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**Education**

PhD, University of Wisconsin - Madison, United States of America, 1994

Master of Science, National University of Singapore, Singapore, 1991

Bachelor of Science, National University of Singapore, Singapore, 1989

**Academic Appointments**

Professor of Computer Science, School of Computing and Information Systems, SMU, Jul 2023 - Present

Lee Kong Chian Chair Professor of Computer Science, School of Computing and Information Systems, SMU, Apr 2021 - Jun 2023

Lee Kong Chian Chair Professor of Information Systems, School of Computing and Information Systems, SMU, Jul 2020 - Mar 2021

Professor of Information Systems, School of Computing and Information Systems, SMU, Jan 2011 - Jun 2020

Principal Scientist, A\*Star Institute for Infocomm Research, Singapore, Jan 2006 - Jan 2007

Associate Professor of Information Systems, School of Computing and Information Systems, SMU, Jun 2005 - Dec 2010

Adjunct Associate Professor, School of Computing, National University of Singapore, Singapore, Jan 2003 - Jan 2004

Division Director & Principal Scientist, Services and Applications Division, A\*Star Institute for Infocomm Research (I2R), Singapore, Jan 2003 - Jan 2005

Acting Program Director (Distributed Systems Program), Laboratories for Information Technology, Singapore, Jan 2002 - Jan 2003

Research Manager, Kent Ridge Digital Labs (KRDL) /Laboratories for Information Technology, Singapore, Jan 2001 - Jan 2003

Project Manager, Institute of Systems Science /Kent Ridge Digital Labs, Singapore, Jan 1997 - Jan 2001

Adjunct Scientist, BioInformatics Center, National University of Singapore, Singapore, Jan 1996 - Jan 1997

Coordinator, Healthcare Projects, Institute of Systems Science, National University of Singapore, Singapore, Jan 1995 - Jan 1997

Project Leader, Multimedia Server, Institute of Systems Science, National University of Singapore, Singapore, Jan 1994 - Jan 1997

## Academic Administrative Positions

Dean, School of Computing and Information Systems, SMU, Jul 2016 - Present

Dean, Postgraduate Research Programmes, SMU, Feb 2016 - Aug 2016

Senior Associate Dean and Head, SMU Post-Graduate Research Programmes, SMU, Jul 2014 - Jan 2016

Director, Postgraduate Research Programmes, SMU, Jul 2011 - Jun 2014

Member (School of Information Systems), Institutional Review Board, SMU Institutional Review Board, SMU, Jan 2010 - Dec 2012

Director (SIS PhD Programme), School of Computing and Information Systems, SMU, Jul 2006 - Jun 2010

## Awards and Honors

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

Outstanding Computing Alumni Award, National University of Singapore, 2019

National Day Awards, Public Administration Medal (Silver), awarded by Singapore Government for contribution to education, 2019

Research Excellence Award, School of Information Systems, Singapore Management University, 2010, 2009

Role Model for the Category of Senior Member of Research Staff, Laboratories for Information Technology, 2002

Excellence Award for Patent Filings, Kent Ridge Digital Labs, 1999

Overseas Scholarship to pursue graduate studies at the University of Wisconsin-Madison, National University of Singapore, 1990

OCBC scholarship for undergraduate studies at the National University of Singapore, OCBC Bank, 1985

## RESEARCH

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### Publications

#### Journal Articles [Refereed]

DkvSSO: Delegatable keyed-verification credentials for efficient anonymous single sign-on, by XUE, Wenyi; YANG, Yang; HUANG, Minming; LI, Yingjiu; PANG, HweeHwa; DENG, Robert H.. (2025). *IEEE Transactions on Information Forensics and Security*, 20 (1), 4196-4211. <https://doi.org/10.1109/TIFS.2025.3555196> (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). *The Journal of Systems Architecture: Embedded Software Design*, 153 1-13. <https://doi.org/10.1016/j.sysarc.2024.103184> (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)

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)

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)

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)

SOCI: A Toolkit for Secure Outsourced Computation on Integers, by ZHAO, Bowen; YUAN, Jiaming; LIU, Ximeng; WU, Yongdong; PANG, Hwee Hwa; DENG, Robert H.. (2022). *IEEE Transactions on Information Forensics and Security*, 17 3637-3648. <http://doi.org/10.1109/TIFS.2022.3211707> (Published)

PriScore: Blockchain-Based Self-Tallying Election System Supporting Score Voting, by YANG, Yang; GUAN, Zhangshuang; WAN, Zhiguo; WENG, Jian; PANG, HweeHwa; DENG, Robert H.. (2021). *IEEE Transactions on Information Forensics and Security*, 16 4705-4720. (Published)

Privacy-Preserving Outsourced Calculation Toolkit in the Cloud, by LIU, Ximeng; DENG, Robert H.; CHOO, Kim-Kwang Raymond; YANG, Yang; PANG, Hwee Hwa. (2020). *IEEE Transactions on Dependable and Secure Computing*, 17 (5), 898-911. <https://doi.org/10.1109/TDSC.2018.2816656> (Published)

