Appendix A

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EDUCATIONAL BACKGROUND

Degree	Year	University	Field
Ph.D.	1999	Columbia University	Computer Science
M.S.	1990	The City College of New York	Computer Science
B.S.	1988	Sun Yat-Sen University, China	Computer Science

EMPLOYMENT HISTORY

Title	Organization	Years
Regents' Professor	The University System of Georgia	4/2024–present
John P. Imlay Jr. Chair	College of Computing	3/2016–present
Director	Institute for Information Security & Privacy (IISP) Georgia Institute of Technology	7/2015–7/2021
Director	Georgia Tech Information Security Center (GTISC) Georgia Institute of Technology	8/2012–6/2015
Professor	College of Computing Georgia Institute of Technology	2/2009–present
Associate Professor	College of Computing Georgia Institute of Technology	2/2005–2/2009
Assistant Professor	College of Computing Georgia Institute of Technology	8/2001–2/2005
Assistant Professor	Department of Computer Science North Carolina State University	8/1999–8/2001
Research Assistant	Department of Computer Science Columbia University	1994–1999
Research Staff Member	IBM T.J. Watson Research Center	5/1997–8/1997
Member of Technical Staff	AT&T Research	5/1996–8/1996
Senior Software Analyst	Intergraph Corporation	1991–1994
Software Analyst	Intergraph Corporation	1990–1991

CURRENT FIELDS OF INTEREST

Information Security

Main research thrusts are: "Malware analysis and detection" – developing "live" and "safe" environment to uncover malware behaviors and machine-learning based techniques to automatically generate detection models and forensic analysis rules; "Adversarial Machine Learning" – studying the vulnerabilities of machine learning based systems due to adversarial manipulations and developing countermeasures; "Software debloating and protocol subsetting" – developing program and protocol analysis and rewriting techniques to remove unnecessary features and code from program binaries; "Privacy-preserving biometric-based authentication and search" – researching efficient methods to

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protect the privacy of biometric data while enabling important security applications including remote authentication and video surveillance; “Adaptive analysis framework for advanced persistent threats” – developing game-theoretic approaches to model and analyze advanced persistent threats.

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I. TEACHING

A. Courses Taught

Semester/Year	Course	Number of Students	Comments
Fall 2024	OMS CS/Cybersecurity 6262 Network Security	70	At CoC
Fall 2024	OMS CS/Cybersecurity 6262 Network Security	274	Online
Fall 2024	OMS CS/Cybersecurity 6035 Introduction to Information Security	806	Online
Fall 2024	OMS CS/Cybersecurity 6264 Information Security Labs: System and Network Defenses	47	Online
Summer 2024	OMS CS/Cybersecurity 6262 Network Security	152	Online
Summer 2024	OMS CS/Cybersecurity 6035 Introduction to Information Security	328	Online
Summer 2024	OMS CS/Cybersecurity 6264 Information Security Labs: System and Network Defenses	53	Online
Spring 2024	OMS CS/Cybersecurity 6262 Network Security	65	At CoC
Spring 2024	OMS CS/Cybersecurity 6262 Network Security	308	Online
Spring 2024	OMS CS/Cybersecurity 6035 Introduction to Information Security	791	Online
Fall 2023	OMS CS/Cybersecurity 6262 Network Security	252	Online
Fall 2023	OMS CS/Cybersecurity 6035 Introduction to Information Security	772	Online
Fall 2023	CS 6264 Information Security Labs: System and Network Defenses	23	At CoC
Fall 2023	OMS CS/Cybersecurity 6264 Information Security Labs: System and Network Defenses	39	Online
Summer 2023	OMS CS/Cybersecurity 6262 Network Security	231	Online
Summer 2023	OMS CS/Cybersecurity 6035 Introduction to Information Security	395	Online
Summer 2023	OMS CS/Cybersecurity 6264 Information Security Labs: System and Network Defenses	29	Online
Spring 2023	OMS CS/Cybersecurity 6262 Network Security	295	Online
Spring 2023	CS 6262 Network Security	105	At CoC
Spring 2023	OMS CS/Cybersecurity 6035 Introduction to Information Security	710	Online
Fall 2022	CS 4235/6035 Introduction to Information Security	184	At CoC
Fall 2022	OMS CS/Cybersecurity 6262 Network Security	251	Online
Fall 2022	OMS CS/Cybersecurity 6035 Introduction to Information Security	622	Online
Fall 2022	OMS CS/Cybersecurity 6264 Information Security Labs: System and Network Defenses	18	Online
Summer 2022	OMS CS/Cybersecurity 6262 Network Security	258	Online
Summer 2022	OMS CS/Cybersecurity 6035 Introduction to Information Security	334	Online
Spring 2022	OMS CS/Cybersecurity 6262 Network Security	300	Online
Spring 2022	OMS CS/Cybersecurity 6035 Introduction to Information Security	635	Online
Spring 2022	OMS CS/Cybersecurity 6264 Information Security Labs: System and Network Defenses	17	Online

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Semester/Year	Course	Number of Students	Comments
Fall 2021	CS 6262 Network Security	40	At CoC
Fall 2021	OMS CS/Cybersecurity 6262 Network Security	360	Online
Fall 2021	OMS CS/Cybersecurity 6035 Introduction to Information Security	980	Online
Fall 2021	OMS CS/Cybersecurity 6264 Information Security Labs: System and Network Defenses	17	Online
Summer 2021	OMS CS/Cybersecurity 6262 Network Security	200	Online
Summer 2021	OMS CS/Cybersecurity 6035 Introduction to Information Security	460	Online
Spring 2021	OMS CS/Cybersecurity 6264 Information Security Labs: System and Network Defenses	25	Online
Spring 2021	OMS CS/Cybersecurity 6262 Network Security	300	Online
Spring 2021	OMS CS/Cybersecurity 6035 Introduction to Information Security	800	Online
Fall 2020	CS 6262 Network Security	40	At CoC
Fall 2020	OMS CS/Cybersecurity 8803 Information Security Labs: System and Network Defenses	25	Online
Fall 2020	OMS CS/Cybersecurity 6262 Network Security	260	Online
Fall 2020	OMS CS/Cybersecurity 6035 Introduction to Information Security	850	Online
Summer 2020	OMS CS/Cybersecurity 8803 Information Security Labs: System and Network Defenses	20	Online
Summer 2020	OMS CS/Cybersecurity 6262 Network Security	150	Online
Summer 2020	OMS CS/Cybersecurity 6035 Introduction to Information Security	450	Online
Spring 2020	OMS CS/Cybersecurity 8803 Information Security Labs: System and Network Defenses	40	Online
Spring 2020	OMS CS/Cybersecurity 6262 Network Security	360	Online
Spring 2020	OMS CS/Cybersecurity 6035 Introduction to Information Security	884	Online
Fall 2019	CS 6262 Network Security	43	At CoC
Fall 2019	OMS CS/Cybersecurity 6262 Network Security	156	Online
Fall 2019	OMS CS/Cybersecurity 6035 Introduction to Information Security	770	Online
Summer 2019	OMS CS/Cybersecurity 6262 Network Security	129	Online
Summer 2019	OMS CS/Cybersecurity 6035 Introduction to Information Security	456	Online
Spring 2019	OMS CS/Cybersecurity 6262 Network Security	275	Online
Spring 2019	OMS CS/Cybersecurity 6035 Introduction to Information Security	938	Online
Fall 2018	CS 6262 Network Security	47	At CoC
Fall 2018	OMSCS 6262 Network Security	154	Online
Fall 2018	OMSCS 6035 Introduction to Information Security	525	Online
Summer 2018	OMSCS 6262 Network Security	191	Online
Summer 2018	OMSCS 6035 Introduction to Information Security	338	Online
Spring 2018	OMSCS 6262 Network Security	220	Online
Spring 2018	OMSCS 6035 Introduction to Information Security	428	Online

