# **Robert H DENG**

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# Education

PhD, Illinois Institute of Technology, United States of America, 1985 Master of Science, Illinois Institute of Technology, United States of America, 1983 Bachelor of Engineering, National University of Defence Technology, China, 1981

## **Academic Appointments**

AXA Chair Professor of Cybersecurity, School of Computing and Information Systems, SMU, Mar 2017 - Present

Professor of Information Systems, School of Computing and Information Systems, SMU, Jul 2004 - Mar 2017

Senior Lecturer, Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Jul 1991 - Jun 1994

Postdoctoral Research Associate, University of Notre Dame, United States of America, Jan 1986 - Jun 1987

# **Academic Administrative Positions**

Director, Secure Mobile Centre, Centre on Security, Mobile Applications and Cryptography, SMU, Jul 2023 - Jun 2024

Deputy Dean, Faculty & Research, School of Computing and Information Systems, SMU, Jul 2018 - Present

Dean, College of Graduate Research Studies, SMU, Sep 2016 - Jun 2018

Director, Secure Mobile Centre, Secure Mobile Centre, SMU, Feb 2015 - Jun 2024

Associate Dean (Faculty), School of Computing and Information Systems, SMU, Jul 2012 - Jun 2015

Director, SCIS Research Centre (External Funded), SMU, Aug 2004 - Jun 2012

Director, SCIS Research Centre (External Funded), SMU, Jul 2004 - Jun 2008

Senior Research Staff Member and Manager of Information Security Group, Institute of System Science, National University of Singapore, Singapore, Jan 1994 - Jan 1998

Research Staff Member and Project Leader of Communications Group, Institute of Systems Science, National University of Singapore, Singapore, Jul 1987 - Jun 1991

### **Other Positions and Affiliations**



Principle Scientist and Department Manager, Institute for Infocomm ResearchInfocomm Security Department, Agency for Science, Technology and Research (A\*STAR), Singapore, Apr 2002 - Jun 2004

Principal Research Staff Member and Director (Ubiquitous and Distributed Computing Program), Lab for Information Technology, A\*STAR, Singapore, Apr 2001 - Mar 2002

Principal Research Staff Member and Deputy Director of Ubiquity Lab, Kent Ridge Digital Labs, National Science and Technology Board, Singapore, Jan 1998 - Mar 2001

### Awards and Honors

Outstanding Paper Award, 21st IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom 2022), 2022

Best Paper Award, IEEE Conference on Dependable and Secure Computing (IEEE DSC 2022), 2022

The Public Administration Medal (Silver), Singapore National Day Awards 2020, 2020

Best Paper, 25th European Symposium on Research in Computer Security (ESORICS) 2020, 2020

Fellow, Academy of Engineering Singapore, 2019

2017 Best Journal Paper Award, IEEE Communications Society, Big Data Technical Committee, 2017

Huawei Distinguished Collaboration Project Award, Shield Lab, Huawei, 2016

Fellow, IEEE, 2016

Best Paper Award, The 13th Joint IFIP TC6 and TC11 Conference on Communications and Multimedia Security (CMS 2012), Canterbury, UK., International Federation for Information Processing, 2012

Distinguished Paper Award, The 19th Network and Distributed System Security Symposium (NDSS 2012), San Diego, USA., Internet Society, 2012

Asia-Pacific Information Security Leadership Achievements (ISLA) Community Service Star and Showcased Senior Information Security Professional, International Information Systems Security Certification (ISC)2), 2010, (ISC)2, 2010

Lee Kuan Yew Fellow for Research Excellence, 2006., Singapore Management University, 2005

Role Model for the category of Principal Research Staff Member, Singapore, 2002., Laboratories for Information Technology, 2002

University Outstanding Researcher Award, Singapore, November 1999., National University of Singapore, 1999

Excellent Graduate Certificate, National University of Defense Technology, China, December 1981., National University of Defense Technology, 1982

### RESEARCH

### Publications

#### Journal Articles [Refereed]

FDFL: Fair and discrepancy-aware incentive mechanism for federated learning, by CHEN, Zhe; ZHANG, Haiyan; LI, Xinghua; MIAO, Yinbin; ZHANG, Xiaohan; ZHANG, Man; MA, Siqi;, DENG Robert H.. (2024). *IEEE Transactions on Information Forensics and Security*, *19* 8140-8154. https://doi.org/10.1109/TIFS.2024.3433537 (Published) BADFL: Backdoor attack defense in federated learning from local model perspective, by ZHANG, Haiyan; LI, Xinghua; XU, Mengfan; LIU, Ximeng; WU, Tong; WENG, Jian; DENG, Robert H.. (2024). *IEEE Transactions on Knowledge and Data Engineering*, *36* (11), 5661-5674. https://doi.org/10.1109/TKDE.2024.3420778 (Published)

Lightweight privacy-preserving cross-cluster federated learning with heterogeneous data, by CHEN, Zekai; YU, Shengxing; CHEN, Farong; WANG, Fuyi; LIU, Ximeng; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security, 19* 7404-7419. https://doi.org/10.1109/TIFS.2024.3435476 (Published)

A pruned pendant vertex based index for shortest distance query under structured encrypted graph, by HU, Mengdi; CHEN, Lanxiang; CHEN, Gaolin; MU, Yi; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security*, *19* 6351-6363. https://doi.org/10.1109/TIFS.2024.3414156 (Published)

A survey of protocol fuzzing, by ZHANG, Xiaohan; ZHANG, Cen; LI, Xinghua; DU, Zhengjie; MAO, Bing; LI, Yeting; LI, Pan, YANG, Liu, DENG, Robert. (2024). *ACM Computing Surveys,* 57 (2), 1-36. https://doi.org/10.1145/3696788 (Published)

Efficient and privacy-preserving encode-based range query over encrypted cloud data, by LIANG, Yanrong; MA, Jianfeng; MIAO, Yinbin; SU, Yuan; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security*, *19* 9085-9099. https://doi.org/10.1109/TIFS.2024.3465928 (Published)

Efficient and secure federated learning against backdoor attacks, by MIAO, Yinbin; XIE, Rongpeng; LI, Xinghua; LIU, Zhiquan; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing*, *21* (5), 4619-4636. https://doi.org/10.1109/TDSC.2024.3354736 (Published)

SOCI+: An enhanced toolkit for secure outsourced computation on integers, by ZHAO, Bowen; DENG, Weiquan; LI, Xiaoguo; LIU, Ximeng; PEI, Qingqi; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security, 19* 5607-5619. https://doi.org/10.1109/TIFS.2024.3402173 (Published)

Privacy-preserved data disturbance and truthfulness verification for data trading, by ZHANG, Man; LI, Xinghua; MIAO, Yinbin; LUO, Bin; XU, Wanyun; REN, Yanbing; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security, 19* 5545-5560. https://doi.org/10.1109/TIFS.2024.3402162 (Advance Online)

AnoPay: Anonymous payment for vehicle parking with updatable credential, by YANG, Yang; XUE, Wenyi; ZHAN, Yonghua; HUANG, Minming; LI, Yingjiu; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing*, *21* (4), 1621-1638. https://doi.org/10.1109/TDSC.2023.3287228 (Published)

Robust asynchronous federated learning with time-weighted and stale model aggregation, by MIAO, Yinbin; LIU, Ziteng; LI, Xinghua; LI, Meng; LI, Hongwei; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing, 21* (4), 2361-2375. https://doi.org/10.1109/TDSC.2023.3304788 (Published)

Privacy-preserved data trading via verifiable data disturbance, by ZHANG, Man; LI, Xinghua; REN, Yanbing; LUO, Bin; MIAO, Yinbin; LIU, Ximeng; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing, 21* (4), 3126-3140. https://doi.org/10.1109/TDSC.2023.3323669 (Published)

Verifiable outsourced attribute-based encryption scheme for cloud-assisted mobile e-health system, by MIAO, Yinbin; LI, Feng; LI, Xinghua; NING, Jianting; LI, Hongwei; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing, 21* (4), 1845-1862. https://doi.org/10.1109/TDSC.2023.3292129 (Published)

SIMC 2.0: Improved secure ML inference against malicious clients, by XU, Guowen; HAN, Xingshuo; ZHANG, Tianwei; XU, Shengmin; NING, Jianting; HUANG, Xinyi; LI, Hongwei; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing*, *21* (4), 1708-1723. https://doi.org/10.1109/TDSC.2023.3288557 (Published)

REKS: Role-based Encrypted Keyword Search with enhanced access control for outsourced cloud data, by MIAO, Yibin; LI, Feng; JIA, Xiaohua; WANG, Huaxiong; LIU, Ximeng; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing, 21* (4), 3247-3261. https://doi.org/10.1109/TDSC.2023.3324640 (Published)

AnoPas: Practical anonymous transit pass from group signatures with time-bound keys, by SHI, Rui;

YANG, Yang; LI, Yingjiu; FENG, Huamin; PANG, Hwee Hwa; DENG, Robert H.. (2024). *Journal of Systems Architecture: Embedded Software Design*, *153* 1-13. https://doi.org/10.1016/j.sysarc.2024.103184 (Published)

