

## Debin GAO

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Date of CV revision: 10 January 2017

**Citizenship:** Singaporean

## Education

2004 - 2006	Ph.D. in Electrical and Computer Engineering Carnegie Mellon University Pittsburgh, PA, USA
2002 - 2004	Master of Science in Electrical and Computer Engineering Carnegie Mellon University Pittsburgh, PA, USA
1997 - 2001	Bachelor of Engineering in Electrical and Electronic Engineering Nanyang Technological University, Singapore

## Position(s) Held

Jul 2015 - Now	Associate Professor School of Information Systems Singapore Management University
Jul 2007 - Jun 2015	Assistant Professor School of Information Systems Singapore Management University
Jan 2007 - May 2007	Software Systems Engineer CyLab, Carnegie Mellon University Pittsburgh, PA, USA
May 2005 - Aug 2005	Intern in Systems and Networking Group Microsoft Research, Redmond, WA, USA
Jun 2001 - May 2002	Teaching Assistant Department of Computer Science, School of Computing National University of Singapore

## Research Interests

1. Systems security, intrusion detection, mobile security, software security, human factors in computer security

## Journal Article

1. "A novel covert channel detection method in cloud based on XSRM and improved event association algorithm", by WANG, Lina; LIU, Weijie; KUMAR, Neeraj; HE, Debiao; TAN, Cheng; GAO, Debin, 11/2016, *Security and Communication Networks*, 9, 16, 3543 - 3557, <http://doi.org/10.1002/sec.1560>. (Published, Peer-Reviewed)
2. "Integrated software fingerprinting via neural-network-based control flow obfuscation", by MA, Haoyu; LI, Ruiqi; YU, Xiaoxu; JIA, Chunfu; GAO, Debin, 10/2016, *IEEE Transactions on Information Forensics and Security*, 11, 10, 2322 - 2337, <http://dx.doi.org/10.1109/TIFS.2016.2555287>. (Published, Peer-Reviewed)
3. "StopWatch: A Cloud Architecture for Timing Channel Mitigation", by LI, Peng; GAO, Debin; REITER, Michael K., 11/2014, *ACM Transactions on Information and System Security*, 17, 2, <http://dx.doi.org/10.1145/2670940>. (Published, Peer-Reviewed)
4. "Beyond Output Voting: Detecting Compromised Replicas Using HMM-based Behavioral Distance", by GAO, Debin; Reiter, Michael K.; SONG, Dawn, 04/2009, *IEEE Transactions on Dependable and Secure Computing*, 6, 2, 96 - 110, <http://dx.doi.org/10.1109/TDSC.2008.39>. (Published, Peer-Reviewed)
5. "Finding the same source programs based on the structural fingerprint distance of call graph", by YIN, Zhiyi; ZHU, Fuxi; FU, Jianming; GAO, Debin, 01/2009, *Neural Network World*, 19, 6, 681 - 693, <http://www.nnw.cz/obsahy09.html>. (Published, Peer-Reviewed)