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Semester/Year	Course	Number of Students	Comments
Fall 2017	CS 4235/6035 Introduction to Information Security	120	At CoC
Fall 2017	OMSCS 6262 Network Security	300	Online
Fall 2017	OMSCS 6035 Introduction to Information Security	350	Online
Summer 2017	OMSCS 6262 Network Security	300	Online
Summer 2017	OMSCS 6035 Introduction to Information Security	350	Online
Spring 2017	OMSCS 6262 Network Security	300	Online
Spring 2017	OMSCS 6035 Introduction to Information Security	350	Online
Fall 2016	CS 4235/6035 Introduction to Information Security	80	At CoC
Fall 2016	OMSCS 6262 Network Security	300	Online
Fall 2016	OMSCS 6035 Introduction to Information Security	350	Online
Summer 2016	OMSCS 6035 Introduction to Information Security	350	Online
Spring 2016	OMSCS 6035 Introduction to Information Security	350	Online
Fall 2015	CS 4235/6035 Introduction to Information Security	80	At CoC
Fall 2015	OMSCS 6035 Introduction to Information Security	230	Online
Fall 2014	CS 4235/6035 Introduction to Information Security	80	At CoC
Spring 2013	CS 4235 Introduction to Information Security	50	At CoC
Fall 2012	CS 4235 Introduction to Information Security	41	At CoC
Spring 2012	CS 6262 Network Security	35	At CoC
Fall 2010	CS 3210 Operating System Design	25	At CoC
Spring 2010	CS 6262 Network Security	45	At CoC
Fall 2009	CS 4237 Computer and Network Security	15	At CoC
Spring 2009	CS 4237 Computer and Network Security	15	At CoC
Fall 2008	CS 6262 Network Security	55	At CoC
Spring 2008	CS 8803ANS Advanced Systems and Network Security	25	At CoC
Fall 2007	CS 4237 Computer and Network Security	20	At CoC
Spring 2007	CS 6262 Network Security	45	At CoC
Fall 2006	CS 6265 Information Security Lab (w/ Mustaque)	18	At CoC
Fall 2006	CS 4803 Computer and Network Security	30	At CoC
Spring 2006	CS 6262 Network Security	45	At CoC
Fall 2005	CS 4803 Computer and Network Security	30	At CoC
Spring 2005	CS 6262 Network Security	30	At CoC
Fall 2004	CS 4803K Computer and Network Security	30	At CoC
Spring 2004	CS 6262 Network Security	30	At CoC
Fall 2003	CS 4803K Computer and Network Security	35	At CoC
Spring 2003	CS 8803K Advanced Systems and Network Security	16	At CoC
Fall 2002	CS 6262 Network Security	28	At CoC
Spring 2002	CS 6262 Network Security	30	New at CoC
Fall 2000	CSC 591Q Special Topics: Network Security	65	At NC State
Fall 1999	CSC 591Q Special Topics: Network Security	45	At NC State
Summer 1998	CS 3139 Data Structures and Algorithms	20	At Columbia

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B. Curriculum Development

CS 6264/OMS CS/Cybersecurity 6264: Information Security Labs: System and Network Defenses. This graduate-level course helps students develop both in-depth knowledge and hands-on skills in a number of important cybersecurity areas, including software security, malware, and threat analysis, end-point security, network security, web security, mobile security, and machine learning-based security analytics. The lecture materials of each topic area are drawn from the latest research papers and prototypes, and a comprehensive project is designed to help students master each area. The lecture materials explain the design principles of cutting-edge security tools, and the projects are designed to let students extend these tools. Most of the tools are in the open-source, and therefore, students can continue to build on and use these tools beyond this course. Recorded videos for on-line offering as part of OMSCS as well as OMS Cybersecurity.

CS 6262/OMS CS/Cybersecurity 6262: Network Security. Graduate-level course in network security with topics including large-scale attacks and impacts, penetration testing and security assessments, security of Internet protocols (IP, TCP, DNS, and BGP), advanced web security, advanced malware analysis, advanced network monitoring, Internet-scale threat analysis, bitcoins and cryptocurrencies, big data and security, cloud security, and attack-tolerant systems. Completely revamped in 2016 with new course materials drawing from research papers and projects developed by my Ph.D. students. Recorded videos for on-line offering via Udacity as part of OMSCS as well as OMS Cybersecurity.

CS 4235/OMS CS/Cybersecurity 6035: Introduction to Information Security. Cross-listed undergraduate and graduate introductory course in information security. It teaches the basic concepts, principles, and fundamental approaches to secure computers and networks. Its main topics include: security basics, security management and risk assessment, software security, operating systems security, database security, cryptography algorithms and protocols, network authentication and secure network applications, malware, network threats and defenses, web security, mobile security, legal and ethical issues, and privacy. Completely revamped in 2015 with new materials covering the up-to-date threat models, attack methods, and new technologies and policy considerations. Recorded videos for on-line offering via Udacity as part of OMS CS as well as OMS Cybersecurity.

CS 6262: Network Security. Graduate-level course focusing on the fundamental principles as well as advanced techniques in network security. This course covers cryptography and its application to network and operating system security; authentication; security for electronic mail; Java security; Firewalls and intrusion detection.

CS 4237: Computer and Network Security. New undergraduate course (first offered as CS 4803 in Fall 2003) focusing on the fundamental principles and techniques in computer and network security.

CS 8803: Advanced Systems and Network Security. Graduate course on advanced topics such as network and host-based intrusion detection, botnet detection, software security, malware analysis, and virtual machine monitoring. Students are required to study research papers and work on research projects.

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C. Postdoctoral Fellows Supervised

1. **Bo Feng:** 2022 - 2023; Tenure-track Assistant Professor, Zhejiang Univeristy, Hangzhou, Zhejiang, China
2. **Erkam Uzun:** 2021 - 2022; Software Engineer, ByteDance/TikTok
3. **Yisroel Mirsky:** 2019 - 2021; Tenure-track Lecturer in the Department of Software and Information Systems Engineering, Ben-Gurion University of the Negev, Israel
4. **Guangliang Yang:** 2019 - 2021; Tenure-track Assistant Professor in the Department of Computer Science, Fudan University, Shanghai, China
5. **Hong Hu:** 2017-2019; Tenure-track Assistant Professor in the College of Information Sciences and Technology, Pennsylvania State University
6. **Sangho Lee:** 2015-2018; Researcher in Microsoft Research (MSR) Redmond
7. **Tielei Wang:** 2011 - 2014; Start-up in China
8. **Simon Pak Ho Chung:** 2011 -2014; Research Scientist in SCS at Georgia Tech
9. **Roberto Perdisci:** 2009 - 2010; Professor with tenure in the Department of Computer Science, University of Georgia
10. **Daniel Xiapu Luo:** 2008 - 2010; Professor with tenure at Hong Kong Polytechnic University

D. Ph.D. Students Supervise

1. **Xinzhou Qin:** Graduated in Summer 2005; Senior Engineering Manager, VMware
2. **Yian Huang:** Graduated in Summer 2006; Senior Engineering Manager, LinkedIn
3. **Prahlad Fogla:** Graduated in Summer 2007; Software Engineer, Google
4. **Guofei Gu:** Graduated in Summer 2008; Professor with tenure in the Department of Computer Science, Texas A&M University
5. **Bryan Payne:** Graduated in Summer 2010; Director, AWS Vulnerability Management, Amazon Web Services (AWS)
6. **Monirul Sharif:** Graduated in Fall 2010; Director of Engineering, Google
7. **Kapil Singh:** Graduated in Summer 2011; Principal Research Scientist, IBM T.J. Watson Research Center
8. **Manos Antonakakis:** Graduated in Spring 2012; Associate Professor with tenure in ECE at Georgia Tech
9. **Martim Carbone:** Graduated in Summer 2012; GPU Software Engineer, Apple

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10. **Junjie Zhang:** Graduated in Summer 2012; Associate Professor with tenure in the Department of Computer Science and Engineering, Wright State University

11. **Long Lu:** Graduated in Summer 2013; Chief Digital Safety & Security Officier, NIO; Associate Professor with tenure in the College of Computer and Information Science, Northeastern University

12. **Brendan Dolan-Gavitt:** Graduated in Summer 2014; Associate Professor with tenure in the Department of Computer Science and Engineering, NYU Tandon School of Engineering

13. **Yacin Nadji:** Graduated in Summer 2015; Senior Security Researcher, Corelight

14. **Xinyu Xing:** Graduated in Summer 2015; Associate Professor of Computer Science, Northwestern University

15. **Chengyu Song:** Graduated in Summer 2016; Associate Professor with tenure in the Department of Computer Science and Engineering, UC Riverside

16. **Byoungyoung Lee:** Graduated in Summer 2016; Associate Professor in the Department of Electrical and Computer Engineering, Seoul National University, South Korea

17. **Yeongjin Jang:** Graduated in Summer 2017; Principal Engineer, Software Vulnerability Research, Samsung Research America (SRA)

18. **Kangjie Lu:** Graduated in Summer 2017; Associate Professor with tenure in the Department of Computer Science and Engineering, University of Minnesota

19. **Wei Meng:** Graduated in Summer 2017; Associate Professor with tenure in the Department of Computer Science and Engineering, The Chinese University of Hong Kong

20. **Yizheng Chen:** Graduated in Fall 2017; Tenure-track Assistant Professor in the Department of Computer Science, The University of Maryland, College Park, Maryland

21. **Yang Ji:** Graduated in Fall 2019; Manager of Research, Palo Alto Networks

22. **Ruian Duan:** Graduated in Fall 2019; Staff Security Researcher, Palo Alto Networks

23. **Erkam Uzun:** Graduated in Summer 2021; Software Engineer, ByteDance/TikTok

24. **Chenxiong Qian:** Graduated in Summer 2021; Tenure-track Assistant Professor in the Department of Computer Science, The University of Hong Kong

25. **Carter Yagemann:** Graduated in Summer 2022; Tenure-track Assistant Professor in the Department of Computer Science and Engineering, The Ohio State University

26. **Joey Allen:** Graduated in Summer 2023; Senior Staff Researcher, Palo Alto Networks

27. **Moses Ike:** Graduated in Summer 2023; Senior Member of Technical Staff, Sandia National Laboratories

28. **Evan Downing:** Graduated in Fall 2023; Trail of Bits

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29. **Feng Xiao:** Graduated in Fall 2023; Google
30. **Matthew Landen:** Graduated in Summer 2024; Applied Physics Lab, The Johns Hopkins University
31. **Yongheng Chen:** Graduated in Summer 2024; Google
32. **Haoran Wang:** In Progress
33. **Ding Zhang:** In Progress
34. **Zhang Yang:** In Progress
35. **Yupeng Yang:** In Progress
36. **Jizhou Chen:** In Progress
37. **Matthew Lau :** In Progress
38. **Shenglong Yao:** In Progress
39. **Leyan Pan:** In Progress

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II. RESEARCH AND CREATIVE SCHOLARSHIP

A. Theses

Ph.D. Thesis

Title: A Data Mining Framework for Constructing Features and Models for Intrusion Detection Systems.
Date Completed: June 1999
Advisor: Professor Salvatore J. Stolfo.
University: Columbia University

B. Published Journal Papers (refereed)

1. Matthew Lau, Ismaïla Seck, Athanasios P. Meliopoulos, Wenke Lee, and Eugène Ndiaye. Revisiting Non-separable Binary Classification and its Applications in Anomaly Detection. *Transactions on Machine Learning Research.* Vol 2024.