FDFL: Fair and discrepancy-aware incentive mechanism for federated learning, by CHEN, Zhe; ZHANG, Haiyan; LI, Xinghua; MIAO, Yinbin; ZHANG, Xiaohan; ZHANG, Man; MA, Siqi; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security*, *19* https://doi.org/10.1109/TIFS.2024.3433537 (Published)

SDSS: Sequential data sharing system in IoT, by LAI, Jianchang; SUSILO, Willy; DENG, Robert H.; GUO, Fuchun. (2024). *IEEE Transactions on Information Forensics and Security*, *19* 2288-2299. https://doi.org/10.1109/TIFS.2023.3348229 (Published)

STDA: Secure Time Series Data Analytics with practical efficiency in wide-area network, by LI, Xiaoguo; HUANG Zixi; ZHAO, Bowen; YANG, Guomin; XIANG, Tao; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security, 19* 1440-1454. https://doi.org/10.1109/TIFS.2023.3336512 (Published)

EvilScreen attack: Smart TV hijacking via multi-channel remote control mimicry, by ZHANG, Yiwei; MA, Siqi; CHEN, Tiancheng; LI, Juanru; DENG, Robert H.; BERTINO, Elisa. (2024). *IEEE Transactions on Dependable and Secure Computing*, *21* (4), 1544-1556. https://doi.org/10.1109/TDSC.2023.3286182 (Published)

Double issuer-hiding attribute-based credentials from tag-based aggregatable mercurial signatures, by SHI, Rui; YANG, Yang; LI, Yingjiu; FENG, Huamin; SHI, Guozhen; PANG, Hwee Hwa; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing, 21* (4), 2585-2602. https://doi.org/10.1109/TDSC.2023.3314019 (Published)

An adaptive secure and practical data sharing system with verifiable outsourced decryption, by XU, Shengmin; HAN, Xingshuo; XU, Guowen; NING, Jianting; HUANG, Xinyi; DENG, Robert H.. (2024). *IEEE Transactions on Services Computing*, *17* (3), 776-788. https://doi.org/10.1109/TSC.2023.3321314 (Published)

PkT-SIN: A secure communication protocol for space information networks with periodic k-time anonymous authentication, by YANG, Yang; XUE, Wenyi; SUN, Jianfei; YANG, Guomin; LI, Yingjiu; PANG, Hwee Hwa; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security, 19* 6097-6112. https://doi.org/10.1109/TIFS.2024.3409070 (Published)

Privacy-preserving user recruitment with sensing quality evaluation in mobile crowdsensing, by AN, Jieying; REN, Yanbing; LI, Xinghua; ZHANG, Man; LUO, Bin; MIAO, Yinbin; LIU, Ximeng; DENG, Robert H.. (2024). *IEEE Transactions on Dependable and Secure Computing*, 1-16. https://doi.org/10.1109/TDSC.2024.3418869 (Advance Online)

A survey on searchable symmetric encryption, by LI, Feng; MA, Jianfeng; MIAO, Yinbin; LIU, Ximeng; NING, Jianting; DENG, Robert H.. (2024). *ACM Computing Surveys,* 56 (5), 1-42. https://doi.org/10.1145/3617991 (Published)

Time-controllable keyword search scheme with efficient revocation in mobile e-health cloud, by MIAO, Yinbin; LI, Feng; LI, Xinghua; LIU, Zhiquan; NING, Jianting; LI, Hongwei; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2024). *IEEE Transactions on Mobile Computing, 23* (5), 3650-3665. https://doi.org/10.1109/TMC.2023.3277702 (Published)

FlGan: GAN-based unbiased federated learning under non-IID settings, by MA, Zhuoran; LIU, Yang; MIAO, Yinbin; XU, Guowen; LIU, Ximeng; MA, Jianfeng; DENG, Robert H.. (2024). *IEEE Transactions on Knowledge and Data Engineering*, *36* (4), 1566-1581. https://doi.org/10.1109/TKDE.2023.3309858 (Published)

FlGan: GAN-based unbiased federated learning under non-IID settings, by MA, Zhuoran; LIU, Yang; MIAO, Yinbin; XU, Guowen; LIU, Ximeng; MA, Jianfeng; DENG, Robert H.. (2024). *IEEE Transactions on Knowledge and Data Engineering*, *36* (4), 1566-1581. https://doi.org/10.1109/TKDE.2023.3309858 (Published)

PAM3S: Progressive Two-Stage Auction-Based Multi-Platform Multi-User Mutual Selection Scheme in MCS, by LUO, Bin; LI, Xinghua; MIAO, Yinbin; ZHANG, Man; LIU, Ximeng; REN, Yanbing; LUO, Xizhao; DENG, Robert H.. (2024). *IEEE/ACM Transactions on Networking, 32* (1), 729-744. https://doi.org/10.1109/TNET.2023.3297258 (Published)

Robust permissioned blockchain consensus for unstable communication in FANET, by WANG, Zihao; WANG, Hang; LI, Zhuowen; LI, Xinghua; MIAO, Yinbin; REN, Yanbing; WANG, Yunwei; REN, Zhe; DENG,

Robert H.. (2024). *IEEE/ACM Transactions on Networking, 32* (1), 699-712. https://doi.org/10.1109/TNET.2023.3295378 (Published)

Efficient privacy-preserving spatial data query in cloud computing, by MIAO, Yinbin; YANG, Yutao; LI, Xinghua; WEI, Linfeng; LIU, Zhiquan; DENG, Robert H.. (2024). *IEEE Transactions on Knowledge and Data Engineering, 36* (1), 122-136. https://doi.org/10.1109/TKDE.2023.3283020 (Published)

Privacy-enhancing and robust backdoor defense for federated learning on heterogeneous data, by CHEN, Zekai; YU, Shengxing; FAN, Mingyuan; LIU, Ximeng; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security, 19* 693-707. https://doi.org/10.1109/TIFS.2023.3326983 (Published)

A privacy-preserving and redactable healthcare blockchain system, by XU, Shengmin; NING, Jianting; LI, Xiaoguo; YUAN, Jiaming; HUANG, Xinyi; DENG, Robert H.. (2024). *IEEE Transactions on Services Computing, 17* (2), 1-14. https://doi.org/10.1109/TSC.2024.3356595 (Published)

Privacy-preserving asynchronous federated learning under non-IID settings, by MIAO, Yinbin; KUANG, Da; LI, Xinghua; XU, Shujiang; LI, Hongwei; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security, 19* 5828-5841. https://doi.org/10.1109/TIFS.2024.3402149 (Advance Online)

RFed: Robustness-Enhanced Privacy-Preserving Federated Learning against poisoning attack, by MIAO, Yinbin; YAN, Xinru; LI, Xinghua; XU, Shujiang; LIU, Ximeng; LI, Hongwei; DENG, Robert H.. (2024). *IEEE Transactions on Information Forensics and Security, 19* 5814-5827. https://doi.org/10.1109/TIFS.2024.3402113 (Advance Online)

PIAS: Privacy-Preserving Incentive Announcement System based on Blockchain for Internet of Vehicles, by ZHAN, Yonghua; YANG, Yang; CHENG, Hongju; LUO, Xiangyang; GUAN, Zhuangshuang; DENG, Robert H.. (2024). *IEEE Transactions on Services Computing*, *17*(5), 1-14. https://doi.org/10.1109/TSC.2024.3422813 (Advance Online)

Beyond result verification: Efficient privacy-preserving spatial keyword query with suppressed leakage, by TONG, Qiuyun; LI, Xinghua; MIAO, Yinbin; WANG, Yunwei; LIU, Ximeng; DENG, Robert H. . (2024). *IEEE Transactions on Information Forensics and Security,* 192746-2760. https://doi.org/10.1109/TIFS.2024.3354414 (Published)

Oasis: Online all-phase quality-aware incentive mechanism for MCS, by ZHANG, Man; LI, Xinghua; MIAO, Yinbin; LUO, Bin; MA, Siqi; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2024). *IEEE Transactions on Services Computing*, *17* (2), 1-14. https://doi.org/10.1109/TSC.2024.3354240 (Published)

SDSS: Sequential Data Sharing System in IoT, by LAI, Jianchang; SUSILO, Willy; DENG, Robert H.; GUO, Fuchun. (2023). *IEEE Transactions on Information Forensics and Security, 19* (12), 2288-2299. https://doi.org/10.1109/TIFS.2023.3348229 (Published)

Privacy-Preserving Bloom Filter-Based Keyword Search Over Large Encrypted Cloud Data, by LIANG, Yanrong; MA, Jianfeng; MIAO, Yinbin; KUANG, Da; MENG, Xiangdong; DENG, Robert H.. (2023). *IEEE Transactions on Computers*, *72* (11), 3086-3098. https://doi.org/10.1109/TC.2023.3285103 (Published)

