

SHAR Lwin Khin

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Education

PhD, Nanyang Technological University, Singapore, 2014
Bachelor of Engineering, Nanyang Technological University, Singapore, 2008

Academic Appointments

Assistant Professor of Information Systems (Practice), School of Computing and Information Systems, SMU, Jan 2019 - Present

RESEARCH

Research Interests

Security analysis
Software testing

Research and Project Areas

Cybersecurity
Software Engineering

Publications

Journal Articles [Refereed]

Security analysis of permission re-delegation vulnerabilities in Android apps, by DEMISSIE, Biniam Fisseha; CECCATO, Mariano; SHAR, Lwin Khin. (2020). *Empirical Software Engineering*, 25 (6), 5084-5136. <https://doi.org/10.1007/s10664-020-09879-8> (Published)

Security analysis of permission re-delegation vulnerabilities in Android apps, by DEMISSIE, Biniam Fisseha; CECCATO, Mariano; SHAR, Lwin Khin. (2020). *Empirical Software Engineering*, 25 (6), 5084-5136. (Published)

An integrated approach for effective injection vulnerability analysis of web applications through security slicing and hybrid constraint solving, by THOME, Julian; SHAR, Lwin Khin; BIANCULLI, Domenico; BRIAND, Lionel. (2020). *IEEE Transactions on Software Engineering*, 46 (2), 163-195. <https://doi.org/10.1109/TSE.2018.2844343> (Published)

Modeling security and privacy requirements: A use case-driven approach, by MAI, Phu Xuan; GOKNIL, Arda; SHAR, Lwin Khin; PASTORE, Fabrizio; BRIAND, Lionel; SHAAME, Shaban. (2018). *Information and Software Technology*, 100 165-182. <https://doi.org/10.1016/j.infsof.2018.04.007> (Published)

Security slicing for auditing common injection vulnerabilities, by THOME, Julian; SHAR, Lwin Khin; BIANCULLI, Domenico; BRIAND, Lionel. (2018). *Journal of Systems and Software*, 137 766-783. <https://doi.org/10.1016/j.jss.2017.02.040> (Published)

Web application vulnerability prediction using hybrid program analysis and machine learning, by SHAR, Lwin Khin; BRIAND, Lionel; TAN, Hee Beng Kuan. (2015). *IEEE Transactions on Dependable and Secure Computing*, 12 (6), 688-707. <https://doi.org/10.1109/TDSC.2014.2373377> (Published)

Predicting SQL injection and cross site scripting vulnerabilities through mining input sanitization patterns, by SHAR, Lwin Khin; TAN, Hee Beng Kuan. (2013). *Information and Software Technology*, 55 (10), 1767-1780. <https://doi.org/10.1016/j.infsof.2013.04.002> (Published)

Auditing the XSS defence features implemented in web application programs, by SHAR, Lwin Khin; TAN, Hee Beng Kuan. (2012). *IET Software*, 6 (4), 377-390. <https://doi.org/10.1049/iet-sen.2011.0084> (Published)

Defeating SQL injection, by SHAR, Lwin Khin; TAN, Hee Beng Kuan. (2013). *Computer*, 46 (3), 69-77. <https://doi.org/10.1109/MC.2012.283> (Published)

Automated removal of cross site scripting vulnerabilities in web applications, by SHAR, Lwin Khin; TAN, Hee Beng Kuan. (2012). *Information and Software Technology*, 54 (5), 467-478. <https://doi.org/10.1016/j.infsof.2011.12.006> (Published)

Defending against cross site scripting attacks, by SHAR, Lwin Khin; TAN, Hee Beng Kuan. (2012). *Computer*, 45 (3), 55-62. <https://doi.org/10.1109/MC.2011.261> (Published)

Conference Proceedings

SmartFuzz: An automated smart fuzzing approach for testing SmartThings apps, by SHAR, Lwin Khin; TA, Nguyen Binh Duong; JIANG, Lingxiao; LO, David; WEI, Minn; YEO, Kiah Yong Glenn; KIM, Eugene. (2020). *Proceedings of the 27th Asia-pacific Software Engineering Conference (APSEC) 2020: 1-4 Dec, Singapore, Piscataway, NJ: IEEE.* (Forthcoming)

Experimental comparison of features and classifiers for Android malware detection, by SHAR, Lwin Khin; DEMISSIE, Biniam Fisseha; CECCATO, Mariano; WEI, Minn. (2020). *MOBILESoft 2020: Proceedings of the 7th IEEE/ACM International Conference on Mobile Software Engineering and Systems, Seoul, South Korea*, (pp. 50-60) New York: ACM. <https://doi.org/10.1145/3387905.3388596> (Published)

