mohanty editors, Proceedings of the 1st International Conference on Distributed Computing and Internet Technology, December 22-24, 2004, Bhubaneshwar, India, LNCS 3347, Springer. (Acceptance ratio 25%)
8. Indrajit Ray and Sudip Chakraborty, "A Vector Model of Trust for Developing Trustworthy Systems", in P. Samarati et al. editors, Computer Security- ESORICS 2004, Proceedings of the 9th European Symposium on Research in Computer Security, September 13-15, 2004, Sophia Antipolis, France. LNCS 3193, Springer. (Acceptance ratio 27/159.)
9. Indrajit Ray and Eunjong Kim, "Collective Signature for Efficient Authentication of XML Documents", in Y. Deswarte et al. editors, Security and Protection in Information Processing Systems, Proceedings of the 19th IFIP TC 11 International Information Security Conference, August 22-25, 2004, Toulouse, France, Kuwer Academic Publisher. (Acceptance ratio, 35/159).
10. Indrajit Ray and Mike Geisterfer, "Towards a Privacy Preserving E-Commerce Protocol", Proceedings of the 5th International Conference on Electronic Commerce and Web Technologies, Zaragoza, Spain, Aug-Sep, 2004. (Acceptance ratio 24%).
11. Indrajit Ray and Tomas Hajek, "Securely Distributing Centralized Multimedia Content Utilizing Peer-to-Peer Cooperation", in C. Farkas and P. Samarati editors, Research Directions in data and Applications Security XVIII, Proceedings of the 18th IFIP TC-11 WG 11.3 Working Conference on Data and Applications Security, July 25-28, 2004, Sitges, Spain. Kluwer Academic Publishers.
12. Indrajit Ray and Sonja Tideman, "Secure TCP Connection Migration for Survivability", Proceedings of the IEEE/IEE International Conference on Networking, Guadeloupe, French Caribbean, March 1-4, 2004.
13. Jung Min Park, Indrajit Ray, Edwin Chong and Howard Siegel, "A Certified E-mail Protocol Suitable for Mobile Environment", Proceedings of IEEE GLOBECOM 2003 Communications Security Symposium, San Francisco, CA, December 1-5, 2003
14. Indrajit Ray and Junxing Zhang, "A Secure Multi-Sited Version Control System", Proceedings of the 6th IFIP TC 11 WG 11.5 Working Conference on Integrity and Internal Control in Information Systems, Lausanne, Switzerland, November 13-14, 2003.
15. Jung Min Park, Edwin Chong, Howard Siegel and Indrajit Ray, "Constructing Fair-Exchange Protocols for E-commerce Via Distributed Computation of RSA Signatures", Proceedings of 22nd ACM Symposium on Principles of Distributed Computing, Boston, MA, July 13-16, 2003.
16. Indrajit Ray and Indrakshi Ray, "Anonymous and Secure Multicast Subscription", Proceedings of the Sixteenth Annual IFIP WG 11.3 Working Conference on Data and Applications Security, Cambridge, U.K, July 2002. Also published in Ehud Gudes and Sujeet Sheno, editors, Research Directions in Data and Applications Security, Kluwer Academic Publishers, 2003.
17. Indrakshi Ray, Indrajit Ray and Natarajan Narasimhamurthi, "A Cryptographic Solution to Implement Access Control in a Hierarchy and More", Proceedings of the Seventh ACM Symposium on Access Control Models and Technologies, Monterey, CA, June 2002.
18. Indrakshi Ray and Indrajit Ray, "Using Compatible Keys for Secure Multicasting in E-Commerce", Proceedings of the Second International Workshop on Internet Computing and E-Commerce, Fort Lauderdale, FL, April 2002.

