CURRICULUM VITAE

Giovanni Vigna

Associate Professor
Department of Computer Science
University of California, Santa Barbara

Contact Information

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Education

Ph.D.	Computer Engineering, Politecnico di Milano, Italy, January 1998 Dissertation Title: *Mobile Code Technologies, Paradigms, and Applications*
M.S. (cum laude)	Computer Engineering, Politecnico di Milano, Italy, July 1994 Dissertation Title: *The Design and Implementation of SPADE-1 2.0, A Process-Centered Software Engineering Environment*

Research Interests

Vulnerability Analysis
Web Security
Intrusion detection
Mobile code security
Secure mobile computing

Research Experience

7/04 – Present:	*Associate Professor* at the Department of Computer Science, University of California Santa Barbara.
7/00 – Present:	*Assistant Professor* at the Department of Computer Science, University of California Santa Barbara.
10/97 – 6/00:	*Post-Doctoral Researcher* at the Department of Computer Science, University of California Santa Barbara. Research on intrusion detection and network security.
11/94 – 11/97:	*PhD student* at Politecnico di Milano, Italy. Research on mobile code, software architectures, models for network security, and WWW software engineering.
9/94 – 6/95:	*Researcher* at CEFRIEL, a research center in Milano, Italy, sponsored by a number of national and international companies. Research on software process, software architectures, and integration of security technologies in wide-area network services.
9/93 – 7/94:	*Graduate Intern* at CEFRIEL. Research on software development process and process-centered software engineering environments. *Master in Information Technology, awarded with outstanding student scholarship*.

Awards and Honors

2007, "Most Influencial Paper of ICSE '97" Award, International Conference on Software Engineering (ICSE), Minneapolis, MN.

2007, Keynote Lecture, Yardi Developers Conference, Santa Barbara, CA.

2007, Invited Panelist, Network and Distributed Systems Security Symposium, San Diego, CA.

2006, Keynote Lecture, Network Protocol Security Workshop, Santa Barbara, CA.

2005, Winner of the "Capture The Flag," competition at DefCon, Las Vegas, NV.

2005, Best Paper Award, AusCERT Asia Pacific Information Technology Security Conference, Gold Coast, Australia.

2004, UCSB Academic Senate Distinguished Teaching Award.

2004, College of Engineering Student Council Outstanding Professor Award.

2004, Invited panelist, USENIX Security Conference, San Diego, CA.

2004, Invited panelist, IEEE International Conference on Mobile Data Management, Berkeley, CA.

2003, National Science Foundation CAREER Award.

2001, UC Regents Junior Faculty Fellowship Award.

2001, Keynote address at *Workshop su Sistemi Distribuiti: Architetture, Algoritmi, Linguaggi (WSDAAL '01)*, Como, Italy.

2001, Invited speaker, Workshop on Foundations For Secure/Survivable Systems and Networks, Tokyo Institute of Technology, Tokyo, Japan.

1998, Best Paper Award, Annual Computer Security Applications Conference, Scottsdale, AZ.

Publications

Journal Papers

1. P. Klinkoff, E. Kirda, C. Kruegel, and G. Vigna, "Extending .NET Security to Unmanaged Code ," in *International Journal of Information Security*, 2007.

2. A. Arnes, P. Haas, G. Vigna, and R. Kemmerer, "Using a Virtual Security Testbed for Digital Forensic Reconstruction," in *Journal in Computer Virology*, Springer, 2007.

3. D. Mutz, F. Valeur, C. Kruegel, and G. Vigna, "Anomalous System Call Detection," in *ACM Transactions on Information and System Security*, ACM Press, 2006.

4. R. Kemmerer and G. Vigna, "Hi-DRA: Intrusion Detection for Internet Security," in *IEEE Proceedings*, vol. 93, no. 10, pp. 1848–1857, October 2005.

5. C. Kruegel, G. Vigna, and W. Robertson, "A Multi-model Approach to the Detection of Web-based Attacks," in *Computer Networks*, vol. 48, no. 5, pp. 717–738, August 2005.