AnFlo: Detecting anomalous sensitive information flows in Android apps, by DEMISSIE, Biniam Fisseha; CECCATO, Mariano; SHAR, Lwin Khin. (2018). *MOBILESoft '18: Proceedings of the 5th International Conference on Mobile Software Engineering and Systems, Gothenburg, Sweden, May 27-28*, (pp. 24-34) New York: ACM. <https://doi.org/10.1145/3197231.3197238> (Published)

JoanAudit: A tool for auditing common injection vulnerabilities, by THOME, Julian; SHAR, Lwin Khin; BIANCULLI, Domenico; BRIAND, Lionel. (2017). *Proceedings of 2017 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering, Paderborn, Germany, September 48*, (pp. 1004-1008) Paderborn, Germany: <https://doi.org/10.1145/3106237.3122822> (Published)

Search-driven string constraint solving for vulnerability detection, by THOME, Julian; SHAR, Lwin Khin; BIANCULLI, Domenico; BRIAND, Lionel. (2017). *Proceedings of the 2017 IEEE/ACM 39th International Conference on Software Engineering (ICSE), Buenos Aires, Argentina, May 20-28*, (pp. 1-11) Buenos Aires, Argentina: IEEE. <https://doi.org/10.1109/ICSE.2017.26> (Published)

Security slicing for auditing XML, XPath, and SQL injection vulnerabilities, by THOME, Julian; SHAR, Lwin Khin; BRIAND, Lionel. (2016). *Proceedings of the 26th International Symposium on Software Reliability Engineering (ISSRE), Gaithersbury, USA, 2015 November 2-5*, (pp. 553-564) Gaithersbury, USA: IEEE. <https://doi.org/10.1109/ISSRE.2015.7381847> (Published)

Mining patterns of unsatisfiable constraints to detect infeasible paths, by DING, Sun; TAN, Hee Beng Kuan; SHAR, Lwin Khin. (2015). *Proceedings of the 2015 IEEE/ACM 10th International Workshop on Automation*

of Software Test, Florence, Italy, May 23-24, (pp. 65-69) Italy: ACM. <https://doi.org/10.1109/AST.2015.21> (Published)

Towards a hybrid framework for detecting input manipulation vulnerabilities, by DING, Sun; TAN, Hee Beng Kuan; SHAR, Lwin Khin; PADMANABHUNI, Bindu Madhavi. (2013). *2013 20th Asia-Pacific Software Engineering Conference (APSEC), Bangkok, Thailand, December 2-5: Proceedings*, (pp. 363-370) Piscataway, NJ: IEEE. <https://doi.org/10.1109/APSEC.2013.56> (Published)

A scalable approach for malware detection through bounded feature space behavior modeling, by CHANDRAMOHAN, Mahinthan; TAN, Hee Beng Kuan; BRIAND, Lionel C; SHAR, Lwin Khin; PADMANABHUNI, Bindu Madhavi. (2014). *Proceedings of the 2013 28th IEEE/ACM International Conference on Automated Software Engineering (ASE), Silicon Valley, USA, November 11-15*, (pp. 1-11) USA: IEEE. <https://doi.org/10.1109/ASE.2013.6693090> (Published)

Mining SQL injection and cross site scripting vulnerabilities using hybrid program analysis, by SHAR, Lwin Khin; TAN, Hee Beng Kuan; BRIAND, Lionel C.. (2013). *Proceedings of the 35th ACM/IEEE International Conference on Software Engineering (ICSE), San Francisco, 2013 May 18-26*, (pp. 1-10) San Francisco, USA: IEEE. <https://doi.org/10.1109/ICSE.2013.6606610> (Published)

Semi-automated verification of defense against SQL injection in web applications, by LIU, Kaiping; TAN, Hee Beng Kuan; SHAR, Lwin Khin. (2012). *Proceedings of the 19th Asia-Pacific Software Engineering Conference, APSEC 2012, Hong Kong, China, December 4-7*, (pp. 91-96) Los Alamitos, CA: IEEE Computer Society. <https://doi.org/10.1109/APSEC.2012.18> (Published)

Scalable malware clustering through coarse-grained behavior modeling, by CHANDRAMOHAN, Mahinthan; TAN, Hee Beng Kuan; SHAR, Lwin Khin. (2012). *Proceedings of the 20th ACM SIGSOFT Symposium on the Foundations of Software Engineering, Cary, USA, 2012 November 11-16*, (pp. 1-4) USA: <https://doi.org/10.1145/2393596.2393627> (Published)