19. Indrakshi Ray and Indrajit Ray, "An Anonymous Fair-Exchange E-Commerce Protocol", Proceedings of the First International Workshop on Internet Computing and E-Commerce, San Francisco, CA, April 2001.
20. Indrakshi Ray and Indrajit Ray, "Detecting termination of Active Database Rules Using Symbolic Model Checking", Proceedings of the Fifth East-European Conference on Advances in Databases and Information Systems, Vilnius, Lithuania, September 2001. Published as Lecture Notes in Computer Science, Vol. 2151, 2001, editors A. Caplinskas and J. Eder, Springer-Verlag, pages 266-289
21. Indrajit Ray, Indrakshi Ray and Natarajan Narasimhamurthi "An Anonymous Electronic Voting Protocol for Voting over the Internet", Proceedings of the Third International Workshop on Advanced Issues of E-Commerce and Web-based Information Systems, San Jose, CA, June 2001.
22. Indrakshi Ray and Indrajit Ray, "An Optimistic Fair-exchange E-commerce Protocol with Automated Dispute Resolution", Proceedings of the First International Conference on Electronic Commerce and Web Technologies, Greenwich, UK, September 2000. Published as Lecture Notes in Computer Science, Vol. 1875, 2000, Springer-Verlag, pp 84–93.
23. Indrajit Ray, Indrakshi Ray and Natarajan Narasimhamurthi, "A Fair Exchange E-Commerce Protocol with Automated Dispute Resolution", Proceedings of the Fourteenth Annual IFIP WG 11.3 Working Conference on Database Security, Schoorl, The Netherlands, August 2000. Published also in B. Thuraisingham et al editors, Database Security XIV: Status and Prospects, Chapman & Hall, 2001.
24. Indrajit Ray, Bruce Maxim, Kiumi Akingbehin, Indrakshi Ray and Qiang Zhu, "Design of a Center for Research in Information Systems Security", Proceedings of the 18th Annual AoM/IAoM International Conference, San Antonio, TX, August 2000, pp 131–136.
25. Indrakshi Ray and Indrajit Ray, "Failure Analysis of an E-commerce Protocol Using Model Checking", Proceedings of the Second International Workshop on Advanced Issues of E-Commerce and Web-based Information Systems, Milpitas, CA, June 2000, pp 176–183.
26. Sushil Jajodia, Ravi Mukkamala and Indrajit Ray, "A Two-Tier Coarse Indexing Scheme for MLS Database Systems", Proceedings of the 11th IFIP WG 11.3 Working Conference on Database Security, Lake Tahoe, CA, 1997. Published also in T. Y. Lin and Shelly Qian editors, Database Security XI: Status and Prospects, Chapman & Hall, 1998, pp 199–218.
27. Sushil Jajodia, Luigi Mancini and Indrajit Ray "A Secure Locking Protocol for Multilevel Database Management Systems", Proceedings of the 10th IFIP WG 11.3 Working Conference on Database Security, Como Italy. Published also in P. Samarati and R. Sandhu editors, Database Security X: Status and Prospects, Chapman & Hall, 1997, pp 177–194.
28. Luigi Mancini and Indrajit Ray "Secure Transaction Processing in MLS Databases with Two Version of Data", Proceedings of the 1996 European Symposium On Research In Computer Security, Rome, Italy, September 1996, published as E. Bertino et al. editors, Lecture Notes in Computer Science, Vol. 1146, 1996, Springer-Verlag, pp 304–323.
29. Indrajit Ray, Elisa Bertino, Sushil Jajodia and Luigi Mancini "An Advanced Commit Protocol for MLS Distributed Database Systems", Proceedings of the 3rd. ACM Conference on Computer and Communications Security, New Delhi, India, March 1996, pp 119–128.

Other Refereed Publications

1. Indrajit Ray and Indrakshi Ray, "Fair Exchange in E-Commerce", ACM SIGEcomm Exchange, Vol 3(2), Spring 2002, pp 9–17.

Chapters in Edited Volumes

1. Indrajit Ray, "Electronic Payment Systems," Hossein Bidgolli, editor, Handbook of Information Security, Wiley Publishers, 2005 (Peer-reviewed)
2. Luigi Mancini, Indrajit Ray, Sushil Jajodia and Elisa Bertino, "Flexible Commit Protocols for Advanced Transaction Processing", Sushil Jajodia and Larry Kerschberg editors, Advanced Transaction Models and Architectures, Kluwer Academic Publishers, 1997, pp 91–124. (Peer-reviewed)

**Books
Edited**

1. Sabrina De Capitani di Vimercati, Indrakshi Ray and Indrajit Ray editors, "Data and Applications Security XVII: Status and Prospects", Kluwer Academic Publishers. Expected publication date July 2004.