Privacy-preserving arbitrary geometric range query in mobile Internet of Vehicles, by MIAO, Yinbin; SONG, Lin; LI, Xinghua; LI, Hongwei; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2023). *IEEE Transactions on Mobile Computing*, 23 (7), 1-15. https://doi.org/10.1109/TMC.2023.3336621 (Advance Online)

Policy-Based Remote User Authentication From Multi-Biometrics, by TIAN, Yangguang; LI, Yingjiu; DENG, Robert H.; YANG, Guomin; LI, Nan. (2023). *Computer Journal, 67* (5), https://doi.org/10.1093/comjnl/bxad102 (Advance Online)

Owner-free Distributed Symmetric Searchable Encryption supporting Conjunctive queries, by TONG, Qiuyun; LI, Xinghua; MIAO, Yinbin; WANG, Yunwei; LIU, Ximeng; DENG, Robert H.. (2023). *Transactions on Storage*, *19* (4), 1-25. https://doi.org/10.1145/3607255 (Published)

PRI: PCH-based privacy-preserving with reusability and interoperability for enhancing blockchain scalability, by LI, Yuxian; WENG, Jian; WU, Wei; LI, Ming; LI, Yingjiu; TU, Haoxin; WU, Yongdong; DENG, Robert H.. (2023). *Journal of Parallel and Distributed Computing, 180* 1-15. https://doi.org/10.1016/j.jpdc.2023.104721 (Published)

A causality-aligned structure rationalization scheme against adversarial biased perturbations for graph neural networks, by JIA, Ju; MA, Siqi; LIU, Yang; WANG, Lina; DENG, Robert H.. (2024). *IEEE Transactions on* 

Information Forensics and Security, 1959-73. https://doi.org/10.1109/TIFS.2023.3318936 (Published)

Fair cloud auditing based on blockchain for resource-constrained IoT devices, by ZHOU, Lei.; FU, Anmin.; YANG, Guomin.; GAO, Yansong.; YU, Shui.; DENG, Robert H.. (2023). *IEEE Transactions on Dependable and Secure Computing*, *20* (5), 4325-4342. https://doi.org/10.1109/TDSC.2022.3207384 (Published)

Hercules: Boosting the performance of privacy-preserving federated learning, by XU, Guowen; HAN, Xingshuo; XU, Shengmin; ZHANG, Tianwei; LI, Hongwei; HUANG, Xinyi; DENG, Robert H.. (2023). *IEEE Transactions on Dependable and Secure Computing*, *20* (5), 4418-4433. https://doi.org/10.1109/TDSC.2022.3218793 (Published)

Efficient Privacy-Preserving Federated Learning With Improved Compressed Sensing, by ZHANG, Yifan.; MIAO, Yinbin.; LI, Xinghua.; WEI, Linfeng.; LIU, Zhiquan,; CHOO, Kim-Kwang R.; DENG, Robert H.. (2023). *IEEE Transactions on Industrial Informatics, 20* (3), https://doi.org/10.1109/TII.2023.3297596 (Advance Online)

Privacy-Preserving Multi-User Outsourced Computation for Boolean Circuits, by LIU, Xueqiao.; YANG, Guomin.; SUSILO, Willy.; HE, Kai.; DENG, Robert H.; WENG, Jian.. (2023). *IEEE Transactions on Information Forensics and Security*, *18* 4929-4943. (Published)

Privacy-preserving asynchronous federated learning framework in distributed IoT, by YAN, Xinru; MIAO, Yinbin; LI, Xinghua; CHOO, Kim-Kwang Raymond; MENG, Xiangdong; DENG, Robert H. (2023). *IEEE Internet of Things Journal, 10* (15), 13281-13291. https://doi.org/10.1109/JIOT.2023.3262546 (Published)

CROWDFL: Privacy-Preserving Mobile Crowdsensing System Via Federated Learning, by ZHAO, Bowen; LIU, Ximeng; CHEN, Wei-Neng; DENG, Robert H.. (2023). *IEEE Transactions on Mobile Computing, 22* (8), 4607-4619. https://doi.org/10.1109/TMC.2022.3157603 (Published)

Comprehensive Survey on Privacy-Preserving Spatial Data Query in Transportation Systems, by MIAO, Yinbin; YANG, Yutao; LI, Xinghua, CHOO, Kim-Kwang Raymond; MENG, Xiangdong; DENG, Robert H.. (2023). *IEEE Transactions on Intelligent Transportation Systems, 24* (12), 1-14. https://doi.org/10.1109/TITS.2023.3295798 (Advance Online)

Privacy-Aware and Security-Enhanced Efficient Matchmaking Encryption, by SUN, Jianfei; XU, Guowen; ZHANG, Tianwei; YANG, Xuehuan; ALAZAB, Mamoun; DENG, Robert H.. (2023). *IEEE Transactions on Information Forensics and Security, 18* 4345-4360. https://doi.org/10.1109/TIFS.2023.3294725 (Published)

FeSA: Automatic Federated Swarm Attestation on Dynamic Large-Scale IoT Devices, by KUANG, Boyu; FU, Anmin; GAO, Yansong; ZHANG, Yuqing; ZHOU; Jianying; DENG, Robert H.. (2023). *IEEE Transactions on Dependable and Secure Computing, 20* (4), 2954-2969. https://doi.org/10.1109/TDSC.2022.3193106 (Published)

Forward/Backward and Content Private DSSE for Spatial Keyword Queries, by WANG, Xiangyu; MA, Jianfeng; LIU, Ximeng; MIAO, Yinbin; LIU, Yang; DENG, Robert H.. (2023). *IEEE Transactions on Dependable and Secure Computing*, 20 (4), 3358-3370. https://doi.org/10.1109/TDSC.2022.3205670 (Published)

MP-CLF: An effective model-preserving collaborative deep learning framework for mitigating data leakage under the GAN, by CHEN, Zhenzhu; WU, Jie; FU, Anmin; SU, Mang; DENG, Robert H.. (2023). *Knowledge-Based Systems, 270* (C), 1-13. https://doi.org/10.1016/j.knosys.2023.110527 (Published)

ACB-Vote: Efficient, Flexible, and Privacy- Preserving Blockchain-Based Score Voting With Anonymously Convertible Ballots, by XUE, Wenyi, YANG, Yang; LI, Yingjiu; PANG, Hwee Hwa; DENG, Robert H.: (2023). *IEEE Transactions on Information Forensics and Security, 18* 3720-3734. https://doi.org/10.1109/TIFS.2023.3287394 (Published)

Efficient privacy-preserving spatial range query over outsourced encrypted data, by MIAO, Yinbin; YANG, Yutao; LI, Xinghua; LIU, Zhiquan; LI, Hongwei; CHOO, Kim-Kwang Raymond; DENG, Robert H.. (2023). *IEEE Transactions on Information Forensics and Security, 18* 3921-3933. https://doi.org/10.1109/TIFS.2023.3288453 (Published)

LiVoAuth: Liveness Detection in Voiceprint Authentication With Random Challenges and Detection Modes, by ZHANG, Rui; YAN, Zheng; WANG, Xueru; DENG, Robert H.. (2023). *IEEE Transactions on Industrial Informatics*, *19* (6), 7676-7688. https://doi.org/10.1109/TII.2022.3213830 (Published)

Privacy-preserving ranked spatial keyword query in mobile cloud-assisted fog computing, by TONG,

Qiuyun; MIAO, Yinbin LI, Hongwei; LIU, Ximeng; DENG, Robert H. . (2023). *IEEE Transactions on Mobile Computing, 22* (6), 3604-3618. https://doi.org/10.1109/TMC.2021.3134711 (Published)

DistPreserv: Maintaining user distribution for privacy-preserving Location-Based Services, by REN, Yanbing; LI, Xinghua; MIAO, Yinbin; DENG, Robert H.; WENG, Jian; MA, Siqi; MA, Jianfeng. (2023). *IEEE Transactions on Mobile Computing, 22* (6), 3287-3302. https://doi.org/10.1109/TMC.2022.3141398 (Published)

Threshold attribute-based credentials with redactable signature, by SHI, Rui; FENG, Huamin; YANG, Yang; YUAN, Feng; LI, Yingjiu; PANG, Hwee Hwa; DENG, Robert H. . (2023). *IEEE Transactions on Services Computing, 16* (5), 3751-3765. https://doi.org/10.1109/TSC.2023.3280914 (Published)

Identifiable, But Not Visible: A Privacy-Preserving Person Reidentification Scheme, by ZHAO, Bowen; LI, Yingjiu; LIU, Ximeng; LI, Xiaoguo; PANG, Hwee Hwa; DENG, Robert H. . (2023). *IEEE Transactions on Reliability,* 72 (4), 1-13. https://doi.org/10.1109/TR.2023.3258983 (Published)

VOLERE: Leakage resilient user authentication based on personal voice challenges, by ZHANG, Rui; YAN, Zheng; WANG, Xuerui; DENG, Robert H.. (2023). *IEEE Transactions on Dependable and Secure Computing, 20* (2), 1002-1016. https://doi.org/10.1109/TDSC.2022.3147504 (Published)