## Conference Proceedings Article

1. "SCLib: A Practical and Lightweight Defense to Stop Component Hijacking in Android Applications", by Daoyuan Wu, Yao Cheng, Debin Gao, Yingjiu Li and Robert H. Deng, 06/2017, *The 47th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2017)*, Denver,CO,USA. (Submitted, Peer-Reviewed)
2. "On the effectiveness of code-reuse-based Android application obfuscation", by TANG, Xiaoxiao; LIANG, Yu; MA, Xinjie; LIN, Yan; GAO, Debin, 01/2017, *Information Security and Cryptology: ICISC 2016 Revised Selected Papers*, Seoul, Korea: Springer. (Published, Peer-Reviewed)
3. "Control flow integrity enforcement with dynamic code optimization", by LIN, Yan; TANG, Xiaoxiao; GAO, Debin; FU, Jianming, 09/2016, *Information Security: Proceedings of 19th International Conference, ISC 2016*, Honolulu, HI: Springer, [http://dx.doi.org/10.1007/978-3-319-45871-7\\_22](http://dx.doi.org/10.1007/978-3-319-45871-7_22). (Published, Peer-Reviewed)
4. "MobiPot: Understanding Mobile Telephony Threats with Honeycards", by BALDUZZI, Marco; GUPTA, Payas; GU, Lion; GAO, Debin; AHAMAD, Mustaque, 06/2016, *ASIA CCS '16: Proceedings of the 11th ACM Symposium on Information, Computer and Communications Security: Xi'an, China, May 30 - June 3, 2016*, 723 - 734, New York: ACM, <http://dx.doi.org/10.1145/2897845.2897890>. (Published, Peer-Reviewed)
5. "MopEye: Monitoring Per-app Network Performance with Zero Measurement Traffic", by Wu, Daoyuan; Li, Weichao; Chang, Rocky K. C.; Gao, Debin, 12/2015, *11th International Conference on emerging Networking EXperiments and Technologies (CoNEXT 2015)*, Heidelberg, Germany. (Published)
6. "Stack Layout Randomization with Minimal Rewriting of Android Binaries", by Liang, Yu; Ma, Xinjie; Wu, Daoyuan; Tang, Xiaoxiao; Gao, Debin; Peng, Guojun; Jia, Chunfu; Zhang, Huanguo, 11/2015, *18th annual International Conference on Information Security and Cryptology (ICISC 2015)*, Seoul, Korea. (Published)

7. "Replica Placement for Availability in the Worst Case", by LI, Peng; GAO, Debin; REITER, Mike, 07/2015, *2015 IEEE 35th International Conference on Distributed Computing Systems (ICDCS): June 29, 2015 - July 2, 2015, Columbus, OH, USA*, 599 - 608, Piscataway, NJ: IEEE, <http://dx.doi.org/10.1109/ICDCS.2015.67>. (Published, Peer-Reviewed)
8. "Software Watermarking using Return-Oriented Programming", by MA, Haoyu; LU, Kangjie; MA, Xinjie; ZHANG, Haining; JIA, Chunfu; GAO, Debin, 04/2015, *ASIACCS'15: Proceedings of the 10th ACM Symposium on Information, Computer and Communications Security: April 14-17, 2015, Singapore*, 369 - 380, New York: ACM, <http://dx.doi.org/10.1145/2714576.2714582>. (Published, Peer-Reviewed)
9. "Android or iOS for Better Privacy Protection?", by HAN, Jin; Yan, Qiang; GAO, Debin; ZHOU, Jianying; DENG, H. Robert, 12/2014, *International Conference on Secure Knowledge Management in Big-data Era SKM 2014, 8-9 December, Dubai, UAE*. (Published, Peer-Reviewed)