6. F. Valeur, G. Vigna, C. Kruegel and R. Kemmerer, "A Comprehensive Approach to Intrusion Detection Alert Correlation," in *IEEE Transactions on Dependable and Secure Computing*, vol. 1, no. 3, pp. 146–169, July-September 2004.

7. G. Vigna, "Teaching Hands-On Network Security: Testbeds and Live Exercises," in *Journal of Information Warfare*, vol. 3, issue 2, pp. 8–25, 2003.

8. R.A. Kemmerer and G. Vigna, "Intrusion Detection: A Brief History and Overview," in *Security and Privacy*, supplement to IEEE Computer, pp. 27–30, April 2002. Also translated to Russian and printed in the Russian computer science journal *Open Systems* (`http://www.osp.ru`), November 2002.

9. S.T. Eckmann, G. Vigna, and R.A. Kemmerer, "STATL: An Attack Language for State-based Intrusion Detection," *Journal of Computer Security*, vol. 10, no. 1/2, pp. 71–104, IOS Press, 2002.

10. G. Vigna and R.A. Kemmerer, "NetSTAT: A Network-based Intrusion Detection System," *Journal of Computer Security*, vol. 7, no. 1, pp. 37–71, IOS Press, 1999.

11. A. Fuggetta, G.P. Picco, and G. Vigna, "Understanding Code Mobility," in *IEEE Transactions on Software Engineering*, vol. 24, no. 5, pp. 342–361, May 1998.

Conference Papers with Proceedings (refereed)

1. A. Carzaniga, G.P. Picco, and G. Vigna, "Is Code Still Moving Around? Looking Back at a Decade of Code Mobility," in *Proceedings of the International Conference on Software Engineering (ICSE)*, May 2007.

2. P. Vogt, F. Nentwich, N. Jovanovic, E. Kirda, C. Kruegel, and G. Vigna, "Cross-Site Scripting Prevention with Dynamic Data Tainting and Static Analysis," in *Proceeding of the Network and Distributed System Security Symposium (NDSS)*, San Diego, CA, February 2007.

3. C. Mulliner and G. Vigna, "Vulnerability Analysis of MMS User Agents," in *Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, Miami, Florida, December 2006.

4. M. Cova, V. Felmetsger, G. Banks, and G. Vigna, "Static Detection of Vulnerabilities in x86 Executables," in *Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, Miami, Florida, December 2006.

5. A. Arnes, F. Valeur, G. Vigna, and R. Kemmerer, "Using Hidden Markov Models to Evaluate the Risks of Intrusions: System Architecture and Model Validation," in *Proceedings of the International Symposium on Recent Advances in Intrusion Detection (RAID)*, Hamburg, Germany, September 2006.

6. E. Kirda, C. Kruegel, G. Banks, G. Vigna, and R. Kemmerer, "Behavior-based Spyware Detection," in *Proceedings of the USENIX Security Symposium*, Vancouver, Canada, August 2006.

7. C. Mulliner, G. Vigna, D. Dagon, and W. Lee, "Using Labeling to Prevent Cross-Service Attacks Against Smart Phones," in *Proceedings of the Conference on Detection of Intrusions and Malware and Vulnerability Assessment (DIMVA)*, Berlin, Germany, July 2006.

8. A. Arnes, P. Haas, G. Vigna, and R. Kemmerer, "Digital Forensic Reconstruction and the Virtual Security Testbed ViSe," in *Proceedings of the Conference on Detection of Intrusions and Malware and Vulnerability Assessment (DIMVA)*, Berlin, Germany, July 2006.

9. F. Valeur, G. Vigna, C. Kruegel, and E. Kirda, "An Anomaly-driven Reverse Proxy for Web Applications," in *Proceedings of the ACM Symposium on Applied Computing (SAC)*, Dijon, France, April 2006.

10. E. Kirda, C. Kruegel, G. Vigna, and N. Jovanovic, "Noxes: A Client-Side Solution for Mitigating Cross-Site Scripting Attacks," in *Proceedings of the ACM Symposium on Applied Computing (SAC)*, Dijon, France, April 2006.

11. W. Robertson, G. Vigna, C. Kruegel, and R. Kemmerer, "Using Generalization and Characterization Techniques in the Anomaly-based Detection of Web Attacks," in *Proceeding of the Network and Distributed System Security (NDSS) Symposium*, San Diego, CA, February 2006.