A secure and robust knowledge transfer framework via stratified-causality distribution adjustment in intelligent collaborative services, by JIA, Ju; MA, Siqi; WANG, Lina; LIU, Yang; DENG, Robert H.. (2023). *IEEE Transactions on Computers,* 73 (1), 1-14. https://doi.org/10.1109/TC.2023.3318403 (Advance Online)

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Cryptanalysis of some hash functions based on block ciphers and codes, by WU, Hongjun; BAO, Feng; DENG, Robert H.. (2002.0). 2002 International Workshop on Cryptology and Network Security, 26-28 September, San Francisco, CA, (pp. 221-224) San Francisco, CA: (Published)

Security analysis and improvement of the global key recovery system, by YANG, Yanjiang; BAO, Feng; DENG, Robert H. (2002.0). *Information Security and Privacy: 7th Australasian Conference, ACISP 2002 Melbourne, Australia, July 3-5, 2002: Proceedings,* (pp. 17-24) Berlin: Springer. https://doi.org/10.1007/3-540-45450-0\_2 (Published)

Privacy protection for transactions of digital goods, by BAO, Feng; DENG, Robert H.. (2001.0). *Information and Communications Security: Third International Conference, ICICS 2001: Xian, China, November 13-16, Proceedings,* (pp. 202-213) Berlin: Springer. https://doi.org/10.1007/3-540-45600-7\_23 (Published)

Design of portable mobile devices based e-payment system and e-ticketing system with digital signature, by BAO, Feng; Anantharaman, L.; DENG, Robert H.. (2001.0). *International conferences on Info-tech and Info-net: Proceedings: ICCII 2001-Beijing, October 29-November 1, 2001, Beijing, China*, (pp. 7-13) Beijing, China: IEEE. http://dx.doi.org/10.1109/ICII.2001.982996 (Published)

Secure and private distribution of online video and some related cryptographic issues, by BAO, Feng; DENG, Robert H.; BAO, Peirong; GUO, Yan; WU, Hongjun. (2001.0). *Information Security and Privacy: 6th Australasian Conference, ACISP 2001 Sydney, Australia, July 11-13: Proceedings,* (pp. 190-205) Berlin: Springer. https://doi.org/10.1007/3-540-47719-5\_17 (Published)

An optical watermarking solution for authenticating printed document, by SUN, Q. B.; FENG, P. R.; DENG, Robert H.. (2001.0). *Proceedings of the International Conference on Information Technology: Coding and Computing, 2-4 April 2001, Las Vegas, Nevada,* (pp. 65-70) Los Alamitos, CA: IEEE Computer Society. http://dx.doi.org/10.1109/ITCC.2001.918767 (Published)

Cryptanalysis of a digital signature scheme on ID-based key-sharing infrastructures, by WU, Hongjun; BAO, Feng; DENG, Robert H.. (2001.0). *Public Key Cryptography: 4th International Workshop on Practice and Theory in Public Key Cryptosystems, PKC 2001, Cheju Island, Korea, February 13-15: Proceedings,* (pp. 173-179) Berlin: Springer. https://doi.org/10.1007/3-540-44586-2\_13 (Published)

Cryptanalysis of two sparse polynomial based public key cryptosystems, by BAO, Feng; DENG, Robert H.; Geiselmann, Willi; Schnorr, Claus; Steinwandt, Rainer; Wu, Hongjun. (2001.0). *Public Key Cryptography: 4th International Workshop on Practice and Theory in Public Key Cryptosystems, PKC 2001 Cheju Island, Korea, February 13-15: Proceedings,* (pp. 153-164) Berlin: Springer. https://doi.org/10.1007/3-540-44586-2\_11 (Published)

An efficient and practical scheme for privacy protection in e-commerce of digital goods, by BAO, Feng; DENG, Robert H.; FENG, Peirong. (2000.0). *Information Security and Cryptology - ICISC 2000: Third International Conference, Seoul, Korea, December 8-9: Proceedings*, (pp. 162-170) Berlin: Springer. https://doi.org/10.1007/3-540-45247-8\_13 (Published)

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Cryptanalysis of polynomial authentication and signature scheme, by WU, Hongjun; BAO, Feng; YE, Dingfeng; DENG, Robert H.. (2000.0). *Information Security and Privacy: 5th Australasian Conference, ACISP 2000, Brisbane, Australia, July 10-12: Proceedings,* (pp. 278-288) Berlin: Springer. https://doi.org/10.1007/10718964\_23 (Published)

Cryptanalysis of the m-permutation protection schemes, by WU, Hongjun; BAO, Feng; YE, Dingfeng; DENG, Robert H.. (2000.0). *Information Security and Privacy: 5th Australasian Conference, ACISP 2000, Brisbane, Australia, July 10-12, Proceedings,* (pp. 97-111) Berlin: Springer. https://doi.org/10.1007/10718964\_9 (Published)

Some remarks on a fair exchange protocol, by ZHOU, Jianying; DENG, Robert H.; BAO, Feng. (2000.0). *Public Key Cryptography: Third International Workshop on Practice and Theory in Public Key Cryptosystems, PKC 2000, Melbourne, Victoria, Australia, January 18-20,* (pp. 46-57) Berlin: Springer. https://doi.org/10.1007/978-3-540-46588-1\_4 (Published)

Proactive Secret Sharing schemes with different security levels, by BAO, Feng; DENG, Robert H. (2000.0). *Proceedings of ChinaCrypt 2000,* (pp. 92-101) Beijing: Science Press. https://worldcat.org/isbn/9787030082626 (Published)

A Ubiquitous Secure and Reliable Digital Data Depository System, by DENG, Robert H.; FENG, Jian; BAO, Feng; NARASIMHALU, Arcot Desai. (1998.0). 7th IEEE International Workshops on Enabling Technologies: Infrastructure for Collaborative Enterprises (WET ICE '98): June 17-19, 1998, Stanford, California: Proceedings, (pp. 354-358) Los Alamitos, CA: IEEE Computer Society. http://doi.ieeecomputersociety.org/10.1109/ENABL.1998.725717 (Published)

Efficient and practical fair exchange protocols with off-line TTP, by BAO, Feng; DENG, Robert H.; MAO,

Wenbo. (1998.0). *Proceedings of the 1998 IEEE Symposium on Security and Privacy, Oakland, California, May 3-6*, (pp. 77-85) Oakland, USA: IEEE. https://doi.org/10.1109/SECPRI.1998.674825 (Published)

A signcryption scheme with signature directly verifiable by public key, by BAO, Feng; DENG, Robert H.. (1998.0). *Proceedings of the 1st International Workshop on Practice and Theory in Public Key Cryptography: PKC 1998, Yokohama, Japan, February 5-6,* (pp. 55-59) Berlin: Springer. https://doi.org/10.1007/BFb0054014 (Published)

Breaking public key cryptosystems on tamper resistant devices in the presence of transient faults, by BAO, Feng; DENG, Robert H.; HAN, Y.; JENG, A.; NARASIMHALU, Arcot Desai; NGAIR, T.. (1997.0). *Security Protocols: 5th International Workshop: Paris, France, April 7-9, 1997: Proceedings,* (pp. 115-124) Berlin: Springer. https://doi.org/10.1007/BFb0028164 (Published)

A new on-line cash check scheme, by DENG, Robert H.; HAN, Yongfei; JENG, Albert B.; NGAIR, Teow-Hin. (1997.0). *Proceedings of the 4th ACM conference on Computer and communications security, Zurich, Switzerland, 1997 April 1-4,* (pp. 111-116) Zurich, Switzerland: ACM. https://doi.org/10.1145/266420.266444 (Published)

Integrating security in CORBA based object architectures, by DENG, Robert H.; BHONSLE, S. K.; WANG, W.; LAZAR, A. A. (1995.0). *Proceedings of the 1995 IEEE Symposium on Security and Privacy, Oakland, California, May 8-10,* (pp. 50-61) Oakland, California: IEEE. https://doi.org/10.1109/SECPRI.1995.398922 (Published)

### **Conference Papers**

A comprehensive study for RFID malwares on mobile devices, by YAN, Qiang; LI, Yingjiu; LI, Tieyan; DENG, Robert H.. (2009.0). *Workshop on RFID Security 5th RFIDsec 2009 Asia, January 9-11*, Taipei. (Presented)

### **Edited Conference Proceedings**

Applied Cryptography and Network Security Workshops: ACNS 2019 Satellite Workshops, SiMLA, Cloud S&P, AIBlock, and AIoTS, Bogota, Colombia, June 5-7: Proceedings, edited by ZHOU, Jianying; DENG, Robert H.; LI, Zhou; MAJUMDAR, Suryadipta; MENG, Weizhi; WANG, Lingyu; ZHANG, Kehuan. (07/06/2019). Lecture Notes in Computer Science, 11605. Cham: Springer. https://doi.org/10.1007/978-3-030-29729-9 (Published)

*Information security practice and experience,* edited by BAO, Feng; CHEN, Liqun; DENG, Robert H.; WANG, Guojun. (16/11/2016). Lecture Notes in Computer Science, 10060. Zhangjiajie, China: Springer. (Published)