**Other
Publications**

1. Indrajit Ray, "A Survey of Trust Models", Air Force Research Laboratory Technical Report.
2. Joseph Giordano and Indrajit Ray, "Information Assurance Strategic Plan", Air Force Research Laboratory, Defensive Information Warfare Group Internal Document.
3. Indrajit Ray, "Towards a Model of Trust for Designing Trustworthy Systems from Untrustworthy Components", Air Force Research Laboratory Technical Report.
4. Sambhu Upadhyaya and Indrajit Ray, "Owner Intent Encapsulation and Proactive Recovery", AFRL/IFGB Internal document 2002.
5. Elisa Bertino, Sushil Jajodia, Luigi Mancini and Indrajit Ray "Multiform Transaction for Workflow Management", Reference Paper, NSF Workshop on Workflow and Process Automation in Information Systems, Athens, Georgia, May 1996. (available in electronic form at <http://optimus.cs.uga.edu:5080/activities/NSF-workflow/>)

Teaching, Advising and University Service

- Courses Taught**
1. Computer Science I (CIS 150, undergraduate, UM-Dearborn)
 2. Computer Science II (CIS 200, undergraduate, UM-Dearborn)
 3. Assembly Language Programming (CIS 250, undergraduate, UM-Dearborn)
 4. Data Structures and Algorithm Analysis (CIS 350, undergraduate, UM-Dearborn)
 5. Foundations of Computer Science (CS 301, undergraduate, Colorado State University)
 6. Database Management System (CIS 421, undergraduate, UM-Dearborn; CS 430, undergraduate, Colorado State University)
 7. Database Management System (CIS 556, graduate, UM-Dearborn)
 8. Computer Networks (CIS 427, undergraduate, UM-Dearborn; CS 457, undergraduate, Colorado State University)
 9. Computer Security (CIS 544, graduate, UM-Dearborn; CS 556, graduate, Colorado State University)
 10. Electronic Commerce (CIS 560, graduate, UM-Dearborn)
 11. Advanced Topics in Computer Security (CS 681, graduate, Colorado State University)
- Courses Developed**
1. Computer Security (CIS 544 and CS 556, graduate level)
 2. Electronic Commerce (CIS 560, graduate level)
 3. Advanced Topics in Computer Security (CS 681, graduate level)
- Graduate Advisees**
1. Eunjong Kim (M.S. expected completion date Fall 2005)
 2. Mariana Muller, M.S., Colorado State University, Fall 2004
 3. Thomas Hajek, M.S., Colorado State University, Summer 2004
 4. Junxing Zhang, M.S., Colorado State University, Summer 2004
 5. Nayot Poolsapassit (co-advisor), M.S. Colorado State University, Summer 2004
 6. Raheleh Dilmaghani (co-advisor), M.S. Colorado State University, Fall 2003
 7. Sonja Tideman, M.S. Colorado State University, Spring 2003
 8. Hongjun Zhang, M.S. Colorado State University, Fall 2002
 9. Sriram Ramaswamy, M.S. UM-Dearborn, Fall 2000
- Current Graduate Students**
1. Sudip Chakraborty (Ph.D., expected completion date Fall 2007)
 2. Nayot Poolsapassit (Ph.D., expected completion date Fall 2007)
 3. John Tesch (Ph.D., expected completion date Fall 2007)
 4. Omar Alhazmi (Ph.D. co-advisor, expected completion date Spring 2006)
 5. Saurabh Barve (M.S. expected completion date Fall 2005)
- Department and University Service**
1. AY 05-06, Member, Awards Committee, CS department, Colorado State University
 2. AY 04-05, Member, Facilities Committee, CS department, Colorado State University
 3. AY 02-04, Member, Graduate Committee, CS department, Colorado State University
 4. AY 01-02, Member, Facilities Committee, CS department, Colorado State University
 5. AY 00-01, Member, Faculty Search Committee, CIS department UM-Dearborn
 6. AY 97-01, Member, Graduate Committee, CIS department, UM-Dearborn
- Professional Membership**
1. Member ACM, ACM SIGSAC, IEEE, IFIP WG 11.3, IFIP WG 11.9

