

DUAN Yue

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Education

PhD, University of California, United States of America, 2019
Master of Science, Syracuse University, United States of America, 2011
Bachelor of Engineering, Xi'an Jiaotong University, China, 2009

Academic Appointments

Assistant Professor of Computer Science, School of Computing and Information Systems, SMU, Jul 2023 - Present
Gladwin Development Chair Assistant Professor, Computer Science, Illinois Institute of Technology, United States of America, Aug 2020 - Jun 2023
Postdoctoral Associate, Computer Science, Cornell University, United States of America, Feb 2019 - Aug 2020

Other Positions and Affiliations

System Software Engineer, Nvidia, United States of America, Aug 2011 - May 2013

Awards and Honors

Excellence in Teaching Award, Illinois Institute of Technology College of Computing, 2023
CRII Award, NSF, 2023
Best Paper Honorable Mention Award, ACM CCS, 2022
Best Paper Award, RAID, 2019

RESEARCH

Publications

Journal Articles [Refereed]

DeepVMUnProtect: Neural network-based recovery of VMprotected Android apps for semanticsaware

malware detection, by ZHAO, Xin; ZHANG, Mu; KE, Xiaopeng; PAN, Yu; DUAN, Yue; ZHONG, Sheng; XU, Fengyuan. (2025). *IEEE Transactions on Information Forensics and Security*, 20 3689-3704. <https://doi.org/10.1109/TIFS.2025.3550049> (Published)

Probabilistic Path Prioritization for Hybrid Fuzzing, by ZHAO, Lei; CAO, Pengcheng; DUAN, Yue; YIN, Heng; XUAN, Jifeng. (2022). *IEEE Transactions on Dependable and Secure Computing*, 19 (3), 1955-1073. <https://doi.org/10.1109/TDSC.2020.3042259> (Published)

Conference Proceedings

COLLISIONREPAIR: Firstaid and automated patching for storage collision vulnerabilities in smart contracts, by PAN, Yu; HAN, Wanjing; DUAN, Yue; ZHANG, Mu. (2025.0). *SEC '25: Proceedings of the 34th USENIX Conference on Security Symposium, Seattle, USA, August 13-15*, (pp. 4035-4052) New York : ACM. <https://doi.org/10.5555/3766078.3766286> (Published)

SigScope: Detecting and understanding offchain message signingrelated vulnerabilities in decentralized applications, by MEISAMI, Sajad; DABADIE, Hugo; LI, Song; TANG, Yuzhe; DUAN, Yue. (2025.0). *WWW '25: Proceedings of the ACM on Web Conference 2025, Sydney, Australia, 2025 April 28 - May 2*, (pp. 4284-4299) New York : ACM. <https://doi.org/10.1145/3696410.3714686> (Published)

An LLM-assisted easy-to-trigger poisoning attack on code completion models: Injecting disguised vulnerabilities against strong detection, by YAN, Shenao; WANG, Shen; DUAN, Yue; HONG, Hanbin; LEE, Kihoo; KIM, Doowon; HONG, Yuan. (2024.0). *Proceedings of the 33rd USENIX Security Symposium, Philadelphia, 2024 August 14-16*, (pp. 1-28) Berkeley: Usenix. (Published)

Marco: A stochastic asynchronous concolic explorer, by HU, Jie; DUAN, Yue; YIN, Heng. (2024.0). *2024 IEEE/ACM 46th International Conference on Software Engineering (ICSE 2024): Lisbon, April 14-20: Proceedings*, (pp. 1-12) New York: ACM. <https://doi.org/10.1145/3597503.3623301> (Published)

SigmaDiff: Semantics-aware deep graph matching for pseudocode diffing, by GAO, Lian; QU, Yu; YU, Sheng; DUAN, Yue; YIN, Heng. (2024.0). *Proceedings of the 31st Network and Distributed System Security Symposium (NDSS 2024), San Diego, CA, USA, February 26 - March 1*, (pp. 1-19) US: Internet Society. <https://doi.org/10.14722/ndss.2024.23208> (Published)

Proxy hunting: Understanding and characterizing proxy-based upgradeable smart contracts in blockchains, by BODELL, William E III; MEISAMI, Sajad; DUAN, Yue. (2023.0). *Proceedings of the 32nd USENIX Security Symposium, California, USA, 2023 August 9-11*, US: (Published)

Towards automated safety vetting of smart contracts in decentralized applications, by DUAN, Yue; ZHAO, Xin; PAN, Yu; LI, Shucheng; LI, Minghao; XU, Fengyuan; ZHANG, Mu. (2022.0). *CCS '22: Proceedings of the ACM Conference on Computer and Communications Security, Los Angeles, November 7-11*, (pp. 921-935) New York: ACM. <https://doi.org/10.1145/3548606.3559384> (Published)

Deepbindiff: Learning program-wide code representations for binary diffing, by DUAN, Yue; LI, Xuezixiang; WANG, Jinghan; Wang; YIN, Heng. (2020.0). *Proceedings of the Network and Distributed System Security Symposium, California, USA, 2020 February 23-26*, US: <http://doi.org/10.14722/ndss.2020.24311> (Published)

Automatic generation of non-intrusive updates for third-party libraries in Android applications, by DUAN, Yue; GAO, Lian; HU, Jie; YIN, Heng. (2019.0). *22nd International Symposium on Research on Attacks, Intrusions and Defenses (RAID 2019): Beijing, September 23-25: Proceedings*, (pp. 277-292) Berkeley, CA: USENIX Association. <https://www.usenix.org/conference/raid2019/presentation/duan> (Published)