Security and privacy in communication networks: 12th International Conference, SecureComm 2016, Guangzhou, China, October 10-12, Proceedings, edited by DENG, Robert H.; WENG, Jian; REN, Kui; YEGNESWARAN, Vinod. (12/10/2016). Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, 198. Cham: Springer. https://doi.org/10.1007/978-3-319-59608-2 (Published)

*Information security practice and experience: First International Conference, ISPEC 2005, Singapore, April 11-14: Proceedings,* edited by DENG, Robert H.; BAO, Feng; PANG, Hwee Hwa; ZHOU, Jianying. (11/04/2005). Lecture Notes in Computer Science, 3439. Berlin: Springer. https://doi.org/10.1007/b107167 (Published)

## **Research Grants**

#### Singapore Management University

National Satellite of Excellence in Mobile Systems Security and Cloud Security, National Cybersecurity R&D (NCR) Programme, National Research Foundation (NRF), PI (Project Level): Robert H DENG, Co-PI (Project Level): Debin GAO, PANG Hwee Hwa, DING Xuhua, LI Yingjiu, 2019, S\$7,498,320

Intelligent and non-instrusive monitoring of Android devices for protection against data-infringing malware, AI Singapore 100 Experiments, AI Singapore , PI (Project Level): Debin GAO , Co-PI (Project Level): David LO, Robert H DENG, 2018, S\$479,616

Building next-generation secure environments on smartphones for critical mobile applications, National Cybersecurity R&D (NCR) Programme, National Research Foundation (NRF), Co-PI (Project Level): LI Yingjiu, Robert H DENG, 2017, S\$1,208,935.08

Deterring Cybersecurity Threats through Internet Topology, Law Enforcement and Technical Mitigation, National Cybersecurity R&D (NCR) Programme, National Research Foundation (NRF), PI (Project Level): WANG Qiuhong, Co-PI (Project Level): Qian TANG, 2016, S\$399,960

Advanced defense techniques for mobile systems and future networks, Huawei Technologies co. Ltd , PI (Project Level): Robert H DENG , Co-PI (Project Level): Debin GAO, DING Xuhua, LI Yingjiu, 2015

COMMANDO-HUMANS: COMputational Modelling and Automatic Non-intrusive Detection of HUMan behAviour based iNSecurity, National Cybersecurity R&D (NCR) Programme, National Research Foundation (NRF), PI (Project Level): Robert H DENG, Co-PI (Project Level): LI Yingjiu, 2015, S\$416,021.2

Secure Mobile Centre - Technologies and Solutions for Securing Mobile Computing, National Cybersecurity R&D (NCR) Programme, National Research Foundation (NRF), PI (Programme Level): Robert H DENG, PI (Project Level): DING Xuhua, Debin GAO, JIANG Lingxiao, LI Yingjiu, David LO, PANG Hwee Hwa, 2014, S\$6,415,200

Multidimensional Context Awareness Security Techniques, Huawei Technologies co. Ltd , PI (Project Level): Robert H DENG, 2013, S\$156,000

Techniques and Systems for Securing Scalable Multimedia Content Dissemination, Public Sector Research Funding (PSF), Agency for Science, Technology and Research (A\*STAR), PI (Project Level): Robert H DENG, Co-PI (Project Level): DING Xuhua, 2010, S\$605,376

Security Architecture and Techniques for Communications, Control and Management of Energy Distribution Systems, Thematic Strategic Research Program (TSRP), Agency for Science, Technology and Research (A\*STAR), Co-PI (Project Level): Robert H DENG, 2008, S\$564,510

A Security Framework for EPCglobal Network (2008), Public Sector Research Funding (PSF), Agency for Science, Technology and Research (A\*STAR), PI (Project Level): LI Yingjiu, Co-PI (Project Level): Robert H DENG, 2008, S\$575,640

TeleOph: A Secure Tele-ophthalmology System, The Enterprise Challenge (TEC) Program, The Government of Singapore, Prime Minister's Office , Co-PI (Project Level): Robert H DENG, \$\$50,200

The Use of Mobile Devices in RFID-Based Supply Chain Management, Nokia (China) Investment Corporation Limited , PI (Project Level): Robert H DENG, S\$21,137

Trusted Decentralized Identities, Digital Trust Centre (DTC) Research Grant, National Research Foundation (NRF), PI (Project Level): YANG Guomin, Co-PI (Project Level): Robert H DENG

Efficient User Credential Revocation in Cloud Computing, SMU Internal Grant, Ministry of Education (MOE) Tier 1, PI (Project Level): Robert H DENG, 2014, S\$41,940.67

Attributed-Based Encryption with Adaptable Security Policies, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Robert H DENG, 2013, S\$41,940.67

Privacy-preserving access control of encrypted data in the cloud, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Robert H DENG, 2012, S\$39,943.44

Flexible access control of encrypted data in the cloud, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Robert H DENG, 2011, S\$37,842

Formal RFID privacy models and protocols, SMU Internal Grant, Ministry of Education (MOE) Tier 1, PI (Project Level): Robert H DENG, 2010, S\$35,677.33

Privacy Protection in RFID-based Business Information Systems, SMU Internal Grant, Ministry of Education (MOE) Tier 1, PI (Project Level): Robert H DENG, 2009, S\$34,462.56

Enforcing data security & privacy in large scale wirless sensor networks using trusted computing technology, SMU Internal Grant, Ministry of Education (MOE) Tier 1, PI (Project Level): Robert H DENG, 2008, \$\$33,953.22

End-to-end content authentication in multimedia delivery systems, SMU Internal Grant, Ministry of

Education (MOE) Tier 1, PI (Project Level): Robert H DENG, 2007, S\$32,413.56

Inference control and private information retrieval in statistical databases, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Robert H DENG, 2006, S\$30,870

Trusted Computing Technology and Its Applications, SMU Internal Grant, Ministry of Education (MOE) Tier 1, PI (Project Level): Robert H DENG, 2005, S\$30,135

Security and trust management in mobile and ad hoc networking, SMU Internal Grant, Ministry of Education (MOE) Tier 1, PI (Project Level): Robert H DENG, 2004, S\$32,400

### **Other Institutions**

IIE(SMART) - sBox - Secure Enterprise Cloud Data Storage System, SMART, Singapore-MIT Alliance for Research and Technology PI (Project Level): Robert H DENG, 2020, SGD250,000

IIE(MDGF) - sBox end-to-end data privacy protection and sharing software system. , MDGF, MOE Decentralised Gap Funding PI (Project Level): Robert H DENG, 2019, SGD250,000

### **Intellectual Property**

Application/Filed: Robert H DENG, "Data security system and method for operation thereof", Singapore patent 10201508390P

Application/Filed: Robert H DENG, "System and method for determining a security classification of an unknown application", Singapore patent 10201504543V

Application/Filed: Robert H DENG, "Method and system for correcting eye gaze direction in an image", Singapore Patent 10201503664P

Application/Filed: Robert H DENG, "R. H. Deng and Y. Li, "Data security system and method for operation thereof", Singapore patent 10201508390P, PCT Application PCT/SG2016/050132", 24288

Application/Filed: Robert H DENG, "Method and system for accident avoidance", Singapore Patent 10201406053Q

Granted: Robert H DENG, "A public key cryptography and a framework therefore", PCT WO2004/032416A1

Granted: Robert H DENG, "Microprocessor card payment system", SG Patent SG64957

Granted: Robert H DENG, "Method of generating an authentication", Singapore Patent 110390, US Patent 7,233,782B2

Granted: Robert H DENG, "A method of data storage and apparatus therefor", UK Patent GB 2349964, SG Patent SG 73941

Granted: Robert H DENG, "A method of exchanging digital data", European Patent 1082836

Granted: Robert H DENG, "Method and apparatus for providing XML document encryption", Singapore Patent 97038

Granted: Robert H DENG, "Computationally efficient method for trusted and dynamic digital objects dissemination", US Patent 6058383

Granted: Robert H DENG, "Method and apparatus for encrypting and decrypting data", SG Patent SG 82916

Granted: Robert H DENG, "Method for cryptographically processing a message, method for generating a cryptographically processed message, method for performing a cryptographic operation on a message, computer system, client computer, server computer and computer program elements", Singapore Patent No. 120791

Granted: Robert H DENG, "Method and apparatus for digital content copy protection", US 6711553B1

Granted: Robert H DENG, "Method and apparatus for protecting the legitimacy of an article", UK Patent

GB 2364513B

Granted: Robert H DENG, "Correcting up to two disc drive read errors and detecting the occurrence of more than two read errors ", US Patent 5627843

Granted: Robert H DENG, "Remote authenticaiton based on exchanging signals representing biometrics information", US Patent 6910129B1

Granted: Robert H DENG, "A method of exchanging digital data", SG Patent SG75691

Granted: Robert H DENG, "Method and apparatus for constructing efficient elliptic curve cryptosystems", Singapore 99167 [WO02/0827170]

Granted: Robert H DENG, "Method and apparatus for providing XML document encryption", US 2004/0078577A1

Granted: Robert H DENG, "A method and apparatus for providing XML document encryption", PCT/SG4 00/00196

