

# Mahesh V. Tripunitara

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- Research Interests** Information assurance and security
- Education** **Purdue University**, West Lafayette, IN, USA  
Ph.D., Computer Science, August 2003 – December 2005
- Dissertation: A Theory Based on Security Analysis for Comparing the Expressive Power of Access Control Models
  - Committee: Mike Atallah, Elisa Bertino, Ninghui Li (chair), Gene Spafford
- M.S., Computer Science, August 1993 – May 1995
- Dalhousie University**, Halifax, NS, Canada  
B.Sc.(Hons.), Computer Science, August 1989 – May 1993
- Journal Publications** Li, N., **Tripunitara, M. V.** and Wang, Q. 2008. Resiliency Policies in Access Control. Conditionally accepted to the *ACM Transactions on Information and Systems Security (TISSEC)*.
- Jha, S., Li, N., **Tripunitara, M. V.**, Wang, Q. and Winsborough, W. 2008. Toward Formal Verification of Role-Based Access Control Policies. Accepted to appear in the *IEEE Transactions on Dependable and Secure Computing (TDSC)*.
- Tripunitara, M. V.** and Li, N. 2007. A Theory for Comparing the Expressive Power of Access Control Models. *Journal of Computer Security (JCS)* 15, 2, 231-272.
- Li, N., **Tripunitara, M. V.** and Bizri, Z. 2007. On Mutually Exclusive Roles and Separation-of-Duty. *ACM Transactions on Information and Systems Security (TISSEC)* 10, 2.
- Li, N. and **Tripunitara, M. V.** 2006. Security Analysis in Role-Based Access Control. *ACM Transactions on Information and Systems Security (TISSEC)* 9, 4, 391-420.
- Under Review:**
- Tripunitara, M. V.** and Li, N. The Foundational Work of Harrison-Ruzzo-Ullman Revisited. Under Review, *Information Processing Letters (IPL)*.
- Technical Magazine Articles** **Tripunitara, M. V.** and Messerges, T. 2007. Resolving the Micropayment Problem. *IEEE Computer* 40, 2, 104-106.
- Tripunitara, M. V. and Spafford, E. 2001. Connectivity Provisioning with Security Attributes. *Software Focus* 2, 3, 112-116.
- Conference Publications** Kuhlman, D., Moriarty, R., Braskich, T., Emeott, S. and **Tripunitara, M. V.** 2008. A Correctness Proof of a Mesh Security Architecture. To appear in the *IEEE Computer Security Foundations Symposium (CSF'08)*.
- Li, N., **Tripunitara, M. V.** and Wang, Q. 2006. Resiliency Policies in Access Control. *ACM Conference on Computer and Communications Security (CCS'06)*, 113-123.

Li, N. and **Tripunitara, M. V.** 2005. On Safety in Discretionary Access Control. *IEEE Symposium on Security and Privacy*, 96-109.

**Tripunitara, M. V.** and Li, N. 2004. Comparing the Expressive Power of Access Control Models. *ACM Conference on Computer and Communications Security (CCS'04)*, 62-71.

Li, N., Bizri, Z. and **Tripunitara, M. V.** 2004. On Mutually-Exclusive Roles and Separation of Duty. *ACM Conference on Computer and Communications Security (CCS'04)*, 42-51.

Li, N. and **Tripunitara, M. V.** 2004. Security Analysis in Role-Based Access Control. *ACM Symposium on Access Control, Models and Technologies (SACMAT)*, 126-135.

**Tripunitara, M. V.** and Datta, P. 1999. A Middleware Approach to Asynchronous and Backward-Compatible Detection and Prevention of ARP Cache Poisoning. *Annual Computer Security Applications Conference (ACSAC'99)*, 303-309.

Krsul, I., Spafford, E. and **Tripunitara, M. V.** 1998. Computer Vulnerability Analysis. *National Information Systems Security Conference (NISSC)*.