12. C. Kruegel, E. Kirda, D. Mutz, W. Robertson, and G. Vigna, "Polymorphic Worm Detection Using Structural Information of Executables," in *Proceedings of the International Symposium on Recent Advances in Intrusion Detection* (RAID), LNCS, Springer-Verlag, Seattle, WA, September 2005.

13. C. Kruegel, E. Kirda, D. Mutz, W. Robertson, and G. Vigna, "Automating Mimicry Attacks Using Static Binary Analysis," in *Proceedings of the USENIX Security Symposium*, Baltimore, MD, August 2005.

14. F. Valeur, D. Mutz, and G. Vigna, "A Learning-Based Approach to the Detection of SQL Attacks." in *Proceedings of the Conference on Detection of Intrusions and Malware & Vulnerability Assessment* (DIMVA), Vienna, Austria, July 2005.

15. O. Hallaraker and G. Vigna, "Detecting Malicious JavaScript Code in Mozilla," in *Proceedings of the IEEE International Conference on Engineering of Complex Computer Systems* (ICECCS), pp. 85–94, Shanghai, China, June 2005.

16. V. Felmetsger and G. Vigna, "Exploiting OS-level Mechanisms to Implement Mobile Code Security," in
Proceedings of the IEEE International Conference on Engineering of Complex Computer Systems (ICECCS), pp. 234–243 Shanghai, China, June 2005.

17. C. Kruegel, D. Mutz, W. Robertson, G. Vigna, and R. Kemmerer, "Reverse Engineering of Network Signatures," in *Proceedings of the AusCERT Asia Pacific Information Technology Security Conference*, Gold Coast, Australia, May 2005 (Best Paper Award).

18. G. Vigna, S. Gwalani, K. Srinivasan, E. Belding-Royer, and R. Kemmerer, "An Intrusion Detection Tool for AODV-based Ad Hoc Wireless Networks," in *Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, pp. 16–27, Tucson, AZ, December 2004.

19. J. Zhou and G. Vigna, "Detecting Attacks That Exploit Application-Logic Errors Through Application-Level Auditing," in *Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, pp. 168–178, Tucson, AZ, December 2004.

20. C. Kruegel, W. Robertson, and G. Vigna, "Detecting Kernel-Level Rootkits Through Binary Analysis," in *Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, pp. 91–100, Tucson, AZ, December 2004.

21. C. Kruegel, W. Robertson, and G. Vigna, "Using Alert Verification to Identify Successful Intrusion Attempts," in *Practice in Information Processing and Communication (PIK)*, vol. 27, no. 4, pp. 219–227, October/December 2004.

22. G. Vigna, W. Robertson, and D. Balzarotti "Testing Network-based Intrusion Detection Signatures Using Mutant Exploits," in *Proceedings of the ACM Conference on Computer and Communication Security (ACM CCS)*, pp. 21–30, Washington, DC, October 2004.

23. C. Kruegel, W. Robertson, F. Valeur, and G. Vigna, "Static Disassembly of Obfuscated Binaries," in *Proceedings of USENIX Security 2004*, pp. 255–270, San Diego, CA, August 2004.

24. G. Vigna, "Mobile Agents: Ten Reasons For Failure," in *Proceedings of the IEEE International Conference on Mobile Data Management*, pp. 298–299, Invited Position Paper, Berkeley, CA, January 2004.

25. D. Mutz, G. Vigna, and R.A. Kemmerer, "An Experience Developing an IDS Stimulator for the Black-Box Testing of Network Intrusion Detection Systems," in *Proceedings of the Annual Computer Security Applications Conference (ACSAC 2003)*, pp. 374–383, Las Vegas, NV, December 2003.

26. G. Vigna, W. Robertson, V. Kher, and R.A. Kemmerer, "A Stateful Intrusion Detection System for World-Wide Web Servers," in *Proceedings of the Annual Computer Security Applications Conference (ACSAC 2003)*, pp. 34–43, Las Vegas, NV, December 2003.