2. Dinuka Sahabandu, Shana Moothedath, Joey Allen, Linda Bushnell, Wenke Lee, and Radha Poovendran. RL-ARNE: A Reinforcement Learning Algorithm for Computing Average Reward Nash Equilibrium of Nonzero-Sum Stochastic Games. *IEEE Transactions on Automatic Control.* Vol 69(11), 2024.

3. Shana Moothedath, Dinuka Sahabandu, Joey Allen, Andrew Clark, Linda Bushnell, Wenke Lee, and Radha Poovendran. Dynamic Information Flow Tracking for Detection of Advanced Persistent Threats: A Stochastic Game Approach. *IEEE Transactions on Automatic Control.* Vol 69(10), 2024.

4. Shana Moothedath, Dinuka Sahabandu, Joey Allen, Linda Bushnell, Wenke Lee, and Radha Poovendran. Stochastic Dynamic Information Flow Tracking game using supervised learning for detecting advanced persistent threats. *Automatica.* Vol 159, 2024.

5. Yisroel Mirsky, Ambra Demontis, Jaidip Kotak, Ram Shankar, Deng Gelei, Liu Yang, Xiangyu Zhang, Maura Pintor, Wenke Lee, Yuval Elovici, and Battista Biggio. The Threat of Offensive AI to Organizations. *Computer Security*. Vol 124, 2023.

6. Yisroel Mirsky and Wenke Lee. The Creation and Detection of Deepfakes: A Survey. *ACM Computing Surveys*. 54(1), 2022.

7. Kangjie Lu, Meng Xu, Chengyu Song, Taesoo Kim, and Wenke Lee. Stopping Memory Disclosures via Diversification and Replicated Execution. *IEEE Transactions on Dependable and Secure Computing (TDSC)*. 18(1). 2021.

8. Shana Moothedath, Dinuka Sahabandu, Joey Allen, Andrew Clark, Linda Bushnell, Wenke Lee, and Radha Poovendran. A Game-Theoretic Approach for Dynamic Information Flow Tracking to Detect Multistage Advanced Persistent Threats. *IEEE Transactions on Automatic Control*. 65(12): 5248-5263, 2020.

9. Junjie Zhang, Roberto Perdisci, Wenke Lee, Unum Sarfraz, and Xiapu Luo. Building a Scalable System for Stealthy P2P-Botnet Detection. *IEEE Transactions on Information Forensics and Security*, January 2014.

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10. Roberto Perdisci, Davide Ariu, Prahlad Fogla, Giorgio Giacinto, and Wenke Lee. McPAD: A Multiple Classifier System for Accurate Payload-Based Anomaly Detection. *Computer Networks*, Vol. 53, 2009.

11. Roberto Perdisci, Andrea Lanzi, and Wenke Lee. Classification of Packed Executables for Accurate Computer Virus Detection. *Pattern Recognition Letters* Vol. 29, No. 14 (October 2008).

12. Prahlad Fogla and Wenke Lee. q-Gram Matching Using Tree Models. *IEEE Transactions on Knowledge and Data Engineering*, Vol. 18, No. 4 (April 2006).

13. W. Fan, M. Miller, S. Stolfo, Wenke Lee, and P. Chan. Using Artificial Anomalies to Detect Unknown and Known Network Intrusions. *Knowledge and Information Systems*, Vol. 6, No. 5 (September 2004), Springer.

14. Yongguang Zhang, Wenke Lee, and Yian Huang. Intrusion Detection Techniques for Mobile Wireless Networks. *ACM/Kluwer Wireless Networks Journal (ACM WINET)*, 9(5), September 2003.

15. Joao B.D. Cabrera, Lundy Lewis, Xinzhou Qin, Wenke Lee, and Raman K. Mehra. Proactive Intrusion Detection and Distributed Denial of Service Attacks - A Case Study in Security Management. *Journal of Network and Systems Management*. 10(2), June 2002.

16. Wenke Lee, Wei Fan, Matt Miller, Sal Stolfo, and Erez Zadok. Toward Cost-Sensitive Modeling for Intrusion Detection and Response. *Journal of Computer Security*, 10(1,2), 2002.

17. Wenke Lee and Sal Stolfo. A Framework for Constructing Features and Models for Intrusion Detection Systems. *ACM Transactions on Information and System Security*, 3(4), November 2000.

18. Wenke Lee, Sal Stolfo, and Kui Mok. Adaptive Intrusion Detection: A Data Mining Approach. *Artificial Intelligence Review*, Kluwer Academic Publishers, 14(6):533-567, December 2000.

19. Wenke Lee and Gail E. Kaiser. Interfacing Oz with the PCTE OMS: A Case Study of Integrating a Legacy System with a Standard Object Management System. *Journal of Systems Integration*, Kluwer Academic Publishers, 9(4):329-358, December 1999.

C. Published Books and Parts of Books

1. Xinzhou Qin and Wenke Lee. Discovering Novel Attack Strategies from INFOSEC Alerts. *Data Warehousing and Data Mining Techniques for Cyber Security*. Anoop Singhal (eds), Springer, 2007.

2. Yongguang Zhang and Wenke Lee. Security in Mobile Ad-Hoc Networks. *Ad Hoc Networks: Technologies and Protocols*. P. Mohapatra and S. Krishnamurthy (eds), Springer, 2004.

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3. Xinzhou Qin, Wenke Lee, Lundy Lewis, Joao B.D. Cabrera. Using MIB II Variables for Network Intrusion Detection. *Applications of Data Mining in Computer Security*. D. Barbara and S. Jajodia (eds), Kluwer Academic Publishers, May 2002.

4. Joao B.D. Cabrera, Lundy Lewis, Xinzhou Qin, Wenke Lee, Raman K. Mehra. Proactive Intrusion Detection - A Study on Temporal Data Mining. *Applications of Data Mining in Computer Security*. D. Barbara and S. Jajodia (eds), Kluwer Academic Publishers, May 2002

5. Wenke Lee, Sal Stolfo, and Kui Mok. Algorithms for Mining System Audit Data. *Data Mining, Rough Sets, and Granular Computing*. T. Y. Lin, Y. Y. Yao, and L. A. Zadeh (eds), Physica-Verlag, 2002

6. Wenke Lee and Naser Barghouti. Jadve: An Extensible Data Visualization Environment. In *Object-Oriented Applications Frameworks*, M. Fayad, D. Schmidt, and R. Johnson (eds), John Wiley & Sons, 1999.

D. Edited Proceedings and Books

1. *Botnet Detection: Countering the Largest Security Threat (Advances in Information Security)*, Wenke Lee, Cliff Wang, and David Dagon (Eds.), Springer, 2007.

2. *Proceedings of the 4th International Symposium on Recent Advances in Intrusion Detection (RAID 2001)*, Wenke Lee, Ludovic Me, and Andreas Wespi (Eds.), Lecture Notes in Computer Science, Vol. 2212, Springer, 2001.

E. Conference Presentations (refereed)

E.1. Conference Presentations with Proceedings

1. Feng Xiao, Zhongfu Su, Guangliang Yang, and Wenke Lee. Jasmine: Scale up JavaScript Static Security Analysis with Computation-based Semantic Explanation. In *Proceedings of the IEEE Symposium on Security and Privacy.* 2024.

2. Joey Allen, Zheng Yang, Feng Xiao, Matthew Landen, Roberto Perdisci, and Wenke Lee. WEBRR: A Forensic System for Replaying and Investigating Web-Based Attacks in The Modern Web. In *Proceedings of the 33rd USENIX Security Symposium (USENIX).* 2024.

3. Yupeng Yang, Yongheng Chen, Rui Zhong, Jizhou Chen, and Wenke Lee. Towards Generic Database Management System Fuzzing. In *Proceedings of the 33rd USENIX Security Symposium (USENIX).* 2024.

4. Matthew Lau, Leyan Pan, Stefan Davidov, Athanasios P. Meliopoulos, and Wenke Lee. Geometric Implications of Classification on Reducing Open Space Risk. *Tiny Papers @ The Twelfth International Conference on Learning Representations (ICLR).* 2024.