**Patent  
Activity**

**Tripunitara, M. V.** and Datta, P. 2004. A Middleware Approach to Asynchronous and Backward-Compatible Detection and Prevention of ARP Cache Poisoning. US Patent Number 6,771,649.

**Tripunitara, M. V.** and Vogler, D. 2007. A Payments-Driven Dynamic Firewall. (Filed)

**Tripunitara, M. V.** and Messerges, T. 2007. A Space- and Time-Efficient Micropayment Scheme. (Filed)

**Tripunitara, M. V.** and Vogler, D. 2008. Access Control Based on Personal Device Asserted Identity in Universal Plug-n-Play (UPnP). (Filed)

**Research and  
Teaching  
Experience**

**Motorola Labs**, Schaumburg, IL, USA

Principal Research Staff

December 2005 – Present

Member of the Security and Privacy Technology lab. Research in Identity Management, Micropayments, protocol analysis and security in Voice-over-IP (VoIP). Development of patentable intellectual property, writing internal technical reports, development of demonstration systems and publishing external papers.

**DeVry Institute of Technology**, Fremont, CA, USA

Instructor

Fall 2002

Designed and taught a course in TCP/IP based networking and network security.

**Computer Science Department, Purdue University**, West Lafayette, IN, USA

Instructor

Summer 1995

Designed and taught a course in introductory programming with C++.

Teaching Assistant

August 1993 – May 1995

Assisted the instructor in undergraduate courses on operating systems and theory of computation, and a graduate course on numerical analysis. Helped prepare homework assignments, and graded homework assignments and exams.

**Computer Science Department, Indiana-Purdue University**, Fort Wayne, IN, USA

Visiting Assistant Professor

August 1995 – May 1996

Designed and taught undergraduate courses in numerical analysis, operating systems and introductory programming and data structures.

**Industry  
Experience**

**CPlane, Inc.**, Sunnyvale, CA, USA.

Technical Group Manager

Jan. 2002 – July 2003

Technical Lead

Dec. 1999 – Jan. 2001

Lead a team of up to 15 software engineers in building a traffic engineering product (for the core) and a VPN activation product (for the edge) for MPLS networks. The team delivered the first product for the company and also lead its first deployment in a service provider network that consisted of hundreds of routers and switches.

**AT&T Labs, IP Technology Group**, San Jose, CA, USA

Member of Technical Staff

Jan. 1999 – Dec. 1999

As a member of the security technology and proxy architecture group, built security components for a managed IP network being built by the group.

**Ernst and Young, LLP**, Indianapolis, IN, USA

Consultant

May 1998 – Dec. 1998

As a member of the information assurance practice, conducted security audits and penetration tests for various enterprises in the insurance, healthcare and transportation industries.

**Digital Technology, Inc.** (now part of Agilent), Burlington, MA, USA

Software Engineer

June 1996 – April 1998

Designed and built a cost-effective protocol analyzer and monitor for Asynchronous Transfer Mode (ATM) networks.

**Awards**

Diamond Award for dissertation work, CERIAS, Purdue University, May 2006.

Symantec Fellowship, August 2004 – December 2005.

Inducted into the Upsilon Pi Epsilon (UPE) honor society, May 1995.

**Service**

Program Committee member: 2006 Workshop on Models for Trust on the Web (MTW'06), 2005 Semantic Web and Policy Workshop.

Publications Chair: Network and Distributed Systems Security Symposium (NDSS), 2001-2003.

Reviewer: Developments in Language Theory (2008), Journal of Computer Security (2005), Computer Networks Journal (2007), ACM CCS (2004-2007), ACM SACMAT (2004, 2005), SecureComm (2005), POLICY Workshop (2005).

**Citizenship**

US citizen

**References**

Mike Atallah

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Elisa Bertino

Professor, Computer Science

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Somesh Jha

Associate Professor, Computer Science

University of Wisconsin

Ninghui Li (thesis advisor)

Associate Professor

Computer Science

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Gene Spafford  
Professor, Computer Science and Director, CERIAS  
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