27. C. Kruegel and G. Vigna, "Anomaly Detection of Web-based Attacks," in *Proceedings of the* 10^{th} *ACM Conference on Computer and Communication Security (CCS '03)*, pp. 251–261, ACM Press, Washington, DC, October 2003.

28. C. Kruegel, D. Mutz, W. Robertson, F. Valeur, and G. Vigna, "On the Detection of Anomalous System Call Arguments," in *Proceedings of the* 8^{th} *European Symposium on Research in Computer Security (ESORICS '03)*, pp. 326–343, Lecture Notes in Computer Science, Springer-Verlag, Gjovik, Norway, October 2003.

29. G. Vigna, "A Topological Characterization of TCP/IP Security," in *Proceedings of the* 12^{th} *International Symposium of Formal Methods Europe (FME '03)*, Lecture Notes in Computer Science, no. 2805, pp. 914–940, Springer-Verlag, Pisa, Italy, September 2003.

30. G. Vigna, F. Valeur, and R.A. Kemmerer, "Designing and Implementing A Family of Intrusion Detection Systems," in *Proceedings of the European Software Engineering Conference and ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2003)*, Helsinki, Finland, September 2003.

31. S. Soman, C. Krintz, and G. Vigna, "Detecting Malicious Java Code Using Virtual Machine Auditing," in *Proceedings of the* 12^{th} *USENIX Security Symposium*, pp. 153–167, Washington DC, August 2003.

32. G. Vigna, "Teaching Network Security Through Live Exercises," in *Proceedings of the Third Annual World Conference on Information Security Education (WISE 3)*, Kluwer Academic Publishers, pp. 3–18, Monterey, CA, June 2003.

33. G. Vigna, F. Valeur, J. Zhou, and R.A. Kemmerer, "Composable Tools For Network Discovery and Security Analysis," in *Proceedings of the* 18^{th} *Annual Computer Security Applications Conference (ACSAC '02)*, IEEE Press, pp. 14–24, Las Vegas, NV, December 2002.

34. G. Vigna and A. Mitchell, "Mnemosyne: Designing and Implementing Network Short-Term Memory," in *Proceedings of the IEEE International Conference on Engineering of Complex Computer Systems (ICECCS '02)*, IEEE Press, pp. 91–100, Greenbelt, MD, December 2002.

35. V. Mittal and G. Vigna, "Sensor-Based Intrusion Detection for Intra-Domain Distance-Vector Routing," in *Proceedings of the ACM Conference on Computer and Communication Security (CCS'02)*, pp. 127–137, ACM Press, Washington, DC, November 2002.

36. G. Vigna, B. Cassell, and D. Fayram, "An Intrusion Detection System for Aglets," in *Proceedings of the* 6^{th} *International Conference on Mobile Agents (MA '02)*, Lecture Notes in Computer Science, Springer-Verlag, vol. 2535, pp. 64–77, Barcelona, Spain, October 2002.

37. C. Kruegel, F. Valeur, G. Vigna, and R.A. Kemmerer, "Stateful Intrusion Detection for High-Speed Networks," in *Proceedings of the IEEE Symposium on Security and Privacy*, pp. 285–293, IEEE Press, Oakland, CA, May 2002.

38. S. Fischmeister, G. Vigna, and R.A. Kemmerer, "Evaluating the Security Of Three Java-Based Mobile Agent Systems," in *Proceedings of the 5^{th} International Conference on Mobile Agents (MA '01)*, Atlanta, GA, Lecture Notes in Computer Science, Springer-Verlag, vol.2240, pp. 31–41, December 2001.

39. G. Vigna, P. Blix, and R.A. Kemmerer, "Designing a Web of Highly-Configurable Intrusion Detection Sensors," in *Proceedings of the 4^{th} International Symposium on Recent Advances in Intrusion Detection (RAID 2001)*, Lecture Notes in Computer Science, Springer-Verlag, vol. 2212, pp. 69–84, Davis, CA, October 2001.

40. G. Vigna, S.T. Eckmann, and R.A. Kemmerer, "The STAT Tool Suite," in *Proceedings of DISCEX 2000*, IEEE Press, pp. 46–55, Hilton Head, SC, January 2000.