5. Matthew Lau, Fahad Alsaeed, Kayla Thames, Nano Suresettakul, Saman A. Zonouz, Wenke Lee, and Athanasios P. Meliopoulos. Physics-Assisted Explainable Anomaly Detection in Power Systems. In *Proceedings of the European Conference on Artificial Intelligence.* 2024.

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6. Zheng Yang, Joey Allen, Matthew Landen, Roberto Perdisci, and Wenke Lee. TRIDENT: Towards Detecting and Mitigating Web-based Social Engineering Attacks. In *Proceedings of the 32nd USENIX Security Symposium (USENIX)*. Anaheim, California. 2023.

7. Yisroel Mirsky, George Macon, Michael Brown, Carter Yagemann, Matthew Pruett, Evan Downing, Sukarno Mertoguno, and Wenke Lee. VulChecker: Graph-based Vulnerability Localization in Source Code. In *Proceedings of the 32nd USENIX Security Symposium (USENIX)*. Anaheim, California. 2023.

8. Carter Yagemann, Simon Chung, Brendan Saltaformaggio, and Wenke Lee. PUMM: Preventing Use-After-Free Using Execution Unit Partitioning. In *Proceedings of the 32nd USENIX Security Symposium (USENIX)*. Anaheim, California. 2023.

9. Yongheng Chen, Rui Zhong, Yupeng Yang, Hong Hu, Dinghao Wu, and Wenke Lee. FUZZ: Redesign of Parallel Fuzzing using Microservice Architecture. In *Proceedings of the 32nd USENIX Security Symposium (USENIX)*. Anaheim, California. 2023.

10. Moses Ike, Kandy Phan, Keaton Sadoski, Romuald Valme, and Wenke Lee. SCAPHY: Detecting Modern ICS Attacks by Correlating Behaviors in SCADA and PHYsical. In *Proceedings of the 2023 IEEE Symposium on Security and Privacy*. San Francisco, California. 2023.

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121. Guofei Gu, Junjie Zhang, and Wenke Lee. BotSniffer: Detecting Botnet Command and Control Channels in Network Traffic. In *Proceedings of The 15th Annual Network and Distributed System Security Symposium (NDSS 2008)*, San Diego, CA, February 2008.

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123. Bryan D. Payne, Martim Carbone, and Wenke Lee. Secure and Flexible Monitoring of Virtual Machines. In *Proceedings of The 23rd Annual Computer Security Applications Conference (ACSAC 2007)*, Miami Beach, FL, December 2007.

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138. Roberto Perdisci, David Dagon, Wenke Lee, Prahlad Fogla, and Monirul Sharif. Misleading Worm Signature Generators Using Deliberate Noise Injection (full paper). In *Proceedings of the 2006 IEEE Symposium on Security and Privacy*, Oakland, CA, May 2006.

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165. Wenke Lee, Sal Stolfo, and Kui Mok. Mining in a Data-flow Environment: Experience in Network Intrusion Detection. *Proceedings of the 5th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD '99)*, San Diego, CA, August 1999.

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F. Workshop Presentations (refereed)

F.1. Workshop Presentations with Proceedings

1. Yi-an Huang and Wenke Lee. Hotspot-Based Traceback for Mobile Ad Hoc Networks. In *Proceedings of The ACM Workshop on Wireless Security (WiSe 2005)*, Cologne, Germany, September 2005.

2. Monirul Sharif, George Riley, and Wenke Lee. Comparative Study between Analytical Models and Packet-Level Worm Simulations. In *Proceedings of The 19th Workshop on Parallel and Distributed Simulation (PADS 2005)*, Monterey, CA, June 2005.

3. Chris Clark, Wenke Lee, David Schimmel, Didier Contis, Mohamed Kone, and Ashley Thomas. A Hardware Platform for Network Intrusion Detection and Prevention. *The 3rd Workshop on Network Processors and Applications (NP3)*, Madrid, Spain, February 2004.

4. Yian Huang and Wenke Lee. A Cooperative Intrusion Detection System for Ad Hoc Networks. *ACM Workshop on Security of Ad Hoc and Sensor Networks (SASN '03)*, Fairfax VA, October 2003.

5. Mustaque Ahamad, Wenke Lee, Ling Liu, Leo Mark, Edward Omicienski, Calton Pu, and Andre dos Santos. Guarding the Next Internet Frontier: Countering Denial of Information Attacks. *Proceedings of the 2002 New Security Paradigms Workshop*, Virginia Beach, Virginia, September 2002.

6. Xinzhou Qin, Wenke Lee, Lundy Lewis, and Joao B.D. Cabrera. Using MIB III Variables for Network Anomaly Detection - A Feasibility Study. *ACM Workshop on Data Mining for Security Applications*, Philadelphia, PA, November 2001.

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9. Wenke Lee, Rahul Nimbalkar, Kam Yee, Sunil Patil, Pragnesh Desai, Thuan Tran, and Sal Stolfo. A Data Mining and CIDF Based Approach for Detecting Novel and Distributed Intrusions. *Proceedings of The Third International Workshop on Recent Advances in Intrusion Detection (RAID 2000), LNCS 1907*, Toulouse, France, October 2000.

10. Wenke Lee, Chris Park, and Sal Stolfo. Towards Automatic Intrusion Detection using NFR. *1st USENIX Workshop on Intrusion Detection and Network Monitoring*, April 1999.

11. Wenke Lee, Sal Stolfo, and Phil Chan. Learning Patterns from Unix Process Execution Traces for Intrusion Detection. *AAAI Workshop: AI Approaches to Fraud Detection and Risk Management*, July 1997.

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13. Gail Kaiser and Wenke Lee. Pay No Attention to the Man Behind the Curtain. *NSF Workshop on Workflow and Process Automation*, May 1996.

14. Wenke Lee. Data Modeling and Management for Large Spatial Databases. *The Third International Workshop in Geographic Information Systems*, Beijing, China, August 1993.

G. Other

1. Matt Blaze, Sampath Kannan, Insup Lee, Oleg Sokolsky, Jonathan Smith, Angelos Keromytis, and Wenke Lee. Dynamic Trust Management. *IEEE Computer*, February 2009.

2. Martim Carbone, Diego Zamboni, and Wenke Lee. Taming Virtualization. *IEEE Security & Privacy*, vol. 6, no. 1, January/February 2008.

3. Bryan D. Payne, Reiner Sailer, Ramon Caceres, Ronald Perez, and Wenke Lee. A Layered Approach to Simplified Access Control in Virtualized Systems. *ACM SIGOPS Operating Systems Review*, 4(2), July 2007.

4. Wenke Lee. 2002. Applying Data Mining to Intrusion Detection: The Quest for Automation, Efficiency, and Credibility. *SIGKDD Explorations*, 4(2), December 2002.

5. Wenke Lee and Wei Fan. 2001. Mining System Audit Data: Opportunities and Challenges. *SIGMOD Record*, 30(4), December 2001.

6. Salvatore J. Stolfo, Wenke Lee, Philip K. Chan, Wei Fan, and Eleazar Eskin. 2001. Data Mining-Based Intrusion Detectors: An Overview of the Columbia IDS Project. *SIGMOD Record*, 30(4), December 2001.

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H. Research Proposals and Grants

a. Approved and Funded

1. **Secure and Efficient Federated Learning for Distributed Systems**
   Wenke Lee (PI)
   Technology Innovation Institute Sole Proprietorship LLC
   Funded at $1,200,000, 12/1/2023-6/30/2026.

2. **Robust Physical Adversarial Attack and Practical Defense for Aerial Imagery**
   Polo Chau (PI) and Wenke Lee (co-PI)
   Technology Innovation Institute Sole Proprietorship LLC
   Funded at $1,125,000, 12/1/2023-6/30/2026.

3. **NSF AI Institute for Agent-based Cyber Threat Intelligence and Operation (ACTION)**
   Giovanni Vigna (Director; UC Santa Barbara); Executive Committee Members: Christopher Kruegel (UCSB), Dawn Song (UC Berkeley), Dongyan Xu (Purdue University), and Wenke Lee (Georgia Tech)
   NSF
   Funded at $1,625,000 to Georgia Tech, 6/1/2023-7/1/2027.

4. **AI Support for Cybersecurity**
   David Wagner (PI; UC Berkeley); co-PIs at UC Berkeley: Michael Jordan, Vern Paxson, Jacob Steinhardt, and Nina Haghtalab; co-PI at Georgia Tech: Wenke Lee
   UC Berkeley via c3.ai
   Funded at $140,000 to Georgia Tech, 7/1/2022-6/30/2023.

5. **Proof-driven Refinement of Infrastructure Software Modules (PRISM)**
   Brendan Saltaformaggio (PI); co-PIs: Wenke Lee, Taesoo Kim, Alessandro Orso, Qirun Zhang, Yisroel Mirsky, Martin Osterloh, Jason Li, Michael Brown, Sukarno Mertoguno, Kevin Hamlen, and Nicholas Evancich
   DARPA I2O
   Funded at $10,647,759, 7/1/2021-12/1/2025.