10. "Control Flow Obfuscation using Neural Network to Fight Concolic Testing", by MA, Haoyu; MA, Xinjie; LIU, Weijie; Huang, Zhipeng; GAO, Debin; Jia, Chunfu, 09/2014, *International Conference on Security and Privacy in Communication Networks: 10th International ICST Conference, SecureComm 2014, Beijing, China, September 24-26, 2014, Revised Selected Papers, Part I*, 287 - 304, New York: Springer Verlag, [http://dx.doi.org/10.1007/978-3-319-23829-6\\_21](http://dx.doi.org/10.1007/978-3-319-23829-6_21). (Published, Peer-Reviewed)
11. "Keystroke Biometrics: The User Perspective", by TEY, Chee Meng; PAYAS, Gupta; MURALIDHARAN, Kartik; GAO, Debin, 03/2014, *CODASPY'14: Proceedings of the 4th ACM Conference on Data and Application Security and Privacy: March 3-5, 2014, San Antonio, Texas*, 289 - 296, New York: ACM, <http://dx.doi.org/10.1145/2557547.2557573>. (Published, Peer-Reviewed)
12. "RopSteg: Program Steganography with Return Oriented Programming", by LU, Kangjie; XIONG, Siyang; GAO, Debin, 03/2014, *CODASPY'14: Proceedings of the 4th ACM Conference on Data and Application Security and Privacy: March 3-5, 2014, San Antonio, Texas*, 265 - 272, New York: ACM, <http://dx.doi.org/10.1145/2557547.2557572>. (Published, Peer-Reviewed)
13. "Defending against heap overflow by using randomization in nested virtual clusters", by TEY, Chee Meng; GAO, Debin, 11/2013, *Information and Communications Security: 15th International Conference, ICICS 2013, Beijing, China, November 20-22: Proceedings*, 1 - 16, Beijing, China: Springer Verlag, [http://dx.doi.org/10.1007/978-3-319-02726-5\\_1](http://dx.doi.org/10.1007/978-3-319-02726-5_1). (Published, Peer-Reviewed)
14. "Launching Generic Attacks on iOS with Approved Third-party Applications", by HAN, Jin; SU, Mon Kywe; YAN, Qiang; BAO, Feng; DENG, Robert H.; GAO, Debin; LI, Yingjiu; ZHOU, Jianying, 06/2013, *Applied Cryptography and Network Security: 11th International Conference, ACNS 2013, Banff, AB, Canada, June 25-28, 2013: Proceedings*, 272 - 289, Berlin: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-38980-1\\_17](http://dx.doi.org/10.1007/978-3-642-38980-1_17). (Published, Peer-Reviewed)
15. "Keystroke Timing Analysis of on-the-fly Web Apps", by Tey, Chee Meng; GUPTA, Payas; GAO, Debin; ZHANG, YAN, 06/2013, *Applied Cryptography and Network Security: 11th International Conference, ACNS 2013, Banff, AB, Canada, June 25-28, 2013: Proceedings*, 405 - 413, Banff, Alberta, Canada: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-38980-1\\_25](http://dx.doi.org/10.1007/978-3-642-38980-1_25). (Published, Peer-Reviewed)
16. "Mitigating Access-Driven Timing Channels in Clouds using StopWatch", by LI, Peng; GAO, Debin; Reiter, Michael K., 06/2013, *2013 43rd Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, 1 - 12, Budapest, Hungary: IEEE, <http://dx.doi.org/10.1109/DSN.2013.6575299>. (Published, Peer-Reviewed)
17. "Your Love is Public Now: Questioning the Use of Personal Information in Authentication", by GUPTA, Payas; GOTTIPATI, Swapna; JIANG, Jing; GAO, Debin, 05/2013, *ASIA CCS'13: Proceedings of the 8th ACM SIGSAC Symposium on Information, Computer and Communications Security: May 8-10, 2013, Hangzhou, China*, 49 - 60, New York: ACM,