41. G. Vigna and R.A. Kemmerer, "NetSTAT: A Network-based Intrusion Detection Approach," in *Proceedings of the 14^{th} Annual Computer Security Applications Conference (ACSAC '98)*, IEEE Press, pp. 25–34, Scottsdale, AZ, December 1998. (Best Paper Award)

42. G. Vigna and L. Bonomi, "A Model-Centered Electronic Commerce Middleware," in *Proceedings of the International IFIP Working Conference on Trends in Electronic Commerce (TrEC '98)*, Hamburg, Germany, June 1998.

43. A. Carzaniga, G.P. Picco, and G. Vigna, "Designing Distributed Applications with Mobile Code Paradigms," in *Proceedings of the 19^{th} International Conference on Software Engineering (ICSE '97)*, ACM Press, pp. 22–32, Boston, MA, April 1997.

44. A. Carzaniga, G.P. Picco, and G. Vigna, "Designing and Implementing Inter-Client Communication in the O_2 Database Management System," in *Proceedings of the International Symposium on Object-Oriented Methodologies and Systems (ISOOMS'94)*, Lecture Notes in Computer Science, Springer-Verlag, vol. 858, pp. 53–64, Palermo, Italy, September 1994.

Workshop Papers with Proceedings (refereed)

1. A. Orso, G. Vigna, and M.J. Harrold, "MASSA: Mobile Agents Security through Static Analysis," in *Proceedings of the ICSE Workshop on Software Engineering and Mobility (WSEM 2001)*, Toronto, Canada, April 2001.

2. A.L.M. dos Santos, G. Vigna, R.A. Kemmerer, "Security Testing of the Online Banking Service of a Large International Bank," in *Proceedings of the 1^{st} ACM Workshop on Security and Privacy in E-Commerce (WSPEC 2000)*, pp. 1–13, Athens, Greece, November 2000.

3. S.T. Eckmann, G. Vigna, and R.A. Kemmerer, "STATL: An Attack Language for State-based Intrusion Detection," in *Proceedings of the 1^{st} ACM Workshop on Intrusion Detection Systems*, Athens, Greece, November 2000.

4. G. Vigna, S.T. Eckmann, and R.A. Kemmerer, "Attack Languages," in *Proceedings of the* 3^{rd} *IEEE Information Survivability Workshop (ISW 2000)*, pp. 163–166, Boston, MA, October 2000.

5. F. Coda, C. Ghezzi, G. Vigna, and F. Garzotto, "Towards a Software Engineering Approach to Web Site Development," in *Proceedings of the* 9^{th} *International Workshop on Software Specification and Design (IWSSD '98)*, IEEE Press, pp. 8–17, Ise-Shima, Japan, April 1998.

6. G. Vigna, "Protecting Mobile Agents through Tracing," in *Proceedings of the Third Workshop on Mobile Object Systems*, in conjunction with the 11^{th} European Conference on Object-Oriented Programming (ECOOP '97), Online proceedings, Jyväskylä, Finland, June 1997.

7. C. Ghezzi and G. Vigna, "Mobile Code Paradigms and Technologies: A Case Study," in *Proceeding of the* 1^{st} *International Workshop on Mobile Agents (MA '97)*, Lecture Notes in Computer Science, Springer-Verlag, vol. 1219, pp. 39–49, Berlin, Germany, April 1997.

8. G. Cugola, C. Ghezzi, G.P. Picco, and G. Vigna, "A Characterization of Mobility and State Distribution in Mobile Code Languages," in *Proceedings of the First Workshop on Mobile Object Systems*, included in M. Mühlaüser, Ed., "Special Issues in Object-Oriented Programming: Workshop Reader of the 10^{th} European Conference on Object-Oriented Programming (ECOOP '96)", dpunkt, pp. 309–318, Linz, Austria, July 1996.

9. S. Bandinelli, A. Carzaniga, and G. Vigna, "Archetype: Addressing Configuration Issues in Software Architectures," in *Proceedings of the First International Workshop on Architectures for Software Systems*, in conjunction with the 17^{th} International Conference on Software Engineering (ICSE '95), pp. 9–12, Seattle, WA, April 1995.