6. **D3: Debloating, Dialecting and Diversification for Attack Resilient Software with Real-time Constraints**
   Taesoo Kim (PI); co-PI: Wenke Lee
   Technology Innovation Institute Sole Proprietorship LLC
   Funded at $1,575,000, 9/1/2020-8/31/2023.

7. **HECTOR: Halting Emergent Computation Through Oracle Reinforcement**
   Wenke Lee (PI); co-PIs: Sukarno Mertoguno (GTRI) and Clayton Kerce (GTRI)
   DARPA I2O
   Funded at $1,000,000, 1/15/2020-7/15/2021.

8. **Interactive Editing Techniques for Subsetting and Dialecting Network Protocols**
   Taesoo Kim (PI); co-PIs: Wenke Lee, Alex Orso, and Brendan Saltaformaggio

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ONR
Funded at $2,976,781, 8/1/2018-7/31/2021

9. **SaTC: CORE: Medium: Understanding and Fortifying Machine Learning Based Security Analytics**
Polo Chau (PI); co-PIs: Wenke Lee, Le Song, and Taesoo Kim
NSF
Funded at $1,200,000, 8/1/2017-7/31/2021

10. **Comprehensive System Debloating via Path-Based Learning and Late-Stage OS Composition**
Wenke Lee (for Bill Harris) (PI); co-PIs: Bill Harris, Taesoo Kim, Alessandro Orso, and Santosh Pande
ONR
Funded at $7,500,000, 8/1/2017-7/31/2022

11. **CyberCorps Scholarship-for-Service (SFS)**
Mustaque Ahamad (PI); co-PIs: Wenke Lee, Taesoo Kim, Sy Goodman, and Manos Antonakakis
NSF
Funded at $5,000,000, 9/1/2016-10/31/2021.

12. **Multi-Layer Adaptive and Proactive Strategic Cyber Defense**
Radha Poovendran (PI, University of Washington); co-PIs: Wenke Lee (Georgia Tech) and Tamer Basar (UIUC)
ARO
Funded at $1,000,000, 8/1/2016-7/31/2019.

13. **Intel Science & Technology Center for Adversary-Resilient Security Analytics (ISTC-ARSA)**
Wenke Lee (PI); co-PIs: Taesoo Kim, Polo Chau (CSE), and Le Song (CSE)
Funded as a $1,500,000 gift.

14. **THEIA: Tagging and Tracking of Multi-Level Host Events for Transparent Computing and Information Assurance**
Wenke Lee (PI); co-PIs: Taesoo Kim, Alex Orso, and Simon Chung
DARPA
Funded at $4,193,126, 6/26/2015-6/26/2019.

15. **ADAPT: Analytical Framework for Actionable Defense against Advanced Persistent Threats**
Radha Poovendran (PI, University of Washington); co-PIs: Wenke Lee (Georgia Tech), Shankar Sastry and Anthony Joseph (UC Berkeley), Joao Hespanha (UCSB), Tamer Basar (UIUC), and Maryam Fazel and Linda Bushnell (University of Washington)
ONR MURI
Funded at $7,500,000, 6/1/2016-5/31/2021.

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16. **Embedasploit: A "Pen-Test in a Box" for Industrial Control Systems**
    Wenke Lee (PI); co-PIs: Sal Stolfo at Columbia, Brendan Dolan-Gavitt at NYU Tandon School of Engineering
    Office of Naval Research
    Funded at $1,250,351, 5/1/2015-4/30/2018.

17. **BFT++: Attack Tolerance in Hard Real-Time Systems**
    Taesoo Kim (PI); co-PI: Wenke Lee
    Office of Naval Research
    Funded at $1,245,720, 4/1/2015-3/31/2018.

18. **TWC SBE: TTP Option: Medium: Collaborative: EPICA: Empowering People to Overcome Information Controls and Attacks**
    Wenke Lee (PI); co-PIs: Nick Feamster, Hongyuan Zha, and Hans Klein
    NSF
    Funded at $1,100,000, 8/1/14-7/31/17.

19. **Comprehensive Understanding of Malicious Overlay Networks**
    Homeland Security Advanced Project Research Agency (HSARPA of DHS)
    Wenke Lee (PI); co-PIs: David Dagon at Georgia Tech, Chris Smoak of GTRI, Roberto Perdisci (UGA), April Lorenzen of Dissect Cyber, Paul Vixie of Internet Systems Consortium, Jody Westby of Global Cyber Risk, and Matt Jonkman of Open Information Security Foundation.
    Funded at $1,873,078 for project total, with $673,078 to CoC/GT, 10/1/12–9/30/15.

20. **EAGER: The Conceptual Landscape of Information Manipulation**
    Wenke Lee (PI); co-PIs: Nick Feamster, and Hans Klein (Public Policy)
    NSF
    Funded at $200,000, 8/1/12–7/31/14.

21. **Integrating Security Concepts in an Undergraduate Computer Sciences Curriculum**
    Intel
    Wenke Lee (PI); co-PIs: Mustaque Ahamad, Nick Feamster, and Paul Royal
    Funded as unrestricted gift at $50,000, 11/2011;
    additional, unrestricted gift at $35,000, 3/2012;
    additional, unrestricted gift at $50,000, 11/2012;
    a total of $135,000.

22. **Monitoring Free and Open Access to Information on the Internet**
    Google
    Nick Feamster and Wenke Lee (co-PIs)
    Funded as unrestricted gift: $1,000,000 base for 12/15/2010–12/14/2012;
    $500,000 option for 12/15/2012–12/14/2013;
    additional gift at $500,000, for 12/15/13–12/14/2014;
    a total of $2,000,000.

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23. **Dimensions of Network Intelligence**
HSARPA of DHS
Wenke Lee (PI) and Paul Royal (co-PI)
Funded at $1,022,000, 9/2012-9/2017.

24. **Dynamic Reputation for DNS**
Google
Wenke Lee (PI)
Funded as unrestricted gift at $75,000, 7/2010.

25. **PEASOUP: Preventing Exploits Against Software Of Uncertain Provenance**
IARPA/STONESOUP Program (GrammaTech subcontract)
Wenke Lee (co-PI), with David Melski (PI) at GrammaTech, Jack Davidson and John Knight (co-PIs) at University of Virginia, and Tom Bracewell (co-PI) at Raytheon
Funded at $13,000,000 for project total, with $1,695,887 to Georgia Tech, 6/1/2010–5/31/2014.

26. **Research in Virtual Machine Monitoring Techniques**
Sandia National Labs/Sandia Corp.
Wenke Lee (PI)
Funded at $50,000, 9/15/2010–9/15/2011.

27. **TC: SMALL: A Foundational and Practical Platform for Host Security Applications**
NSF CNS/Trustworthy Computing
Wenke Lee (PI)
Funded at $429,571, 7/15/2010–7/15/2013.

28. **Botnet Attribution and Removal: From Axioms to Theory to Practice**
ONR MURI
Wenke Lee (PI); Co-PIs: Nick Feamster, and Jon Giffin at Georgia Tech; Farnam Jahanian, Mike Bailey, and Kang Shin at University of Michigan, Ann Arbor; Giovanni Vigna and Chris Kruegel at University of California, Santa Barbara; John Mitchell at Stanford University
Funded: $7,500,000 project total, $2,600,000 for Georgia Tech, 5/1/2009–4/30/2014.

29. **Collaborative Research: CT-L: CLEANSE: Cross-Layer Large-Scale Efficient Analysis of Network Activities to SEcure the Internet**
NSF CNS/Cyber Trust
Wenke Lee (PI); Co-PIs: Nick Feamster, Jon Giffin, Mustaque Ahamad, and Xiaoming Huo (ISyE) at Georgia Tech; Mike Reiter and Fabian Monrose at University of North Carolina at Chapel Hill; Farnam Jahanian and Mike Bailey at University of Michigan; Phil Porras and Vinod Yegneswaran at SRI International; and Paul Vixie at Internet Software Consortium.
Funded: $1,829,297 project total, $758,297 for Georgia Tech, 9/1/2008–8/31/2012.

30. **SMITE: Scalable Monitoring in the Extreme**
DARPA
Wenke Lee and Nick Feamster (co-PIs at Georgia Tech); BBN subcontract
Funded: $574,999 for Georgia Tech, 4/1/2008–3/31/2010

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31. **Countering Botnets: Anomaly-Based Detection, Comprehensive Analysis, and Efficient Mitigation**
DHS HSARPA
Wenke Lee (PI); with Nick Feamster and Jon Giffin at Georgia Tech, David Dagon at Damballa, Rick Wesson and Adam Waters at Support Intelligence, Paul Vixie at Internet Systems Consortium, and Jody Westby at Global Cyber Risk
Funded: $1,050,730 project total, $300,000 for Georgia Tech, 4/1/2008–3/31/2010.
Add-on: $305,066 project total, $190,066 to Georgia Tech, 7/1/2009–9/30/2010.