<http://dx.doi.org/10.1145/2484313.2484319>. (Published, Peer-Reviewed)

18. "I Can Be You: Questioning the Use of Keystroke Dynamics as Biometrics", by TEY, Chee Meng; GUPTA, Payas; GAO, Debin, 02/2013, *Annual Network and Distributed System Security Symposium 20th NDSS 2013, 24-27 February, San Diego, CA*, <http://www.internetsociety.org/doc/i-can-be-you-questioning-use-keystroke-dynamics-biometrics>. (Published, Peer-Reviewed)
19. "Comparing Mobile Privacy Protection through Cross-Platform Applications", by HAN, Jin; YAN, QIANG; GAO, Debin; ZHOU, Jianying; DENG, Robert H., 02/2013, *Proceedings of NDSS 2013: Network and Distributed System Security Symposium, 24-27 February, San Diego, Reston, VA: Internet Society*, <http://www.internetsociety.org/doc/comparing-mobile-privacy-protection-through-cross-platform-applications>. (Published, Peer-Reviewed)
20. "iBinHunt: Binary Hunting with Inter-Procedural Control Flow", by MING, Jiang; PAN, Meng; GAO, Debin, 01/2013, *Information Security and Cryptology - ICISC 2012: 15th International Conference, Seoul, Korea, November 28-30, 2012: Revised Selected Papers*, 92 - 109, Berlin: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-37682-5\\_8](http://dx.doi.org/10.1007/978-3-642-37682-5_8). (Published, Peer-Reviewed)
21. "OTO: Online Trust Oracle for User-Centric Trust Establishment", by KIM, Tiffany Hyun-Jin; GUPTA, Payas; Han, Jun; Owusu, Emmanuel; Hong, Jason; Perrig, Adrian; GAO, Debin, 10/2012, *CCS'12 : the proceedings of the 2012 ACM Conference on Computer and Communications Security : October 16-18, 2012, Raleigh, North Carolina, USA*, 391 - 403, New York: ACM, <http://dx.doi.org/10.1145/2382196.2382239>. (Published, Peer-Reviewed)
22. "Learning Fine-Grained Structured Input for Memory Corruption Detection", by ZHAO, Lei; GAO, Debin; WANG, Lina, 09/2012, *Information security : 15th international conference, ISC 2012, Passau, Germany, September 19 - 21, 2012 ; proceedings*, Berlin: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-33383-5\\_10](http://dx.doi.org/10.1007/978-3-642-33383-5_10). (Published, Peer-Reviewed)
23. "Active Malware Analysis using Stochastic Games", by WILLIAMSON, Simon; VARAKANTHAM, Pradeep; GAO, Debin; ONG, Chen Hui, 06/2012, *Proceedings of the 11th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2012): Valencia, Spain, June 4-8*, 29 - 36, Richland, SC: IFAAMAS, <http://dl.acm.org/citation.cfm?id=2343580>. (Published, Peer-Reviewed)
24. "Coercion Resistance in Authentication Responsibility Shifting", by GUPTA, Payas; DING, Xuhua; GAO, Debin, 05/2012, *ASIACCS '12: Proceedings of the 7th ACM Symposium on Information, Computer and Communications Security*, 97 - 98, New York, NY: ACM, <http://dx.doi.org/10.1145/2414456.2414512>. (Published, Peer-Reviewed)
25. "HuMan: Creating Memorable Fingerprints of Mobile Users", by PAYAS, Gupta; TAN, Kiat Wee; RAMASUBBU, Narayanasamy; LO, David; GAO, Debin; BALAN, Rajesh Krishna, 03/2012, *2012 IEEE International Conference on Pervasive Computing and Communications Workshops, Lugano, Switzerland, 19-23 March 2012: Proceedings*, 479 - 482, Piscataway, NJ: IEEE, <http://dx.doi.org/10.1109/PerComW.2012.6197540>. (Published, Peer-Reviewed)
26. "deRop: Removing Return-Oriented Programming from Malware", by LU, Kangjie; ZOU, Dabi; Weng, Weiping; GAO, Debin, 12/2011, *ACSAC '11 Proceedings of the 27th Annual Computer Security Applications Conference: Orlando, FL, USA — December 05 - 09, 2011*, 363 - 372, New York, NY, USA: ACM, <http://dx.doi.org/10.1145/2076732.2076784>. (Published, Peer-Reviewed)
27. "Launching Return-Oriented Programming Attacks against Randomized Relocatable Executables", by LIU, Limin; Han, JIN; GAO, Debin; Jing, Jiwu; ZHA, Daren, 11/2011, *IEEE 10th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom), 2011 : Changsha, China, 16 - 18 November 2011 ; conferences, symposiums and workshops*, 37 - 44, Piscataway, NJ: IEEE, <http://dx.doi.org/10.1109/TrustCom.2011.9>. (Published, Peer-Reviewed)