Books, Proceedings Edited, and Book Chapters

1. M.Cova, V. Felmetsger, and G. Vigna, "Vulnerability Analysis of Web Applications." in *Testing and Analysis of Web Services*, L. Baresiand E. Dinitto Eds., 2007.

2. G. Vigna, "Static Disassembly and Code Analysis." in *Malware Detection*, M. Christodorescu, S. Jha, D. Maughan, D. Song, and C. Wang Eds., 2007.

3. G. Vigna and C. Kruegel, "Host-based Intrusion Detection Systems," in *The Handbook of Information Security*, Volume III, John Wiley & Sons, December 2005.

4. C. Kruegel, F. Valeur, and G. Vigna, "Intrusion Detection and Correlation: Challenges and Solutions," Springer, Advances in Information Security Series, ISBN 0-387-23398-9, 2005.

5. R.A. Kemmerer and G. Vigna, "Sensor Families for Intrusion Detection Infrastructures," book chapter in *Managing Cyber Threats: Issues, Approaches and Challenges*, Springer, Massive Computing Series, vol. 5, January 2005.

6. G. Vigna, E. Jonsson, and C. Kruegel, Eds., "Proceedings of the 6^{th} International Symposium on Recent Advances in Intrusion Detection (RAID)," Lecture Notes in Computer Science, Springer-Verlag, vol. 2820, Pittsburgh, PA, September 2003.

7. A. Wespi, G. Vigna, and L. Deri, Eds., "Proceedings of the 5^{th} International Symposium on Recent Advances in Intrusion Detection (RAID 2002)," Lecture Notes in Computer Science, Springer-Verlag, vol. 2516, Zurich, Switzerland, October 2002.

8. A.L.M. dos Santos, G. Vigna, and R.A. Kemmerer, "Security Testing of an Online Banking Service," book chapter in A. Ghosh, Ed., *E-Commerce Security and Privacy*, pp. 3–15, Advances in Information Security, Kluwer Academic Publishers, 2001.

9. G. Vigna, Ed., "Mobile Agents and Security," Lecture Notes in Computer Science, State-of-the-Art Survey Series, Springer-Verlag, vol. 1419, June 1998.

10. G. Vigna, "Cryptographic Traces for Mobile Agents," book chapter in *Mobile Agents and Security*, Lecture Notes in Computer Science, State-of-the-Art Survey Series, Springer-Verlag, vol. 1419, pp. 137–153, June 1998.

11. C. Ghezzi and G. Vigna, "Software Engineering Issues in Network Computing," book chapter in M. Broy and B. Rumpe, Eds., *Requirements Targeting Software and System Engineering*, Lecture Notes in Computer Science, Springer-Verlag, vol. 1526, pp. 101–123, August 1998.

12. G. Cugola, C. Ghezzi, G.P. Picco, and G. Vigna, "Analyzing Mobile Code Languages," book chapter in J. Vitek and C. Tschudin, Eds., *Mobile Object Systems: Towards the Programmable Internet*, Lecture Notes in Computer Science, State-of-the-Art Survey Series, Springer-Verlag, vol. 1222, pp. 93–111, April 1997.

Invited Colloquia, Panels, and Tutorials

"Read Teaming and Hacking Games," *Invited Panelist*, Network and Distributed Systems Security Symposium, San Diego, CA, February 2007.

"Web Application Security: Keeping Up with the Wily Hackers," *Keynote Lecture*, Yardi Developers Conference, Santa Barbara, CA, February 2007.

"Defining a Security Grand Challenge: Lessons Learned from (participating in/running) Hacking Competitions," *Invited Presentation*, CyberTrust PI Meeting, Atlanta, GA, January 2007.

"Testing Network-based Intrusion Detection Systems: Issues and Approaches," *Invited Keynote Lecture*, Network Protocol Security Workshop, Santa Barbara, CA, November 2006.

"Bringing the Road to the Rubber: Grand Challenges and Hacking Competitions", *Invited Presentation*, NSF CyberTrust meeting, Pittsburgh, PA, October 2006.

"Internet Security: History, Challenges, and Opportunities," *Invited Presentation*, CEFRIEL Research Center, Milan, Italy, June 2006.