32. **CRI-IAD: Collaborative Research: Enabling Security and Network Management Research for Future Networks**
NSF CRI
Nick Feamster (co-PI), Alex Gray, and Wenke Lee at Georgia Tech, and Z. Morley Mao (co-PI) and Farnam Jahanian at University of Michigan
Funded: $397,426 for Georgia Tech (3/1/2008–2/28/2011)

33. **Collaborative Research: CT-T: Logic and Data Flow Extraction for Live and Informed Malware Execution**
NSF CNS/CyberTrust
Wenke Lee (co-PI); co-PIs: Paul Barford at University of Wisconsin at Madison, and Phil Porras at SRI International
Funded: $220,000 for Georgia Tech (9/1/2007–8/31/2009)

34. **Foundational and Systems Support for Quantitative Trust Management**
Office of Naval Research MURI (University of Pennsylvania subcontract)
Sampath Kannan (PI); co-PIs: Insup Lee, Oleg Sokolsky, Matt Blazes, and Jonathan Smith at University of Pennsylvania, Wenke Lee at Georgia Tech, and Angelos Keromytis at Columbia University.
Funded: $1,125,000 for Georgia Tech (project total: $4,000,000) (5/1/2007–4/30/2012)

35. **Collaborative Research: CT-ISG: Modeling and Measuring Botnets**
NSF CNS/CyberTrust
Wenke Lee (PI) and Cliff C. Zou (co-PI) at University of Central Florida
Funded: $350,000 for project total, Georgia Tech at $175,000, (8/15/2006-8/15/2009)

36. **CT-ISG: Trusted Passage: Managing Distributed Trust to Meet the Needs of Emerging Applications**
NSF CNS/CyberTrust
Mustaque Ahamad (PI), Wenke Lee (co-PI), and Karsten Schwan (co-PI)
Funded: $350,000, (8/15/2006-8/15/2009)

37. **Cyber Threat Analytics**
ARO via subcontract from SRI International
Funded: $80,000, (7/15/2006-7/15/2007)

38. **ARL CTA**
ARL via subcontract from SPARTA/Telcordia
Funded: $75,000, (7/15/2006-7/15/2007)

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39. **Computer Network Defenses Technologies**
AFRL via subcontract from Scientific Systems Co. Funded: $30,000, (9/13/2006-3/13/2007)

40. **ARO Workshop on Research in Botnets**
ARO
Funded: $25,000, (4/1/2006-6/1/2007)

41. **Next-Generation Botnet Detection and Response**
DARPA (via ARO)
Funded: $291,346, (12/15/2005-6/14/07)

42. **An Information-Theoretic Framework for Evaluating and Optimizing Intrusion Detection Performance**
Army Research Office
Funded: $199,745, (4/1/2005-1/30/07)

43. **Preventing SQL Code Injection by Combining Static and Runtime Analysis, funded by Department of Homeland Security**
Department of Homeland Security
Alex Orso (PI) and Wenke Lee (co-PI)
Funded: $200,000, (7/1/2005-12/31/2006)

44. **Anomaly and Misuse Detection in Network Traffic Streams – Checking and Machine Learning Approaches**
Office of Naval Research MURI (University of Pennsylvania subcontract)
Sampath Kannan (PI), Insup Lee, Oleg Sokolsky, and Linda Zhao at University of Pennsylvania, Wenke Lee at Georgia Tech, and Diana Spears and William Spears at University of Wyoming.
Funded: $400,000 for Georgia Tech ($2,000,000 project total) (7/15/2004–6/1/2006)

45. **Intrusion Detection and Security Management Technologies for Mobile Ad Hoc Networks**
Army Research Lab (Scientific Systems Company Inc. subcontract)
Funded: $65,000 (2/1/2005-2/1/2006)

46. **A Course Module on Wireless Security**
Microsoft, Curriculum Development Grant
Funded: $30,000 (unrestricted gift)

47. **Intrusion Detection Techniques for Mobile Ad Hoc Networks**
NSF, CISE/CCR/Trusted Computing
Funded: $275,000 (8/15/2003-7/31/2006)
REU Funded: $15,000 (9/10/2004-7/31/2006)

48. **High-Speed Intrusion Detection Sensors**
Army Research Lab (Scientific Systems Company Inc. subcontract)
Funded: $65,000 (8/7/2003-8/6/2005)

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49. **Distributed Intrusion Detection Feasibility Study**
U.S. Government (Columbia University subcontract)
Funded: $45,000 (6/1/2003-6/30/2004)

50. **Agile Security for Storing Sensitive and Critical Information**
NSF, CISE/Trusted Computing
Mustaque Ahamad (PI), and co-PIs: Wenke Lee, Doug Blough, and H. Venkateswaran
Funded: $460,000 (8/15/2002-7/31/2005)

51. **CAREER: Adaptive Intrusion Detection Systems**
NSF, CISE/CAREER
Funded: $350,000 (8/15/2002–7/31/2007)

52. **ITR/SI: Guarding the Next Internet Frontier: Countering Denial of Information**
NSF, ITR
Mustaque Ahamad (PI), and co-PIs: Wenke Lee, Andre dos Santos, Ling Liu, Leo Mark, Ed Omiecinski, and Calton Pu
Funded: $1,694,769 (9/1/2001–8/31/2006)

53. **Vulnerability Assessment Tools for Complex Information Networks**
Army Research Office MURI (Harvard University subcontract)
Yu-Chi Ho (PI) at Harvard University, co-PIs: Avrom Pfeffer at Harvard University, Christos G. Cassandras at Boston University, Wei-Bo Gong at University of Massachusetts, Amherst, and Wenke Lee at Georgia Tech
Funded: $400,000 for Georgia Tech ($2,000,000 project total) (5/1/2001–4/30/2006)

54. **A Data Mining Approach for Building Cost-sensitive and Light Intrusion Detection Models**.
DARPA, ATO
Wenke Lee (PI), and co-PIs: Salvatore J. Stolfo at Columbia University and Philip Chan at Florida Institute of Technology
Funded: $854,000 for Georgia Tech ($2,000,001 project total) (6/1/2000–8/31/2003)

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I. Honors and Awards

1. ACSAC Test of Time Award, The 39th Annual Computer Security Applications Conference (ACSAC), for the paper "David Dagon, Guofei Gu, Christopher Lee, and Wenke Lee. A Taxonomy of Botnet Structures" published in ACSAC 2007 that have had enduring significance and impact to the security community, 2023.

2. ACSAC Test of Time Award, The 39th Annual Computer Security Applications Conference (ACSAC), for the paper " Bryan D. Payne, Martim Carbone, and Wenke Lee. Secure and Flexible Monitoring of Virtual Machines" published in ACSAC 2007 that have had enduring significance and impact to the security community, 2023.

3. ACSAC Test of Time Award, The 38th Annual Computer Security Applications Conference (ACSAC), for the paper "Paul Royal, Mitch Halpin, David Dagon, Robert Edmonds, and Wenke Lee. PolyUnpack: Automating the Hidden-Code Extraction of Unpack-Executing Malware" published in ACSAC 2006 that have had enduring significance and impact to the security community, 2022.

4. Distinguished Service Award, IEEE Technical Committee on Security and Privacy, 2022.

5. IEEE Fellow, 2021.

6. Keynote at the ACM Conference on Computer and Communications Security (CCS), 2020.

7. ACM SIGSAC (Special Interest Group on Security, Audit and Control) Outstanding Innovation Award for "contributions to network and systems security, in particular, machine-learning based approaches to security analytics, including tackling intrusion and botnet detection", 2019.

8. CCS Test of Time Award, The 25th ACM Conference on Computer and Communications Security (CCS), for the paper "Artem Dinaburg, Paul Royal, Monirul Sharif, and Wenke Lee. Ether: Malware Analysis via Hardware Virtualization Extensions" published in CCS 2008 that have had the greatest impact on security research and practice over the past decade, 2018.

9. ACM Fellow, 2017.

10. Distinguished Practical Paper Award, for the paper "Yanick Fratantonio, Chenxiong Qian, Pak Chung, and Wenke Lee. Cloak and Dagger: From Two Permissions to Complete Control of the UI Feedback Loop" in Proceedings of The 2017 IEEE Symposium on Security and Privacy, 2017.

11. Internet Defense Prize, awarded by Facebook and USENIX, for the paper "Byoungyoung Lee, Chengyu Song, Taesoo Kim, and Wenke Lee. Type Casting Verification: Stopping an Emerging Attack Vector" in Proceedings of The 24th USENIX Security Symposium, 2015.

12. Cyber Is A Global Sport Award (awarded to David Dagon and Wenke Lee), Department of Homeland Security, Science and Technology Directorate, Cyber Security Division, 2015.

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13. Outstanding Achievement in Research Program Development Award, (awarded to Mustaque Ahamad, Wenke Lee, Paul Royal, and David Dagon), Georgia Institute of Technology, 2015.

14. Outstanding Community Service Award, the IEEE Technical Committee on Security and Privacy, 2013

15. Outstanding Faculty Leadership for the Development of GRAs Award, Georgia Institute of Technology, 2012.

16. Sigma Xi Faculty Best Paper Award, Georgia Institute of Technology, 2010.

17. Best Student Paper Award, for the paper "Monirul Sharif, Andrea Lanzi, Jon Giffin, and Wenke Lee. Automatic Reverse Engineering of Malware Emulators" in Proceedings of The 2009 IEEE Symposium on Security and Privacy, 2009.