Granted: Robert H DENG, "Method and apparatus for encrypting and decrypting data", US 7,110,539B1

Granted: Robert H DENG, "Method for incremental authentication of documents", US 2005/0091261A1

Granted: Robert H DENG, "Legitimacy protection of electronic document and a printed copy thereof", GB 2365184

Granted: Robert H DENG, "A method of sale auditing in private transaction of e-goods", PCT WO 03/044619 A2

Granted: Robert H DENG, "Method for incremental authentication of documents", US Patent 7,315,866

Granted: Robert H DENG, "Method and apparatus for embedding digital information in digital multimedia data", Singapore Patent 81505, UK Patent GB 2366112, PCT WO00/39954

Granted: Robert H DENG, "Method for cryptographically processing a message", PCT WO2005/034423A1

Granted: Robert H DENG, "Method of generating an authentication", US 2005/0246769A

# Work in Progress

WANG Qiuhong, Steven MILLER, Robert H DENG, Driving Cybersecurity Policy Insights from Information on the Internet, 2020

# TEACHING

# **Courses Taught**

Singapore Management University

Postgraduate Professional Programmes :

Capstone Project - Cybersecurity

Postgraduate Research Programmes : Empirical Research Project 1 Empirical Research Project 4 Information Security

## THESES AND DISSERTATIONS

## Theses and Dissertations Supervised

Singapore Management University

Supervisor, "Advanced Malware Detection for Android Platform", Dissertation by XU, KE, PhD in Information Systems, Singapore Management University, 2018

Supervisor, "Automatic Vulnerability Detection and Repair", Dissertation by MA SIQI, PhD in Information Systems, Singapore Management University, 2018

Supervisor, "Towards Secure Online Distribution of Multimedia Codestream", Dissertation by LO SWEE WON, PhD in Information Systems, Singapore Management University, 2016

Supervisor, "Virtualization-Based System Hardening Against Untrusted Kernels", Dissertation by CHENG YUEQIANG, PhD in Information Systems, Singapore Management University, 2014

Supervisor, "Towards Secure and Usable Leakage-Resilient Password Entry", Dissertation by YAN QIANG, PhD in Information Systems, Singapore Management University, 2013

### Theses and Dissertations Assessed

#### Singapore Management University

Committee Member, "Secure Enforcement Of Isolation Policy On Multicore Platforms With Virtualization Techniques", Dissertation by ZHAO SIQI, PhD in Information Systems, Singapore Management University, 2018

Committee Member, "Techniques for Identifying Mobile Platform Vulnerabilities and Detecting Policy-violating Applications", Dissertation by SU MON KYWE, PhD in Information Systems, Singapore Management University, 2017

Committee Member, "Online Social Network Based Information Disclosure Analysis", Dissertation by LI YAN, PhD in Information Systems, Singapore Management University, 2014

Committee Member, "Security and Privacy in RFID-Enabled Supply Chains", Dissertation by CAI SHAOYING, PhD in Information Systems, Singapore Management University, 2014

Committee Member, "A Study of the Imitation, Collection and Usability Issues of Keystroke Biometrics", Dissertation by TEY CHEE MENG, PhD in Information Systems, Singapore Management University, 2013

Committee Member, "Exploiting Human Factors in User Authentication", Dissertation by GUPTA PAYAS, PhD in Information Systems, Singapore Management University, 2013

## OTHER ACADEMIC AND PROFESSIONAL ACTIVITIES

## **Presentation and Talks**

#### **Presentations**

Keynote, "Post-quantum cryptography – research and migiration", (25 Oct 2024). *The 2nd International Conference on Data Security and Privacy Protection (DSPP),* Xi'an. China

Keynote, "Toward practical client-side encryption in cloud computing", (02 Jul 2024). *The 19th ACM ASIA Conference on Computer and Communications Security (ASIACCS 2024),* Singapore

Keynote, "TEE-assisted crypto systems – towards designing practical data security solutions", (18 Nov 2023). 25th International Conference on Information and Communications Security (ICICS 2023),

Keynote, "Hardware-assisted data security & privacy solutions", (19 Oct 2023). 19th EAI International Conference on Security and Privacy in Communications Networks (SecureComm 2023),

Keynote, "Data security & privacy protection in IoT MGC systems", (10 Jul 2023). *The 9th ACM Cyber-Physical System Security Workshop (CPSS 2023)*,

Keynote, "Efficiently deployable and efficiently searchable encryption – applications, attacks, and countermeasures", (18 Dec 2022). ", Information Security Conference (ISC 2022),

Keynote, "Protecting cloud data security and privacy through encryption", (23 Nov 2022). 17th International Conference on Information Security Practice and Experience (ISPEC 2022),

10Keynote, "Secure cloud data storage for enterprise users – from cryptographic research to system design", (15 May 2021). *EAI International Conference on Applied Cryptography in Computer and Communications (AC3 2021),* 

Keynote. "Privacy-preserving deep packet inspection on TLS traffic", (25 Nov 2020). *the 14th International Conference on Network and System Security,* Melbourne, Australia.

Keynote, "Towards leakage resilient user authentication", (16 Dec 2019). *15th International Conference on Information Security and Cryptology*, Beijng. China

Keynote, "When seeing is not believing – defeating spoofing attacks in face authentication in mobile platforms", (06 Dec 2019). *15th International Conference on Information Security and Cryptology*, Nanjing. China

Keynote, "Long road towards secure and usable password authentication", (18 Nov 2019). *IEEE Conference on Dependable and Secure Computing*, Hangzhou. China

Keynote. Protecting data security and privacy in untrusted servers, (14 Dec 2018). *the 14th International Conference on Information Security and Cryptology (Inscrypt 2018),* Fuzhou.

Keynote. New cryptographic techniques for data security and privacy protection in the cloud, (10 Oct 2018). *Huawei Connect 2018*, Shanghai, China.

Keynote. A user centric and layered approach to mobile security, (25 Sep 2018). *the 14th International Conference on Information Security Practice and Experience (ISPEC 2018),* Tokyo, Japan.

Invited talk. End-to-end secure mobile computing in the Internet of Things, (03 Sep 2018). *the 23rd European Symposium on Research in Computer Security (ESORICS 2018),* Barcelona, Spain.

Keynote. A user centric approach to secure mobile systems and applications, (08 Aug 2018). *the 14th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2018),* Singapore.

Keynote. Strengthening the weakest links in IoT security, (11 Jul 2018). *the 23rd Australasian Conference on Information Security and Privacy (ACISP 2018),* 

Keynote. Present and future challenges in IoT security, (19 May 2018). ACM SIGSAC China Symposium, ACM Turing Celebration Conference (ACM TURC 2018),

Invited Talk. Present and future challenges in IoT Security, (15 May 2018). *Huawei Strategy and Technology Workshop*,

Keynote. Privacy-preserving access control and computations of encrypted data in the cloud, (13 Dec 2017). *The 10th International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage (SpaCCS 2017),* Guangzhou. China

Invited talk. A layered approach to secure mobile computing, (27 Jul 2017). *Cyber Week 2017 – Academic Track,* Tel Aviv. Israel

Keynote. Performance and cryptographic key management for mobile users in secure cloud storage systems, (09 Dec 2016). *The 3rd International Symposium on Mobile Security,* Seoul. South Korea

Keynote. Achieving end-to-end security in mobile computing, (06 Jun 2016). *The 21st ACM Symposium on Access Control Models and Technologies,* Shanghai. China

Keynote. Attribute-based encryption for access control of encrypted data in the cloud, (04 Jan 2016). *The 4th International Workshop on Security and Forensics in Cyber Space*, Singapore. Singapore

Invited talk. Achieving data security & privacy in untrusted servers, (17 Dec 2015). *Fudan Science and Innovation Forum*, Shanghai. China

Keynote. Flexible and scalable search and sharing of encrypted data in the cloud, (07 Dec 2015). *The 7th International Conference on Trusted Systems,* Beijing. China

Keynote. Efficient and privacy-preserved sharing of encrypted data in the cloud, (22 Aug 2015). *The 14th IEEE International Conference on Trust, Security and Privacy in Computing and Communications,* Helsinki. Finland

Distinguished Lecture. Protecting security and privacy of outsourced data in the cloud, (04 Dec 2014). *The Croucher Foundation Advanced Study Institute – Information Security and Privacy in Social Networks and Cloud Computing,* Hong Kong. China

Invited talk. Towards secure and usable user authentication in e-banking and e-payment, (13 May 2014). *2014 Huawei Strategy and Technology Workshop*, Shengzhen. China

Keynote speech. RFID security & privacy – recent developments & challenges, (27 Nov 2013). *The 2013 Workshop on RFID and IoT Security*, Guangzhou. China

Keynote speech. Secure access to outsourced data, (08 May 2013). *The 2013 International Workshop on Security in Cloud Computing*, Hangzhou. China

Keynote speech. Access control of encrypted data in untrusted servers, (12 Dec 2012). *The 4th International Symposium on Cyberspace Safety and Security,* Melbourne. Australia

Keynote Speech. Detecting node clones in wireless sensor networks, (07 Sep 2010). *The 6th International ICST Conference on Security and Privacy in Communication Networks*, Singapore.