28. "Packed, Printable, and Polymorphic Return-Oriented Programming", by LU, Kangjie; Zou, Dabi; Wen, Weiping; GAO, Debin, 09/2011, *Recent Advances in Intrusion Detection: 14th International Symposium, RAID 2011, Menlo Park, CA, USA, September 20-21, 2011. Proceedings*, 101 - 120, Menlo Park, CA: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-23644-0\\_6](http://dx.doi.org/10.1007/978-3-642-23644-0_6). (Published, Peer-Reviewed)
29. "Linear Obfuscation to Combat Symbolic Execution", by WANG, Zhi; Ming, Jiang; Jia, Chunfu; GAO, Debin, 09/2011, *Computer Security - ESORICS 2011: 16th European Symposium on Research in Computer Security, Leuven, Belgium, September 12-14: Proceedings*, 210 - 226, Berlin: Springer Verlag, <http://flyer.sis.smu.edu.sg/esorics11.pdf>. (Published, Peer-Reviewed)
30. "On Detection of Erratic Arguments", by HAN, Jin; YAN, Qiang; DENG, Robert H.; GAO, Debin, 09/2011, *Security and Privacy in Communication Networks: 7th International ICST Conference, SecureComm 2011, London, UK, September 7-9, 2011, Revised Selected Papers*, 172 - 189, Heidelberg: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-31909-9\\_10](http://dx.doi.org/10.1007/978-3-642-31909-9_10). (Published, Peer-Reviewed)
31. "Towards Ground Truthing Observations in Gray-Box Anomaly Detection", by Ming, Jiang; ZHANG, Haibin; GAO, Debin, 09/2011, *5th International Conference on Network and System Security (NSS 2011)*, Milan, Italy, <http://flyer.sis.smu.edu.sg/nss11.pdf>. (Published, Peer-Reviewed)
32. "A Multi-User Steganographic File System on Untrusted Shared Storage", by Han, Jin; Pan, Meng; GAO, Debin; PANG, Hwee Hwa, 12/2010, *ACSAC '10 Proceedings of the 26th Annual Computer Security Applications Conference, December 6-10, 2010, Austin, Texas, USA*, New York, NY: ACM, <http://portal.acm.org/citation.cfm?id=1920309>. (Published, Peer-Reviewed)
33. "Revisiting Address Space Randomization", by WANG, Zhi; CHENG, Renquan; GAO, Debin, 12/2010, *ICISC'10 Proceedings of the 13th international conference on Information security and cryptology*, 207 - 221, Seoul, Korea: Springer-Verlag Berlin Heidelberg. (Published, Peer-Reviewed)
34. "On Challenges in Evaluating Malware Clustering", by LI, Peng; LIU, Limin; GAO, Debin; Reiter, Michael K, 09/2010, *Recent Advances in Intrusion Detection: 13th International Symposium, RAID 2010, Ottawa, Ontario, Canada, September 15-17, 2010: Proceedings*, 238 - 255, Berlin ; Heidelberg: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-15512-3\\_13](http://dx.doi.org/10.1007/978-3-642-15512-3_13). (Published, Peer-Reviewed)
35. "Fighting Coercion Attacks in Key Generation using Skin Conductance", by GUPTA, Payas; GAO, Debin, 08/2010, *USENIX Security'10 Proceedings of the 19th USENIX conference on Security*, 30 - 30, Washington, DC, USA: USENIX Association Berkeley. (Published, Peer-Reviewed)
36. "Denial-of-Service Attacks on Host-Based Generic Unpackers", by LIU, Limin; MING, Jiang; WANG, Zhi; GAO, Debin; JIA, Chunfu, 12/2009, *Information and Communications Security: 11th International Conference, ICICS 2009, Beijing, China, December 14-17: Proceedings*, 241 - 253, Berlin: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-11145-7\\_19](http://dx.doi.org/10.1007/978-3-642-11145-7_19). (Published, Peer-Reviewed)
37. "Automatically Adapting a Trained Anomaly Detector to Software Patches", by LI, Peng; GAO, Debin; Reiter, Michael K., 09/2009, *Recent Advances in Intrusion Detection: 12th International Symposium, RAID 2009, Saint-Malo, France, September 23-25: Proceedings*, 142 - 160, Saint-Malo, France: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-04342-0\\_8](http://dx.doi.org/10.1007/978-3-642-04342-0_8). (Published, Peer-Reviewed)
38. "On the Effectiveness of Software Diversity: A Systematic Study on Real-World Vulnerabilities", by HAN, Jin; GAO, Debin; DENG, Robert H., 07/2009, *Detection of Intrusions and Malware, and Vulnerability Assessment: 6th International Conference, DIMVA 2009, Como, Italy, July 9-10: Proceedings*, 127 - 146, Berlin: Springer Verlag, [http://dx.doi.org/10.1007/978-3-642-02918-9\\_8](http://dx.doi.org/10.1007/978-3-642-02918-9_8). (Published, Peer-Reviewed)