18. Outstanding Senior Faculty Research Award, College of Computing, Georgia Institute of Technology, 2009.

19. NSF CAREER Award, 2002.

20. Best Paper Award, Applied Research Category, the 5th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD '99), August 1999 (with Kui Mok and Sal Stolfo).

21. Honorable mention (runner-up) for Best Paper Award, Applied Research Category, the 4th International Conference on Knowledge Discovery and Data Mining (KDD '98), August 1998.

22. Honorable mention (runner-up) for Best Paper Award, Applied Research Category, the 3rd International Conference on Knowledge Discovery and Data Mining (KDD '97), August 1997.

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III. SERVICE

A. Professional Activities

A.1 Membership and Activities in Professional Societies

1. Fellow, Association for Computing Machinery (ACM)
2. Fellow, Institute of Electrical and Electronics Engineers (IEEE)

A.2 Journal Editorial Board Activities

1. IEEE Transactions on Dependable and Secure Computing (TDSC) 2010 - 2011.
2. ACM Transactions on Information and System Security (TISSEC) 2005 - 2011.

A.3 Conference Committee Activities

1. Annual Network and Distributed System Security Symposium (NDSS) 2024.
2. The 34th USENIX Security Symposium (2025).
3. The 33rd USENIX Security Symposium (2024).
4. The 32nd USENIX Security Symposium (2023).
5. The 31st USENIX Security Symposium (2022).
6. The 2022 ACM Conference on Computer and Communications Security.
7. The 2020 ACM Conference on Computer and Communications Security.
8. The 2020 IEEE Symposium on Security & Privacy.
9. The 30th USENIX Security Symposium (2021).
10. The 2019 ACM Conference on Computer and Communications Security.
11. The 2019 IEEE Symposium on Security & Privacy.
12. The 2018 ACM Conference on Computer and Communications Security.
13. The 2018 IEEE Symposium on Security & Privacy.
14. The 2018 IEEE European Symposium on Security & Privacy.
15. The 2017 ACM Conference on Computer and Communications Security.
16. The 26th USENIX Security Symposium (Security '17).
17. Co-chair, Security and Privacy Track, WWW 2017.

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18. Annual Network and Distributed System Security Symposium (NDSS) 2017.
19. The 25th USENIX Security Symposium (Security '16).
20. The 23rd ACM Conference on Computer and Communications Security (CCS 2016).
21. The 2016 IEEE European Symposium on Security & Privacy.
22. Annual Network and Distributed System Security Symposium (NDSS) 2016.
23. The 22nd ACM Conference on Computer and Communications Security (CCS 2015).
24. Co-chair, Security and Privacy Track, WWW 2015.
25. Annual Network and Distributed System Security Symposium (NDSS) 2015.
26. European Symposium on Research in Computer Security (ESORICS) 2014.
27. The 44th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2014).
28. Security and Privacy Track, WWW 2014.
29. *PC Chair*, The 2013 IEEE Symposium on Security and Privacy.
30. The 10th USENIX Symposium on Networked Systems Design and Implementation (NSDI 2013).
31. The 20th ACM Conference on Computer and Communications Security (CCS 2013).
32. The 16th International Symposium on Recent Advances in Intrusion Detection (RAID 2013).
33. The 19th ACM Conference on Computer and Communications Security (CCS 2012).
34. The 9th Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DMIVA 2012).
35. The 7th USENIX Workshop on Hot Topics in Security (HotSec '12).
36. *PC co-Chair*, The 2012 IEEE Symposium on Security and Privacy.
37. Financial Cryptography and Data Security (FC 2012).
38. The 19th Annual Network and Distributed System Security Symposium (NDSS 2012).
39. The 8th Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA 2011).
40. The 41st Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2011).
41. The 20th USENIX Security Symposium (Security '11).

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42. The 6th USENIX Workshop on Hot Topics in Security (HotSec '11).
43. The 2011 IEEE Symposium on Security and Privacy.
44. The 13th International Symposium on Recent Advances in Intrusion Detection (RAID 2010).
45. The 15th European Symposium on Research in Computer Security (ESORICS 2010).
46. The 7th Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA 2010).
47. Security and Privacy Track, ICDCS 2010.
48. The 40th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2010).
49. Security and Privacy Track, WWW 2010.
50. *PC Chair*, The 17th Annual Network and Distributed System Security Symposium (NDSS 2010).
51. Financial Cryptography and Data Security (FC 2010).
52. The 25th Annual Computer Security Applications Conference (ACSAC 2009).
53. The 16th ACM Conference on Computer and Communications Security (CCS 2009).
54. 14th European Symposium on Research in Computer Security (ESORICS 2009).
55. The 18th USENIX Security Symposium (Security '09).
56. *PC Chair*, The Second USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET), 2009.
57. *PC Co-Chair*, The Second ACM Conference on Wireless Network Security (WiSec), 2009.
58. The 2009 IEEE Symposium on Security and Privacy.
59. The 16th Annual Network and Distributed System Security Symposium (NDSS 2009).
60. The 24th Annual Computer Security Applications Conference (ACSAC 2008).
61. Internet Measurement Conference (IMC) 2008.
62. 13th European Symposium on Research in Computer Security (ESORICS 2008).
63. The 15th ACM Conference on Computer and Communications Security (CCS 2008).
64. The 17th USENIX Security Symposium (Security '08).
65. 3rd USENIX Workshop on Hot Topics in Security (HotSec '08).
66. The 2008 IEEE Symposium on Security and Privacy.

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67. The 15th Annual Network and Distributed System Security Symposium (NDSS 2008).
68. The 23rd Annual Computer Security Applications Conference (ACSAC 2007).
69. The 14th ACM Conference on Computer and Communications Security (CCS 2007).
70. The 10th International Symposium on Recent Advances in Intrusion Detection (RAID 2007).
71. The 16th USENIX Security Symposium (Security '07).
72. The 2007 IEEE Symposium on Security and Privacy.
73. The 14th Annual Network and Distributed System Security Symposium (NDSS 2007).
74. The 2nd International Conference on Security and Privacy for Emerging Areas in Communication Networks (SecureComm 2006).
75. The 15th USENIX Security Symposium (Security '06).
76. The 13th Annual Network and Distributed System Security Symposium (NDSS 2006).
77. The 1st International Conference on Security and Privacy for Emerging Areas in Communication Networks (SecureComm 2005).
78. The 2005 IEEE Symposium on Security and Privacy.
79. The 2005 ACM Workshop on Wireless Security (WiSe 2005).
80. The 2005 IEEE International Conference on Data Mining (ICDM 2005).
81. The Fourteenth International World Wide Web Conference (WWW 2005).
82. The 2005 International Conference on Distributed Computing Systems (ICDCS).
83. The 2004 ACM Workshop on Visualization and Data Mining for Computer Security (VizSEC/DMSEC 2004).
84. The 2004 ACM Workshop on Security of Ad Hoc and Sensor Networks (SASN 2004).
85. The 2004 ACM Workshop on Wireless Security (WiSe 2004).
86. Steering Committee and the 7th International Symposium on Recent Advances in Intrusion Detection (RAID 2004).
87. The 10th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2004.
88. The 2004 SIAM International Conference on Data Mining, 2004.
89. The 2004 IEEE International Conference on Data Mining (ICDM 2004).
90. The 2004 IEEE Information Assurance Workshop.

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91. Co-Chair of the the ICDM Workshop on Data Mining for Computer Security (DMSEC 2003).
92. The 2003 IEEE International Conference on Data Mining (ICDM 2003).
93. The 2003 ACM Workshop on Wireless Security (WiSe 2003).
94. Steering Committee and the 6th International Symposium on Recent Advances in Intrusion Detection (RAID 2003).
95. The 9th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2003.
96. The 2003 IEEE Information Assurance Workshop.
97. Steering Committee for the 5th International Symposium on Recent Advances in Intrusion Detection (RAID 2002).
98. The 2002 ACM New Security Paradigms Workshop.
99. The 2002 IEEE Symposium on Security and Privacy.
100. *PC Co-Chair*, The 4th International Symposium on Recent Advances in Intrusion Detection (RAID 2001).
101. Program Committee and Organizational Committee for the 6th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2000.

B. On-campus Georgia Tech Committees

1. Curriculum Committee, School of Cybersecurity and Privacy, 2024 - .
2. Chair, RPT Committee, School of Cybersecurity and Privacy, 2024 - .
3. Chair, Faculty Recruiting Committee, School of Cybersecurity and Privacy, 2023.
4. Chair, Faculty Recruiting Committee, School of Cybersecurity and Privacy, 2021.
5. 5-Year Review Committee for the Chair of School of Computer Science, College of Computing, 2016.
6. Faculty Recruiting Committee, School of Computer Science, 2014.
7. Faculty Recruiting Committee, School of Computer Science, 2012-13.
8. RPT Committee, College of Computing, 2010-2012.
9. College of Computing Dean Search Committee, 2009-2010, College of Computing.
10. Chair, Faculty Recruiting Committee, 2008-2009, School of Computer Science, College of Computing.