Predicting common web application vulnerabilities from input validation and sanitization code patterns, by SHAR, Lwin Khin; TAN, Hee Beng Kuan. (2013). *ASE '12: Proceedings of the 27th IEEE/ACM International Conference on Automated Software Engineering: Essen, Germany, September 3-7*, (pp. 310-313) New York: ACM. <https://doi.org/10.1145/2351676.2351733> (Published)

Mining input sanitization patterns for predicting SQL injection and cross site scripting vulnerabilities, by SHAR, Lwin Khin; TAN, Hee Beng Kuan. (2012). *2012 34th International Conference on Software Engineering (ICSE): Zurich, June 2-9: Proceedings*, (pp. 1293-1296) Piscataway, NJ: IEEE. <https://doi.org/10.1109/ICSE.2012.6227096> (Published)

Conference Papers

Auditing the defense against cross site scripting in web applications, by SHAR, Lwin Khin; TAN, Hee Beng Kuan. (2010). *International Conference on Security and Cryptography*, Greece. <https://ieeexplore.ieee.org/document/5741657> (Published)

Papers Submitted for Review

Journal Articles [Refereed]

Out of Sight, Out of Mind? How Vulnerable Dependencies Affect Open-Source Projects, by Gede Artha Azriadi Prana, Abhishek Sharma, Lwin Khin Shar, Darius Foo, Andrew E. Santosa, Asankhaya Sharma, David Lo. *Empirical Software Engineering*, (Revised & Resubmitted)

Research Grants

Singapore Management University

AutoPrivacyModel: Automated Feature Modelling for Identifying Illegitimate Uses of Privacy-Sensitive Data in Mobile Applications, Research Programme, National Satellite of Excellence - Mobile Systems Security and Cloud Security , PI (Project Level): JIANG Lingxiao , Co-PI (Project Level): David LO, SHAR Lwin

Khin, DING XuHua, Debin GAO, 2019, S\$700,403

A-Things: Anomaly Analysis of the Internet of Things Applications, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): SHAR Lwin Khin , Co-PI (Project Level): David LO, JIANG Lingxiao, 2020, S\$99,057

Work in Progress

SHAR Lwin Khin, David LO, JIANG Lingxiao, YAN Naing Tun, Biniam Fisseha Demissie, Mariano Ceccato, Experimental Comparison of Features, Machine Learning Classifiers, and Deep Learning Classifiers for Android Malware Detection, 2020

TEACHING

Teaching Areas

Cybersecurity

Web Application Development

Courses Taught

Singapore Management University

Undergraduate Programmes :

Data Security and Privacy

Foundations of Cybersecurity

Introduction to Programming

IS Application Project

Web Application Development

Web Application Development I

Web Application Development II

Postgraduate Professional Programmes :

Empirical Research Project 4

UNIVERSITY SERVICE

Singapore Management University

Faculty Advisor, CS Admission Interviews, May 2020

Committee Member, REC for Evaluation of Principal Lecturer Promotion, Apr 2020 - Jul 2020

Faculty Mentor, CS Workshop, Jan 2020

EXTERNAL SERVICE PROFESSIONAL

Reviewer Journal Article, Reviewer, IEEE Access, 2020 - Present
Committee Member, Program Committee, MobileSoft Conference 2021, 2020 - 2021
Reviewer Journal Article, Reviewer, IEEE Transactions on Reliability, 2020 - Present
Reviewer Journal Article, Reviewer, ACM Transactions on Privacy and Security, 2020 - Present
Reviewer Journal Article, Reviewer, ACM Computing Surveys, 2020 - Present
Committee Member, ICST 2020, Poster track, ICST, 2019 - 2020
Reviewer Journal Article, Journal of Knowledge and Information Systems (KAIS), 2019 - Present
Reviewer Journal Article, Journal of Cybersecurity (CYSE), 2019 - Present
Reviewer Journal Article, ACM Transactions on Internet Technology (TOIT), 2019 - Present
Reviewer Journal Article, IEEE Software, 2019 - Present
Reviewer Journal Article, Empirical Software Engineering Springer, 2019 - Present
Reviewer Journal Article, IEEE Transactions on Dependable and Secure Computing, 2019 - Present
Reviewer Journal Article, Journal of Computers and Security (COSE), 2019 - Present
Committee Chair, Vision Track, MobileSoft 2020, 2018 - 2020
Reviewer Journal Article, Journal of Systems and Software (JSS), 2017 - Present

EXTERNAL SERVICE PUBLIC SECTOR AND COMMUNITY SERVICE

Judge, Singapore Science & Engineering Fair (SSEF) Working Committee, Ministry of Education, 2020