39. "Bridging the Gap between Data-Flow and Control-Flow Analysis for Anomaly Detection", by LI, Peng; PARK, Hyundo; GAO, Debin; Fu, Jianming, 10/2008, *Twenty-Fourth Annual COMPUTER SECURITY APPLICATIONS Conference*, USA: IEEE, <http://dx.doi.org/10.1109/ACSAC.2008.17>. (Published, Peer-Reviewed)
40. "Binhunt: Automatically Finding Semantic Differences in Binary Programs", by GAO, Debin; Reiter, Michael K.; SONG, Dawn, 10/2008, *Information and Communications Security: 10th International Conference, ICICS 2008 Birmingham, UK, October 20 - 22, 2008 Proceedings*, 238 - 255, Berlin: Springer Verlag, [http://dx.doi.org/10.1007/978-3-540-88625-9\\_16](http://dx.doi.org/10.1007/978-3-540-88625-9_16). (Published, Peer-Reviewed)
41. "Distinguishing between FE and DDoS using Randomness Check", by PARK, Hyundo; LI, Peng; GAO, Debin; LEE, Heejo; DENG, Robert H., 09/2008, *Information security : 11th international conference, ISC 2008, Taipei, Taiwan, September 15-18, 2008 : proceedings*, 131 - 145, Berlin: Springer Verlag, [http://dx.doi.org/10.1007/978-3-540-85886-7\\_9](http://dx.doi.org/10.1007/978-3-540-85886-7_9). (Published, Peer-Reviewed)
42. "Behavioral Distance Measurement using Hidden Markov Models", by GAO, Debin; Reiter, Michael K.; SONG, Dawn, 09/2006, *Recent Advances in Intrusion Detection: 9th International Symposium, RAID 2006 Hamburg, Germany, September 20-22, 2006 Proceedings*, 19 - 40, Hamburg, Germany: Springer Verlag, [http://dx.doi.org/10.1007/11856214\\_2](http://dx.doi.org/10.1007/11856214_2). (Published, Peer-Reviewed)
43. "Behavioral Distance for Intrusion Detection", by GAO, Debin; Reiter, Michael K.; SONG, Dawn, 09/2005, *8th International Symposium, RAID 2005, Seattle, WA, USA, September 7-9, 2005. Revised Papers*, 63 - 81, Seattle, WA, USA: Springer Verlag, [http://dx.doi.org/10.1007/11663812\\_4](http://dx.doi.org/10.1007/11663812_4). (Published, Peer-Reviewed)
44. "Gray-Box Extraction of Execution Graphs for Anomaly Detection", by GAO, Debin; Reiter, Michael K.; SONG, Dawn, 10/2004, *CCS 2004: Proceedings of the 11th ACM Conference on Computer and Communications Security, October 25-29, 2004, Washington, DC*, 318 - 329, Washington, DC, USA: ACM, <http://dx.doi.org/10.1145/1030083.1030126>. (Published, Peer-Reviewed)
45. "On Gray-Box Program Tracking for Anomaly Detection", by GAO, Debin; Reiter, Michael K.; SONG, Dawn, 08/2004, *SSYM'04 Proceedings of the 13th USENIX Security Symposium, August 9-13, 2004, San Diego, CA*, 103 - 118, San Diego, CA, USA: USENIX Association, <http://dl.acm.org/citation.cfm?id=1251383>. (Published, Peer-Reviewed)

## Conference Program Committee and Advisory Services

1. Member, Program committee, The 6th Applied Cryptography and Network Security (ACNS 2008), 2008 - 2008
2. Member, Program committee, The 11th International Symposium on Recent Advances in Intrusion Detection (RAID 2008), 2008 - 2008
3. Program committee member and session chair, Program committee , The 11th Information Security Conference (ISC 2008), 2008 - 2008
4. Member, Program committee , The 2009 IEEE Symposium on Computational Intelligence in Cyber Security (CICS 2009), 2009 - 2009
5. Member, Program committee , The 31st IEEE Symposium on Security and Privacy (Oakland 2010), 2010 - 2010
6. Member, Program committee , The 4th IEEE International Conference on Secure Software Integration and Reliability Improvement (SSIRI 2010), 2010 - 2010