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11. Chair Advisory Committee, 2008-2009, School of Computer Science, College of Computing.
12. Co-Chair, Faculty Recruiting Committee, 2007-2008, School of Computer Science, College of Computing.
13. RPT Executive Committee, 2007-2008, College of Computing.
14. Faculty Recruiting Committee, 2006-2007, College of Computing.
15. Faculty Recruiting Committee, 2005-2006, College of Computing.
16. Undergraduate Curriculum Task Force, 2004-2005, College of Computing.
17. Ph.D. Admissions Committee, 2003-2004, College of Computing.
18. Faculty Recruiting Committee, 2001-2003, College of Computing.

E. Consulting and Advisory Appointments

1. External Review Committee of the Computer Science Department at the University of California, Santa Barbara. 2022.
2. Advisory Board of the NUS-Singtel Cyber Security Research & Development Laboratory, National University of Singapore. 2019-2021.
3. Secure, Accessible & Fair Elections (SAFE) Commission, State of Georgia, 2018-2019
4. Advisory Board of the Faculty of Engineering, The Chinese University of Hong Kong. 2017-
5. Board of Trustees, Pace Academy. 2017-

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IV. NATIONAL AND INTERNATIONAL PROFESSIONAL RECOGNITION

A. Patents

1. "RTCAPTCHA: A Real-Time Captcha Based Liveness Detection System". Erkam Uzun, Pak Ho Chung, Irfan A. Essa, and Wenke Lee. U.S. Patent Number: 11,663,307, May 2023.
2. "Privacy preserving face-based authentication". Pak Ho Chung, Wenke Lee, Erkam Uzun, and Carter Yagemann. U.S. Patent Number: 11,494,476, November 2022.
3. "Devices, systems, and methods of program identification, isolation, and profile attachment". Ruian Duan, Ashish Bijlani, Taesoo Kim, and Wenke Lee. U.S. Patent Number: 11,036,479, June 2021.
4. "Systems and methods for using video for user and message authentication". Pak Ho Chung, Wenke Lee, and Yeongjin Jang. U.S. Patent Number: 10,476,888, November 2019.
5. "Method and System for Detecting Malware". Manos Antonakakis, Roberto Perdisci, Wenke Lee, and Gunter Ollmann. U.S. Patent Number: 10,257,212, April 2019.
6. "Methods and systems for detecting compromised computers", David Dagon, Nick Feamster, Wenke Lee, Robert Edmonds, Richard Lipton, and Anirudh Ramachandran. U.S. Patent Number: 10,044,748, August 2018.
7. "Method and system for detecting malicious and/or botnet-related domain names". Roberto Perdisci, Wenke Lee, and Gunter Ollmann. U.S. Patent Number: 10,027,688, July 2018.
8. "Method and system for network-based detecting of malware from behavioral clustering". Roberto Perdisci and Wenke Lee. U.S. Patent Number: 9,948,671, April 2018.
9. "Method and system for detecting DGA-based malware". Manos Antonakakis, Roberto Perdisci, Wenke Lee, and Nikolaos Vasiloglou. U.S. Patent Number: 9,922,190, March 2018.
10. "Method and system for detecting malicious domain names at an upper DNS hierarchy". Manos Antonakakis, Roberto Perdisci, Wenke Lee, and Nikolaos Vasiloglou. U.S. Patent Number: 9,686,291, June 2017.
11. "Systems and methods of safeguarding user information while interacting with online service providers". Wenke Lee, Sasha Boldyreva, Simon Chung, Billy Lau, and Chengyu Song. U.S. Patent Number: 9,659,189, May 2017.
12. "Method and System for Detecting Malware". Manos Antonakakis, Roberto Perdisci, Wenke Lee, and Gunter Ollmann. U.S. Patent Number: 9,525,699, December 2016.
13. "Method and system for determining whether domain names are legitimate or malicious", Manos Antonakakis, Roberto Perdisci, David Dagon, and Wenke Lee. U.S. Patent Number: 9,516,058, December 2016.
14. "Method and systems for detecting compromised networks and/or computers", David Dagon, Nick Feamster, Wenke Lee, Robert Edmonds, Richard Lipton, and Anirudh Ramachandran. U.S. Patent Number: 9,306,969, April 2016.

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15. “Systems and methods for secure in-VM monitoring”, Monirul Sharif and Wenke Lee. U.S. Patent Number: 9,129,106, September 2015.

16. “Method and system for network-based detecting of malware from behavioral clustering”. Roberto Perdisci, Wenke Lee, and Gunter Ollmann. U.S. Patent Number: 8,826,438, September 2014.

17. “Method and system for detecting malicious domain names at an upper DNS hierarchy”. Manos Antonakakis, Roberto Perdisci, Wenke Lee, and Nikolaos Vasiloglou. U.S. Patent Number: 8,631,489, January 2014.

18. “Method and System for Detecting Malware”. Manos Antonakakis, Roberto Perdisci, Wenke Lee, and Gunter Ollmann. U.S. Patent Number: 8,578,497, November 2013.

19. “Method and System for Detecting and Responding to Attacking Networks”. David Dagon, Nick Feamster, Wenke Lee, Robert Edmonds, Richard Lipton, and Anirudh Ramachandran. U.S. Patent Number: 8,566,928, October 2013.

20. “Methods for Cost-Sensitive Modeling for Intrusion Detection and Response”. Wei Fan, Wenke Lee, Matt Miller, and Sal Stolfo. U.S. Patent Number: 7,818,797, October 2010.

21. “Method and System for Using Intelligent Agents for Financial Transactions, Services, Accounting, and Advice”. Dan Schutzer, Will Foster, Huanrui Hu, Wenke Lee, Sal Stolfo, and Wei Fan. U.S. Patent Number: 5,920,848, July 1999.

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V. OTHER CONTRIBUTIONS

A. Seminar Presentations

1. "Privacy and Reliability Issues of AI Systems", Lecture at the University College London Computer Science, November 2024.
2. "Privacy and Reliability Issues of AI Systems", Distinguished Lecture at the Penn State College of Information Sciences and Technology, November 2024.
3. "Privacy and Reliability Issues of AI Systems", Inaugural Speaking of the Dean's Speaker Series at the Kennesaw State University College of Computing and Software Engineering, October 2024.
4. "Privacy and Reliability Issues of AI Systems", Lecture at the University of Chicago Department of Computer Science, October 2024.
5. "How To Make YOUR Computer More Secure Than The Internet", Distinguished Lecture at the University of Wisconsin, Madison, November 2023.
6. "Machine Learning and Security: The Good, The Bad, and The Ugly", Distinguished Lecture at Dartmouth College, April, 2021.
7. "Machine Learning and Security: The Good, The Bad, and The Ugly", Distinguished Lecture at Ohio State University, January, 2021.
8. "Machine Learning and Security: The Good, The Bad, and The Ugly", Keynote at the 2020 ACM Conference on Computer and Communications Security, November, 2021.
9. "Security Overlay", Stony Brook University, March 2016.
10. "Security Overlay", Princeton University, October 2015.
11. "Internet Monitoring via DNS Traffic Analysis", Google-UMD Cybersecurity Seminar, November 2012.
12. "Botnet Detection and Response: Challenges and Opportunities", Carnegie Mellon University, September 2007.
13. "Botnet Detection and Response", Indiana University, March 2007.
14. "Botnet Detection and Response", University of Pittsburgh, October 2006.
15. "Architecture Considerations for Anomaly Detection", University of Texas at San Antonio, November, 2005
16. "Advanced Intrusion Detection Techniques", National Security Research Institute, Daejon, South Korea, February, 2005
17. "U.S. Policy and Recent Detection Techniques for Cyber Threats and Attacks", National Cyber Security Center, Seoul South Korea, February, 2005

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18. “Architecture Considerations for Anomaly Detection”, Purdue University, February, 2005

19. “Architecture Considerations for Anomaly Detection”, Graduate Center of The City University of New York, February, 2005

20. “Architecture Considerations for Anomaly Detection”, The University of Alabama, November, 2004

21. “Architecture Considerations for Anomaly Detection”, Carnegie Mellon University, September, 2004

22. “Architecture Considerations for Anomaly Detection”, University of Wisconsin at Madison, August, 2004

23. “Local Worm Detection and Response: Algorithms and Analytical Models”, Lawrence Livermore National Laboratory, June 2004

24. “Intrusion Detection”, Carnegie Mellon University, October 2003

25. “Algorithms for Recognizing New Attack Step Relationships”, University of Pennsylvania, September 2003

26. “Intrusion Detection”, Emory University, October 2001

27. “Developing Data Mining Techniques for Intrusion Detection: A Progress Report”, Center for Education and Research in Information Assurance and Security, Purdue University, October 2000

28. “A Data Mining Framework for Building Intrusion Detection Models”, Institute for Security Technology Studies, Dartmouth College, Hanover, NH, July 2000

29. “A Data Mining Framework for Building Intrusion Detection Models”, Department of Electrical and Computer Engineering, University of Massachusetts, Amherst, MA, February 2000

30. “A Data Mining Framework for Building Intrusion Detection Models”, HRL Laboratories, Malibu, CA, November 1999

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