Keynote Speech. RFID privacy models and a minimal condition, (12 Dec 2009). *The 5th China International Conference on Information Security and Cryptology*, Beijing.

Keynote Speech. Scalable end-to-end multimedia content authentication techniques, (18 Nov 2009). *The 2009 International Conference on Multimedia Information Networking and Security*, Wuhan. China

Keynote Speech. The future of password, (04 Jun 2009). *The 19th Cryptology and Information Security Conference,* Taipei.

Keynote Speech. Scalable authentication techniques compatible with modern multimedia coding standards, (21 Apr 2008). *The Fourth Information Security Practice and Experience Conference*, Sydney.

Keynote Speech. Towards efficient and novel security solutions - a marriage of crypto and trusted computing platform, (07 May 2007). *The 3rd Information Security Practice and Experience Conference*,

Keynote Speech. Inference control and private information retrieval – two sides of one tapestry, (06 Jun 2006). *The 4th International Conference on Applied Cryptography and Network Security*, Singapore.

Invited Talk. New developments in security systems and cryptographic applications, (11 Dec 2004). *The Croucher Foundation Advanced Study Institute – Cryptography and Wireless Security,* Hong Kong.

Invited Seminars, Talks and Lectures

Bitcoin, blockchain and smart contract, 06 Mar 2018. IT Development Talk to Supreme Court Judges

Privacy enhanced super-distribution of multimedia content, 04 Sep 2004. CyLab Seminar, Pittsburgh, United States of America

# **EXTERNAL SERVICE – PROFESSIONAL**

Chairperson, Program Committee, International Public Key Cryptosystems Workshop, 2004 (Singapore)

Member, Technical Program Committee, IEEE Wireless Communications and Networking Conference 2007 (WCNC 2007), March 2007, Hong Kong, China.

Member, Technical Program Committee, Workshop on Internet and Network Economics, (WINE 2005), (15-17 December, 2005)

Member, Program Committee, the Fourth International Conference on Applied Cryptography and Network Security (ANCS 2006), 6-9 June, Singapore, http://acns2006.i2r.a-star.edu.sg

Member, Advisory Committee, the 1st International Conference on Information Security and Computer Forensics (ISCF 2006), December 2006, Chennai, India.

Technical Program Committee, Workshop on Mobile, Wireless and Sensor Networks, 2004 (Singapore).

Member, Program Committee, the 11th European Symposium on Research in Computer Security (ESORICS 2006), 18-20 September 2006, Hamburg, Germany, http://www.esorics06.tu-harburg.de

Member, Program Committee, ACM Symposium on Information, Computer and Communications Security (AsiaCCS 2006), 21-24 March 2006, Taipei, Taiwan, http://www.iis.sinica.edu.tw/asiaccs06/indexhome.html

Member, Program Committee, the 12th European Symposium on Research in Computer Security (ESORICS 2007), September 2007, Dresden, Germany.

Member, Program Committee, ChinaCOM 2006, 16-19 October 2006, Beijing, China, http://www.chinacom.org/progcom.html

Member, Program Committee, Asiacrypt 2003 (Taipei, Taiwan).

Member, Program Committee, The Second Information Security Practice and Experience Conferecne 2006 (ISPEC 2006), (Hangzhou, China)

Member, Program Committee, International Conference on Applied Cryptography and Network Security (ACNS 2006), June 2006, Singapore.

Member, Program Committee, ACM Conference on Computer and Communications Security, (ACM CCS 2007), October 2007, Washington, DC, USA.

Chairperson, The 1st Information Security Practice and Experience Conference, 2005 (Singapore)

Member, Technical Program Committee, IEEE International Conference on Communications (ICC 2006) -Wireless Ad Hoc and Sensor Networks, 11th - 15th June 2006, Istanbul, Turkey, http://www.icc2006.org/index.html

Member, Program Committee, the Second International Workshop for Asian Public Key Infrastructures, 2002 (Taipei, Taiwan).

Member, Program Committee, The Second Conference on Availability, Reliability and Security (AReS 2007), 10th-13th April 2007, Vienna, Austria.

Member, Program Committee, ACM Conference on Computer and Communications Security, 1999 (Singapore).

Member, Technical Program Committee, IFIP International Conference on Embedded and Ubiquitous Computing (EUC 2007), December 2007, Taipei, Taiwan.

Chairperson, Program Committee, the International Conference on Information and Communications Security, 2002 (Singapore).

Member, Technical Program Committee, IEEE Globecom 2005, Symposium on Computer and Networks Security, 2005 (Nov. 28- Dec. 2, 2005, St. Louis, USA).

Chairperson, The 8th Information Security Conference 2005 (ISC 2005), 20-23 September 2005, (Singapore)

Chairperson, Program Committee, The First Conference on Availability, Reliability and Security (AReS 2006), 20th-22nd April 2006, Vienna, Austria.

Member, Technical Program Committee, The 1st IEEE Workshop on Information Assurance in Wireless Sensor Networks 2005 (WSNIA 2005), (April 7-9, Arizona, USA)

Member, Program Committee, The Seventh International Conference on Information and Communications Security, (ICICS 2005), 10-13 December 2005, Beijing, China, http://www.icics2005.org

Member, Program Committee, ChinaCOM 2006, October 2006, Beijing, China.

Member, Technical Program Committee, Emerging Networks, Technologies and Standards Symposium, (IEEE WirelessCom 2005), Hawaii, USA, http://sa1.sice.umkc.edu/wc05/

Member, Program Committee, ACM Symposium on Information, Computer and Communications Security (AsiaCCS'2006), (Taipei, Taiwan)

Member, Program Committee, the 2nd International Conference on Mobile Ad-hoc and Sensor Networks (MSN 2006), December 2006, Hong Kong, China.

Member, Program Committee, IEEE Conference on Availability, Reliability and Security (AReS 2006), 20-22 April 2006, Vienna, Austria, http://www.ares-conf.org

Member, International Program Committee, IASTED International Conference on Communications and Computer Networks, CCN'2005 (Oct. 24-26, 2005, Marina Del Rey, CA, USA)

Member, Technical Program Committee, The IEEE Communications Society/CreateNet International Conference on Security and Privacy for Emerging Areas in Communication Networks, (SECURECOMM 2006), 11-15 September 2006, Baltimore, USA, http://www.securecomm.org

Member, Technical Program Committee, IEEE Globecom 2003, Symposium on Communications Security, 2003 (San Francisco, USA).

Member, Program Committee, The Third Australasian Information Security Workshop (AISW 2005): Digital Rights Management, 31 Jan - 3 Feb 2005 (Australia)

Member, International Program Committee, the IASTED Conference on Communication, Networks and Security, 2003 (New York, USA).

Member, Program Committee, the 11th Australasian Conference on Information Security and Privacy (ACISP 2006), 3-5 July 2006, Melbourne, Australia, http://acisp2006.it.deakin.edu.au

Member, Technical Program Committee, The Second International Conference on Security and Privacy for Emerging Areas in Communication Networks (SECURECOMM 2006), September 2006, Baltimore, USA.

Member, International Advisory Committee, IEEE International Carnahan Conference on Security Technology, 1995 (Sanderstead, Surrey, England), 1997 (Canberra, Australia), 1998 (Alexandria, VA, USA), 1999 (Madrid, Spain).

Member, Program Committee, The Seventh International Conference on Electronic Commerce, ICEC 2005, 15-17 Aug 2005, Xi'an, China, http://www.icec2005.org

Member, Program Committee, The 11th Australasian Conference on Information Security and Privacy (ACISP 2006), July 2006, Melbourne, Australia.

Member, Program Committee, International Conference on Information and Communications Security, 1997 (Beijing, China), 1999 (Sydney, Australia), 2003 (Huhehote, China), 2004 (Malaga, Spain), 2005 (Beijing, China).

Member, Technical Program Committee, IEEE Wireless Networks, Communications and Mobile Computing, IEEE WirelessCom 2005 (June 13-14, 2005, Hawaii, USA)

Member, Program Committee, the Annual International Conference on Information Security and Cryptology, 2003 (Seoul, Korea), 2004 (Seoul, Korea).

Member, Technical Program Committee, Technical Program Committee, The First International Conference on Security and Privacy for Emerging Areas in Communication Networks, SECURECOMM 2005 (5-9 September 2005, Athens, Greece)

Member, International Program Committee, The IASTED International Conference on Communication, Network and Information Security (CNIS 2005), (November 14-16 2005, Phoenix, USA)

Member, Program Committee, the 11th European Symposium on Research in Computer Security (ESORICS 2006), September 2006, Hamburg, Germany.

Member, Program Committee, Program Committee, ACM Workshop on Digital Rights Management (ACM DRM 2006), October 2006, Washington, DC, USA.

Member, Program Committee, IEEE Symposium on Security and Privacy, 1999 (Oakland, CA, USA), 2000 (Oakland, CA, USA).