7. Member, Program committee , The 6th International Conference on Information Systems Security (ICISS 2010), 2010 - 2010
8. Mmember, Program committee, The 32nd IEEE Symposium on Security and Privacy (Oakland 2011), 2011 - 2011
9. Member, Program committee, The 7th Information Security Practice and Experience Conference (ISPEC 2011), 2011 - 2011
10. Member, Program committee, The 2011 IEEE Symposium on Computational Intelligence in Cyber Security (CICS 2011), 2011 - 2011
11. Member, Program committee, The 13th International Symposium on Recent Advances in Intrusion Detection (RAID 2011), 2011 - 2011
12. Mmember, Program committee, The 7th ACM Symposium on Information, Computer and Scommunications Security (AsiaCCS 2012), 2012 - 2012
13. Member, Program committee, The 33rd IEEE Symposium on Security and Privacy (Oakland 2012), 2012 - 2012
14. Member, Program committee, The 15th International Symposium on Research in Attacks, Intrusions and Defenses (RAID 2012), 2012 - 2012
15. Member, Program committee, The 34th IEEE Symposium on Security and Privacy (Oakland 2013), 2013 - 2013
16. Member, Program committee, The 9th Information Security Practice and Experience Conference (ISPEC 2013), 2013 - 2013
17. Member, Program committee, The 8th ACM Symposium on Information, Computer and Scommunications Security (AsiaCCS 2013), 2013 - 2013
18. Member, Program committee, The 3rd ACM Conference on Data and Application Security and Privacy (CODASPY 2013), 2013 - 2013
19. Member, Program committee, The 15th International Conference on Information and Communications Security (ICICS 2013), 2013 - 2013
20. Member, Program committee, The 16th International Symposium on Research in Attacks, Intrusions and Defenses (RAID 2013), 2013 - 2013
21. Member, Program committee, Learning from Authoritative Security Experiment Results workshop (LASER 2013), 2013 - 2013
22. Member, Program committee, The 4th ACM Conference on Data and Application Security and Privacy (CODASPY 2014), 2014 - 2014
23. Member, Program committee, The 9th ACM Symposium on Information, Computer and Scommunications Security (AsiaCCS 2014), 2014 - 2014
24. Chair, Workshops organizing, The 10th International Conference on Security and Privacy in Communication Networks (SecureComm 2014), 2014 - 2014
25. Member, Program committee, The 4th Annual ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM 2014), 2014 - 2014
26. Member, Program committee, The 1st International Conference on Information Systems Security and Privacy (ICISSP 2015), 2015 - 2015

27. Member, Program committee, The 5th ACM Conference on Data and Application Security and Privacy (CODASPY 2015), 2015 - 2015
28. Member, Program committee, The 10th ACM Symposium on Information, Computer and Communications Security (ASIACCS 2015), 2015 - 2015
29. Member, Program Committee, The 11th International Conference on Security and Privacy in Communication Networks (SecureComm 2015), 2015 - 2015
30. Member, Program Committee, The 10th International Conference on Information and Communications Security (ICICS 2015), 2015 - 2015
31. Member, Program Committee, The 1st Singapore Cyber Security R&D Conference (SG-CRC 2016), 2016 - 2016
32. Member, Program Committee, The 6th ACM Conference on Data and Application Security and Privacy (CODASPY 2016), 2016 - 2016
33. Publicity Chair, Member, Program Committee, The 11th ACM Symposium on Information, Computer and Communications Security (AsiaCCS 2016), 2016 - 2016
34. Member, Program Committee, The 12th China International Conference on Information Security and Cryptology (INSCRYPT 2016), 2016 - 2016
35. Member, Program Committee, The 7th ACM Conference on Data and Application Security and Privacy (CODASPY 2017), 2017 - 2017
36. Member, Program Committee, The 3rd International Conference on Information Systems Security and Privacy (ICISSP 2017), 2017 - 2017
37. Member, Program Committee, The 3rd International Conference on Mathematics and Computing (ICMC 2017), 2017 - 2017
38. Member, Publicity Committee, ACM Asia Conference on Computer and Communications Security (ASIACCS 2017), 2017 - 2017
39. Member, Program Committee, Australasian Computer Science Week (ACSW 2017), 2017 - 2017
40. Member, Program Committee, The 12th International Conference on Information Security Practice and Experience (ISPEC 2016), 2016 - 2016
41. Member, Program Committee, 12th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2016), 2016 - 2016