"Web-based Attacks," *Invited Tutorial*, Scuola Superiore Sant'Anna, Pisa, Italy, May 2006.

"Testing Intrusion Detection Systems Using Mutant Exploits," *Invited Presentation*, State Univeristy of Milan, Italy, April 2006.

"Testing Network-based Intrusion Detection Signatures Using Mutant Exploits," *Invited Presentation*, Southern California Security and Cryptography Workshop, UC Irvine, CA, September 2005.

"Detecting Malicious Software Using Binary Analysis," *Invited Presentation*, ARO-DHS Workshop on Malware Detection, Pittsburgh, PA, August 2005.

"Network Security: People, Hackers, and Software," *Invited Presentation*, Strategic Healthcare Programs, Santa Barbara, CA, June 2005.

"Testing Network-based Intrusion Detection Signatures Using Mutant Exploits," *Invited Presentation*, Symantec, San Jose, CA, April 2005.

"Network Security: History, Challenges, and Opportunities," *Invited Keynote*, Central Coast MIT Enterprise Forum, Santa Barbara, CA, February 2005.

"Testing Network-based Intrusion Detection Signatures Using Mutant Exploits," *Invited Presentation*, Microsoft Research, Redmond, WA, February 2005.

"A Multi-Model Approach to the Detection of Web-based Attacks," *Invited Presentation*, Politecnico di Milano, Italy, December 2004.

"Capture The Flag," *Invited Panelist*, USENIX Security 2004, San Diego, CA, August 2004.

"A Multi-Model Approach to the Detection of Web-based Attacks," *Invited Presentation*, George Mason University, Washington, DC, April 2004.

Invited Panelist, "Mobile Agents: Ten Reasons for Failure," IEEE MDM '04, Berkeley, CA, January 2004.

"Designing a Web of Highly-Configurable Intrusion Detection Sensors," *Invited Presentation*, Naval Post-Graduate School, Monterey, CA, August 2003.

"Designing and Implementing Intrusion Detection Sensors," *Invited Presentation*, HRL Labs, Santa Monica, CA, June 2003.

"Designing a Web of Highly-Configurable Intrusion Detection Sensors," *Invited Presentation*, University of Colorado, Boulder, CO, March 2003.

"Highly Customizable Intrusion Detection," *Invited Presentation*, Air Force Rome Lab, Rome, NY, August 2001.

"Intrusion Detection, Distributed Systems, and Mobile Code", *Invited Keynote Address*, "Workshop su Sistemi Distribuiti: Architetture, Algoritmi, Linguaggi" (WSDAAL 2001), Como, Italy, September 2001.

"Highly configurable Webs of Sensors," *Invited Presentation*, Politecnico di Milano, Italy, June 2001.

"STAT: An Extensible Intrusion Detection Framework," *Invited Speaker*, Workshop on Foundations For Secure/Survivable Systems and Networks, Tokyo Institute of Technology, Tokyo, Japan, January 2001.

"STAT: An Extensible Intrusion Detection Framework," *Invited Presentation*, Department of Computer Science, Dartmouth College, October 2000.

"Understanding Code Mobility," *Tutorial*, ECOOP '99, Lisbon, Portugal, June 1999.

"Understanding Code Mobility," *Tutorial*, Autonomous Agents '99, Seattle, May 1999.

"NetSTAT: A Network-based Intrusion Detection Approach," *Invited Presentation*, Department of Computer Science, University of California in Santa Barbara, February 1999.

"Internet Programming," *Tutorial*, Telecom Italia, June 1998.

"Mobile Code Paradigms, Technologies, and Applications," *Invited Presentation*, Ecole Politechnique Federale de Lausanne (EPFL), July 1997.

"Protecting Mobile Agents Through Cryptographic Traces," *Invited Presentation*, Ecole Politechnique Federale de Lausanne (EPFL), July 1997.

"Security of Mobile Code Systems," *Invited Presentation*, European Center for Atomic Energy (EURATOM), June 1997.

"TCP/IP Security," *Three-day tutorial*, given five times during '96–'99 to representatives of Italian banks, law enforcement agencies, military, and public administration.