Be sensitive and collaborative: Analyzing impact of coverage metrics in Greybox fuzzing, by WANG, Jinghan; DUAN, Yue; SONG, Wei; YIN, Heng; SONG, Chengyu. (2019.0). *RAID 2019 Proceedings: 22nd International Symposium on Research on Attacks, Intrusions and Defenses, Beijing, September 23-25*, (pp. 1-15) Berkeley, CA: USENIX Association. (Published)

Send hardest problems my way: Probabilistic path prioritization for hybrid fuzzing, by ZHAO, Lei; DUAN, Yue; YIN, Heng; XUAN, Jifeng. (2019.0). *Proceedings of the 26th 2019 Network and Distributed System Security Symposium: San Diego, CA, February 24-27*, (pp. 1-15) Reston, VA: Internet Society. <https://doi.org/10.14722/ndss.2019.23504> (Published)

Things you may not know about Android (un)packers: A systematic study based on whole-system

emulation, by DUAN, Yue; ZHANG, Mu; BHASKAR, Abhishek Vasist; YIN, Heng; PAN, Xiaorui; LI, Tongxin; WANG, Xueqiang; WANG, Xiaofeng. (2018.0). *Proceedings of the Network and Distributed System Security Symposium, California, USA, 2018 February 18-21*, US: <http://doi.org/10.14722/ndss.2018.23296> (Published)

JSForce: A forced execution engine for malicious javascript detection, by HU, Xunchao; CHENG, Yao; DUAN, Yue; HENDERSON, Andrew; YIN, Heng. (2017.0). *Proceedings of the 13th EAI International Conference on Security and Privacy in Communication Networks, Ontario, Canada, 2017 October 22-25*, (pp. 704-720) Berlin : Springer Verlag. http://doi.org/10.1007/978-3-319-78813-5_37 (Published)

Dark hazard: Large-scale discovery of unknown hidden sensitive operations in Android apps, by PAN, Xiaorui; WANG, Xueqiang; DUAN, Yue; WANG, Xiaofeng; YIN, Heng. (2017.0). *Proceedings of the 24th Network and Distributed System Security Symposium, San Diego, California, 2017 February 26 - March 1*, (pp. 1-15) United States: Internet Society. <https://doi.org/10.14722/ndss.2017.23265> (Published)

Towards automatic generation of security-centric descriptions for Android apps, by ZHANG, Mu; DUAN, Yue; FENG, Qian; YIN, Heng. (2015.0). *Proceedings of the 22nd ACM Conference on Computer and Communications Security, Colorado, USA, 2015 October 12-16*, (pp. 518-529) New York: ACM. <http://doi.org/10.1145/2810103.2813669> (Published)

Privacy-preserving offloading of mobile app to the public cloud, by DUAN, Yue; ZHANG, Mu; YIN, Heng; TANG, Yuzhe. (2015.0). *Proceedings of the 7th USENIX Workshop on Hot Topics in Cloud Computing, California, USA, 2015 July 6-7*, California: USENIX Association. (Published)

Semantics-aware Android malware classification using weighted contextual API dependency graphs, by ZHANG, Mu; DUAN, Yue; YIN, Heng; ZHAO, Zhiruo. (2014.0). *Proceedings of the 21st ACM Conference on Computer and Communications Security, Scottsdale, USA, 2014 November 3-7*, (pp. 1105-1116) New York: ACM. <http://doi.org/10.1145/2660267.2660359> (Published)

Research Grants

Singapore Management University

Development of Secured Components & Systems in Emerging Technologies through Hardware & Software Evaluation, National Cybersecurity R&D (NCR) Programme, Cyber Security Agency of Singapore (CSA) , PI (Project Level): DING Xuhua, Debin GAO, Robert H DENG, David LO , Co-PI (Project Level): Guansong PANG, JIANG Lingxiao, DUAN Yue, YANG Guomin, PANG Hwee Hwa, 2023, S\$11,365,070

Semantics-Aware and LLM-Assisted Protocol Reverse Engineering, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): DUAN Yue, 2025, S\$149,100

Detecting VM-Packed Android Malware via Deep Learning Techniques, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): DUAN Yue, 2023, S\$119,768

TEACHING

Courses Taught

Singapore Management University

Undergraduate Programmes :

Foundations of Cybersecurity

Software and Systems Security

Postgraduate Professional Programmes :

Capstone Project - Cybersecurity

Postgraduate Research Programmes :

Empirical Research Project 1

Systems and Data Security

EXTERNAL SERVICE – PROFESSIONAL

Committee Member, Program Committee, The ACM Conference on Computer and Communications Security (CCS), 2025

Committee Member, Program Committee, USENIX Security Symposium (USENIX Security), 2025

Committee Member, Program Committee, Financial Cryptography and Data Security (FC), 2025

Committee Member, Program Committee, Annual Computer Security Applications Conference (ACSAC), 2024

Committee Member, Program Committee, International Symposium on Software Reliability Engineering (ISSRE), 2024

Committee Member, Program Committee, International Symposium on Research in Attacks, Intrusions and Defenses (RAID), 2024

Committee Member, Program Committee, IEEE International Conference on Distributed Computing Systems (ICDCS), 2024