Professional Presentations

1. "An Advanced Commit Protocol for MLS Distributed Database Systems", ACM Conference on Computer and Communications Security, New Delhi, India, March 1996.
2. "A Secure Locking Protocol for Multilevel Database Management Systems", Como, Italy, July 1996.
3. "Advanced Transaction Processing in Multilevel Secure File Stores", University of Michigan-Dearborn, February, 1997.
4. "ASEP: A Secure and Flexible Commit Protocol for MLS Distributed Database Systems", Georgia State University, November 2000.
5. "ASEP: A Secure and Flexible Commit Protocol for MLS Distributed Database Systems", Colorado State University, December 2000.
6. "ASEP: A Secure and Flexible Commit Protocol for MLS Distributed Database Systems", University of Texas at Arlington, January 2001.
7. "ASEP: A Secure and Flexible Commit Protocol for MLS Distributed Database Systems", Washington State University, February 2001.
8. "ASEP: A Secure and Flexible Commit Protocol for MLS Distributed Database Systems", University of Idaho, February 2001.
9. "A Cryptographic Solution to Implement Access Control in a Hierarchy and More" ACM Symposium on Access Control Models and Techniques", Monterey, CA, June 2002
10. "Anonymous and Secure Multicast Subscription", IFIP TC-11 WG 11.3 Working Conference on Data and Applications Security, Cambridge, U.K., July 2002.
11. "Trustworthy Systems from Untrustworthy Components with Untrustworthy Actors", Federal Aviation Administration Research and Development Workshop, McLean, VA, May 2003.
12. "A Secure Multi-sited Version Control System", IFIP TC-11 WG 11.5 Working Conference on Integrity and Internal Control in Information Systems, Lausanne, Switzerland, November 2003.
13. "A Model of Trust for Developing Trustworthy Systems from Untrustworthy Components with Untrustworthy Actors", Air Force Research Laboratory, Rome, NY, January 2004.
14. "Secure TCP Connection Migration for Survivability", 3rd International Conference on Networking, Guadeloupe, French Carribean, March 2004.
15. "Ensuring Authenticity of Large Amounts of Data", Invited talk, Computer Forensics Educators Workshop, National Center for Forensic Science, Orlando, FL, March 2004.
16. "An Anonymous Fair Exchange E-Commerce Protocol", Invited talk, Mathematics Department, University of Colorado-Denver, April 2004.
17. "Email Tracing" Tutorial, Denver Regional Computer Crime and Digital Evidence Training. Workshop Organized by the Joint Council on Information Age Crime, Denver, June 2004.
18. "IPv6 and VPN" Tutorial, Denver Regional Computer Crime and Digital Evidence Training. Workshop Organized by the Joint Council on Information Age Crime, Denver, June 2004.
19. "Securely Distributing Centralized Multimedia Content Utilizing Peer-to-Peer Cooperation", 18th IFIP TC 11 Wg 11.3 Working Conference on Data and Applications Security, Sitges, Spain, July 2004.
20. "Collective Signature for Efficient Authentication of XML Documents" 19th IFIP TC 11 International Information Security Conference, Toulouse, France, August 2004.
21. "A vector Model of Trust for Developing Trustworthy Systems", 9th European Symposium on Research in Computer Security, Sophia Antipolis, France, September 2004.

22. "A Secure Checkpointing Protocol for Survivable Server Design", 1st International Conference on Distributed Computing and Internet Technology, Bhubaneswar, India, December 2004.
23. "Reliably, Securely and Efficiently Distributing Electronic Content Using Multicasting," 6th International Conference on E-Commerce and Web Technologies, Copenhagen, Denmark, August 2005.
24. "Using Attack Tree to Identify Malicious Attacks from Authorized Insiders," 10th European Symposium on Research in Computer Security, Milan, Italy, September 2005.
25. "VTrust: A Trust Management System Based on a Vector Model of Trust," 1st International Conference on Information Systems Security, Kolkata, India, December 2005.
26. "Digital Forensics - Cyber Sleuthing Solves the Case," Tutorial Presentation, 1st International Conference on Information Systems Security, Kolkata, India, December 2005.