Professional Activities and Service

Society Memberships

Member, Association for Computing Machinery (ACM)

Member, Institute of Electrical and Electronics Engineers (IEEE)

Member, IEEE Computer Society

Member, USENIX Association

Editorship

Member of the Editorial Board of the ACM Transactions on Information and System Security, 2007.

Member of the Editorial Board of the IEEE Transactions on Dependable and Secure Computing, 2005-Present.

Member of the Editorial Board of the Journal of Computer Security, 2004-Present.

Member of the Editorial Board of IEEE Security & Privacy Magazine, 2003-Present.

Co-Editor of the *Proceedings of the* 6^{th} *International Symposium on Recent Advances in Intrusion Detection (RAID)*, Lecture Notes in Computer Science, Springer-Verlag, Pittsburgh, PA, September 2003.

Co-Editor of the *Proceedings of the* 5^{th} *International Symposium on Recent Advances in Intrusion Detection (RAID)*, Lecture Notes in Computer Science, Springer-Verlag, Zurich, Switzerland, October 2002.

Guest Editorial Board member for the Informatik Forum Journal, special issue on Mobile Agents, July 2001.

Editor of *Mobile Agents and Security*, State-of-the-Art Survey Series, Lecture Notes in Computer Science, Springer-Verlag, June 1998.

Conference Committee Activities

Chair and Co-chair

Junior Program Chair of the Network and Distributed Systems Security Symposium (NDSS), 2008.

Senior Program Chair of the International Symposium on Recent Advances in Intrusion Detection (RAID), 2003.

Junior Program Chair of the International Symposium on Recent Advances in Intrusion Detection (RAID), 2002.

Publicity Chair of the International Symposium on Recent Advances in Intrusion Detection (RAID), 2001.

Technical Program Committees

Network and Distributed Systems Security Symposium (NDSS), 2007.

Annual Computer Security Applications Conference (ACSAC), 2007.

International Conference on Detection of Intrusions and Malware and Vulnerability Assessment (DIMVA), 2007.

International Symposium on Recent Advances in Intrusion Detection (RAID), 2007.

International Symposium on Recent Advances in Intrusion Detection (RAID), 2006.

Annual Computer Security Applications Conference (ACSAC), 2006.

ACM Conference on Computer and Communication Security (CCS), 2006.

International Symposium on Recent Advances in Intrusion Detection (RAID), 2005.

IEEE International Conference on the Engineering of Complex Computer Systems (ICECCS), 2005.

Annual Computer Security Applications Conference (ACSAC), 2005.

Secure Mobile AD-hoc NEtworks and Sensors Workshop (MADNES), 2005.

ACM Conference on Computer and Communication Security (CCS), 2005.

International Conference on Security and Privacy for Emerging Areas in Communication Networks (Securecomm), 2005.

IEEE Symposium on Security and Privacy, 2005.

IEEE Symposium on Multi-Agent Security and Survivability (MASS), 2005.

International Symposium on Recent Advances in Intrusion Detection (RAID), 2004.

Workshop on Education in Computer Security (WECS), 2004.

IEEE Symposium on Multi-Agent Security and Survivability (MASS), 2004.

IEEE International Conference on the Engineering of Complex Computer Systems (ICECCS), 2004.

ACM Conference on Computer and Communication Security (CCS), 2003.

IEEE International Conference on Mobile Agents (MA), 2002.

ACM Conference on Computer and Communication Security (CCS), 2002.

ACM Workshop on Data Mining for Security Applications, 2001.

ACM Conference on Computer and Communication Security (CCS), 2001.

IEEE International Conference on Mobile Agents (MA), 2001.

International Symposium on Recent Advances in Intrusion Detection (RAID), 2001.

Autonomous Agents Conference (AA), 2001.

First ACM Workshop on Security and Privacy in E-Commerce (WSPEC), 2000.

Joint Symposium on Mobile Agents and Agent Systems and Applications (ASA/MA), 2000.

IEEE International Conference on Software Engineering (ICSE), 2000.

Steering Committees

IEEE International Conference on Mobile Agents (MA).

International Symposium on Recent Advances in Intrusion Detection (RAID).