Member, Program Committee, Information Security Workshop, 1999 (Kuala Lumpur, Malaysia).

Member, Program Committee, the First International Conference on Applied Cryptography and Network Security, 2003 (Kuming, China), 2006 (Singapore)

Committee Chair, Program Committee, 2021 IEEE Conference on Dependable and Secure Computing, 2021

Committee Chair, Program Committee, 2020 Information Security Conference, 2020

Guest Editor, Special Issue on FinTech Security and Privacy, Future Generation Computer Systems, 2020 - Present

Guest Editor, Special Issue on security and privacy of blockchain technologies, International Information Security, 2020 - Present

Member Board of Advisors, Information Security and Cryptography book series, Springer Verlag's, 2020 - Present

Editor Associate Editor, ACM Transactions on Privacy and Security (TOPS), 2020 - Present

Committee Chair, Program Committee, International Conference on Cryptology and Network Security (CANS), 2019

Editor Book, 3rd Edition of Encyclopedia of Cryptography, Security and Privacy, Springer, 2019 - 2020

Committee Chair, Program Committee, International Conference on Applied Cryptography and Network Security (ACNS), 2019

Guest Editor, Special Issue on Trust Management for Multimedia Big Data, ACM Transactions on Multimedia Computing, Communications and Applications, Vol. 12, No. 4s, November 2016, 2017

Committee Member, Steering Committee, ACM Symposium on Access Control Models and Technologies, 2017 - 2020

Guest Editor, Special Issue on Cryptography and Data Security in Cloud Computing, Information Sciences, Elsevier, Vol. 387, May 2017, 2017

Committee Member, Steering Committee, IEEE Conference on Dependable and Secure Computing, 2017 - Present

Editorial Board, SpringerBriefs in Cyber Security Systems and Networks, 2017 - Present

Chairperson, Program Committee, Information Security Practice and Experience Conference (ISPEC), 2016

Chairperson, 12th EAI International Conference on Security and Privacy in Communication Networks (SecureComm), 2016

Editor Associate Editor, IEEE Security and Privacy Magazine, 2016 - 2020

Chairperson, Information Security Practice and Experience Conference (ISPEC), 2015

Chairperson, Information Security Practice and Experience Conference (ISPEC), 2014

Chairperson, Program Committee, International Symposium on Cyberspace Safety and Security, 2014

Member, Program committee, The ACM Cloud Computing Security Workshop, 2014

Guest Editor, Special Issue on Security and Privacy of Electronic Health Information Systems, International Journal of Information Security, Vol. 14, No. 6, November 2015, 2014 - 2015

Member, Program Committee, International Symposium on Cyberspace Safety and Security, 2013

Chairperson, Program Committee, 9th Information Security Practice and Experience Conference., 2013

Member, Program Committee, 2013 iConference, 2013

Editorial Board Member, Special Issue on Security and Privacy in Complex Systems, IEEE Systems Journal, 2013 - 2014

Chairperson, Steering Committee, ACM Symposium on Information, Computer and Communications Security (AsiaCCS), 2013 - 2017

Guest Editor, Special Issue on Cryptography in Cloud Computing., Future Generation Computer Systems, Vol. 30, January 2014., 2013 - 2014

Editorial Board Member, International Journal of Information Security, Springer, 2013 - Present

Member, International Advisory Committee, International Conference on Network and System Security, 2013 - Present

Guest Editor, Special Issues on Turst in Cyber, Physical and Social Computing, Computer & Security, Vol. 47, November 2014, 2013 - 2014

Member, International Advisory Committee, IEEE Conference on Communications and Network Security, 2013 - Present

Member, Program Committee, The 6th International Conference on Network and System Security, 2012

Member, Program Committee, The 19th ACM Conference on Computer and Communications Security., 2012

Chairperson, Program Committee, Information Security Practice and Experience Conference, 2012

Member, Program Committee, International Conference on Applied Cryptography and Network Security, 2012

Member, Program Committee, The Sixth International Conference on Software Security and Reliability., 2012

Member, Program Committee, The Fifth ACM Conference on Security and Privacy in Wireless and Mobile Networks., 2012

Chairperson, Technical Proogram Committee, International Conference on Multimedia Information Networking and Security., 2012

Member, Program Committee, ACM Symposium on Information, Computer and Communications Security, 2012

Editor Associate Editor, Associate Editor, IEEE Transactions on Dependable and Secure Computing, 2012 - 2016

Committee Member, Steering Committee, International Conference on Network and System Security, 2012 - Present

Member, Program Committee, ACM Multimedia Conference, 2011

Chairperson, Program Committee, International Conference on Trusted Systems, 2011

Member, Program Committee, IEEE International Conference on Trust, Security and Privacy in Computing and Communications, 2011

Member, Program Committee, ACM Conference on Wireless Network Security, 2011

Chairperson, Program Committee, Information Security Practice and Experience Conference, 2011

Member, Program Committee, ACM Symposium on Information, Computer and Communications Security, 2011

Other, Guest Editor, Special Issue on Ubiquitous Electronic Commerce Systems, Journal of Electronic Commerce Research, Vol. 11, No. 1, 2011, Springer,, 2011

Chairperson, Program Committee, International Conference on Trusted Systems, 2010

Chairperson, Program Committee, Information Security Practice and Experience Conference, 2010

Member, Program Committee, International Conference on Information Security and Cryptology, 2010

Member, Program Committee, International Conference on Trusted Cloud Infrastructure TechnologiesAnnual, 2010

Member Board of Advisors, International Advisory Board, International Workshop on Multimedia, Information Privacy and Intelligent Computing Systems, 2010

Member, Program Committee, International Symposium on Data, Privacy and E-Commerce, 2010

Member, Program Committee, IEEE International Conference on Secure Software Integration and Reliability Improvement, 2010

Member, Program Committee, International Conference on Applied Cryptography and Network Security, 2010

Member, Program Committee, International Conference on Applied Cryptography and Network Security, 2010

Member, Program Committee, ACM Symposium on Information, Computer and Communications Security, 2010

Chairperson, Technical Committee, International Conference on Multimedia Information Networking and Security, 2010

Member, Program Committee, ACM Workshop on Scalable Trusted Computing, 2010

Chairperson, Program Committee, The International Conference on Trusted Systems, 2009

Member, Program Committee, International Conference on Information Security and Cryptology, 2009

Member, Technical Program Committee, International Conference on Multimedia Information Networking and Security, 2009

Member, Program Committee, International Conference on Network and System Security, 2009

Member, International Advisory Board, International Workshop on Multimedia, Information Privacy and Intelligent Computing Systems, 2009

Member, Program Committee, ACM Symposium on Information, Computer and Communications Security, 2009

Member, Program Committee, International Conference on the Technical and Socio-economic Aspects of Trusted Computing, 2009

Member, Program Committee, IEEE International Symposium on Trust, Security and Privacy for Pervasive Applications, 2009

Chairperson, Program Committee, Information Security Practice and Experience Conference, 2009

Member, Program Committee, Australasian Conference on Information Security and Privacy, 2009

Member, Program Committee, International Conference on Cloud Computing, 2009

Other, Associate Editor, IEEE Transactions on Information Forensics and Security (since March 2009), 2009 - 2011

Member, Editorial Board, International Journal of Multimedia Intelligence and Security, Inderscience, 2009 - 2017

Member, Technical Program Committee, IEEE/IFIP International Conference on Embedded and Ubiquitous Computing, 2008

Member, Program Committee, International Conference on Computational Intelligence and Security, 2008

Member, Program Committee, International Conference on Information and Communications Security, 2008

Member, Program Committee, International Conference on Network and System Security, 2008

Member, Program Committee, Information Security Conference, 2008

Member, Program Committee, International Conference on Communications and Networking in China, 2008

Member, Program Committee, Annual Computer Security Applications Conference, 2008

Member, Program Committee, Asia Pacific Trusted Infrastructure Technologies Conference, 2008

Member, Technical Program Committee, IEEE International Conference on Communications, 2008

Member, Program Committee, ACM Symposium on Information, Computer and Communications Security, 2008

Member, Program Committee, International Conference on Cryptology and Network Security, 2008

Member, Program Committee, International Conference on Provable Security, 2008

Member, Program Committee, Annual Conference on Privacy, Security and Trust, 2008

Committee Chair, Program Committee, ACM Conference on Computer and Communications Security, 2007

Editor Associate Editor, Security and Communication Network Journal, John Wiley and Sons, 2007 - 2013

Other, Editorial Board, Journal of Computer Science and Technology (JCST), Institute of Computing Technology, Chinese Academy of Sciences, co-publisshed by Springer (2006-), 2006 - Present

Other, Editorial Board, Advances in Cryptology and Information Security (ACSI) series, IOS Press (since August 2005), 2005 - Present

# EXTERNAL SERVICE – PUBLIC SECTOR AND COMMUNITY SERVICE

Committee Chair, Trust Tech Technical Committee , Digital Trust Centre, IMDA, 2022 - 2027 Member, National Cybersecurity R&D Technical Review Panel , CSA, 2022 - 2027