## Patents

1. (Application / Filed): Obfuscation of code using ROP November 2014
2. (Application / Filed): Defense against ROP on ARM via instruction randomization December 2014
3. (Application / Filed): Enhancing Randomization in Loading the Library Image in Android ART December 2016

## Editorial Duties

1. Editor of the International Journal of Security and Networks (IJSN), 2011 - 2012



## Committees

1. Steering committee member, Steering committee, Information Technology Steering Committee (ITSC) of SMU, 2011 - 2015
2. Management Committee Member, Management Committee, Singapore Cybersecurity Consortium, 2016 - 2017

## Invited Talks

1. "Human factors in computer security" in the 3rd International IT Conference, September 2014 - September 2014
2. "Human factors in user authentication" in the Future of identity workshop, November 2014 - November 2014
3. "Android or iOS for better privacy protection?" in the International Conference on Secure Knowledge Management (SKM 2014), December 2014 - December 2014
4. "Personal keystroke dynamics leakage in on-the-fly web application" in the 3rd Security and Privacy Symposium, Delhi, India, February 2015 - February 2015
5. "MobiPot: Understanding Mobile Telephony Threats" in M3AAWG 36th general meeting, February 2016 - February 2016
6. "Threats and Defenses in Mobile Security" in GovWare 2016, October 2016 - October 2016
7. "Understanding Security Threats on Mobile Telephony and Messaging" in Cyber Safe Cyber Ready conference by GovTech, October 2016 - October 2016

## Interviews by Media

1. Interview with Channel News Asia on "Safer Internet Day", February 2012 - February 2012
2. Interview with Capital Radio 95.8FM on SMU-Symantec MOU, January 2013 - January 2013
3. Interview with Swiss National TV on security research in SMU/SIS, March 2013 - March 2013
4. Interview with Channel 8 on delinking government computers from the web, June 2016 - June 2016
5. Interview with TBS eFM "PrimeTime" on delinking Singapore government computers from the web, August 2016 - August 2016

## Other Activities

1. Adjunct Associate Professor in Wuhan University between 2009 and 2010

## Grants

1. Malware analysis  
The Principal Investigator  
Source of funding: DSTA/MINDEF Singapore, 1 January 2009 - 31 December 2010  
Amount: SGD 600,000
2. User-centric mobile authentication mechanisms  
Investigator (with two other Investigators)  
Source of funding: SMU Research Center, October 2009 - December 2010  
Amount: SGD 10,000
3. Binary difference analysis  
The Principal Investigator  
Source of funding: SafeNet Inc., January 2012 - December 2012  
Amount: USD 10,000
4. A study of the usability of keystroke biometrics in exceptional conditions  
The Principal Investigator  
Source of funding: SMU Research Center, February 2013 - February 2014  
Amount: SGD 13,000
5. Analyzing and Defending against ROP-embedded Mobile Applications  
The Principal Investigator  
Source of funding: Huawei Co. Ltd., December 2013 - December 2014  
Amount: SGD 221,000
6. Advanced ROP execution and defences on Android  
The Principal Investigator  
Source of funding: Huawei Co. Ltd., March 2015 - March 2016  
Amount: SGD 200,000
7. Secure mobile center  
Principal Investigator (with four other Principal Investigators)  
Source of funding: National Research Foundation Singapore, February 2015 - February 2019  
Amount: SGD 6,400,000
8. Safety and Privacy of Smart-City Mobile Applications through Model Inference, January 2017 - January 2019  
Amount: SGD 400,000