Secure server-aided data sharing clique with attestation, by WANG, Yujue; PANG, Hwee Hwa; DENG, Robert H.; DING, Yong; WU, Qianhong; QIN, Bo; FAN, Kefeng. (2020). *Information Sciences: Informatics and Computer Science Intelligent Systems Applications*, 522 80-98. <https://doi.org/10.1016/j.ins.2020.02.064> (Published)

Securing messaging services through efficient signcryption with designated equality test, by WANG, Yujue; PANG, Hwee Hwa; DENG, Robert H.; DING, Yong; WU, Qianhong; QIN, Bo. (2019). *Information Sciences: Informatics and Computer Science Intelligent Systems Applications*, 490 145-165. <https://doi.org/10.1016/j.ins.2019.03.039> (Published)

Verifiably encrypted cascade-instantiable blank signatures to secure progressive decision management, by WANG, Yujue; PANG, Hwee Hwa; DENG, Robert H.. (2018). *International Journal of Information Security*, 17 (3), 347-363. <https://doi.org/10.1007/s10207-017-0372-2> (Published)

Secure server-aided top-k monitoring, by WANG, Yujue; PANG, Hwee Hwa; YANG, Yanjiang; DING, Xuhua. (2017). *Information Sciences: Informatics and Computer Science Intelligent Systems Applications*, 420 345-363. <https://doi.org/10.1016/j.ins.2017.08.068> (Published)

CCA Secure encryption supporting authorized equality test on ciphertexts in standard model and its applications, by WANG, Yujue; PANG, Hwee Hwa; TRAN, Ngoc Hieu; DENG, Robert H.. (2017). *Information Sciences: Informatics and Computer Science Intelligent Systems Applications*, 414 289-305. <https://doi.org/10.1016/j.ins.2017.06.008> (Published)

Probabilistic Public Key Encryption for Controlled Equijoin in Relational Databases, by WANG, Yujue; PANG, Hwee Hwa. (2017). *Computer Journal*, 60 (4), 600-612. <https://doi.org/10.1093/comjnl/bxw083> (Published)

Detecting anomaly collections using extreme feature ranks, by DAI, Hanbo; ZHU, Feida; LIM, Ee Peng; PANG, Hwee Hwa. (2015). *Data Mining and Knowledge Discovery*, 29 (3), 689-731. <https://doi.org/10.1007/s10618-014-0360-3> (Published)

Privacy-Preserving Ad-Hoc Equi-Join on Outsourced Data, by PANG, Hwee Hwa; DING, Xuhua. (2014). *ACM Transactions on Database Systems*, 39 (3), 1-40. <https://doi.org/10.1145/2629501> (Published)

- Direct neighbor search, by ZHANG, Jilian; MOURATIDIS, Kyriakos; PANG, Hwee Hwa. (2014). *Information Systems*, 44 73-92. <https://doi.org/10.1016/j.is.2014.03.003> (Published)
- Enhancing Access Privacy of Range Retrievals over B-Trees, by PANG, Hwee Hwa; ZHANG, Jilian; MOURATIDIS, Kyriakos. (2013). *IEEE Transactions on Knowledge and Data Engineering*, 25 (7), 1533-1547. <https://doi.ieeecomputersociety.org/10.1109/TKDE.2012.77> (Published)
- Efficient Evaluation of Continuous Text Search Queries, by MOURATIDIS, Kyriakos; PANG, Hwee Hwa. (2011). *IEEE Transactions on Knowledge and Data Engineering*, 23 (10), 1469-1482. <https://doi.org/10.1109/TKDE.2011.125> (Published)
- STEvent: Spatio-Temporal Event Model for Social Network Discovery, by LAUW, Hady W.; LIM, Ee Peng; PANG, Hwee Hwa; TAN, Teck-Tim. (2010). *ACM Transactions on Information Systems*, 28 (3), 1-32. <https://doi.org/10.1145/1777432.1777438> (Published)
- Efficient processing of exact top-k queries over disk-resident sorted lists, by PANG, Hwee Hwa; DING, Xuhua; ZHENG, Baihua. (2010). *VLDB Journal*, 19 (3), 437-456. <https://doi.org/10.1007/s00778-009-0174-x> (Published)
- Privacy-Preserving Similarity-Based Text Retrieval, by PANG, Hwee Hwa; SHEN, Jialie; KRISHNAN, Ramayya. (2010). *ACM Transactions on Internet Technology*, 10 (1), 1-40. <https://doi.org/10.1145/1667067.1667071> (Published)
- Partially materialized digest scheme: an efficient verification method for outsourced databases, by MOURATIDIS, Kyriakos; SACHARIDIS, Dimitris; PANG, Hwee Hwa. (2009). *VLDB Journal*, 18 (1), 363-381. <https://doi.org/10.1007/s00778-008-0108-z> (Published)
- Explaining inferences in Bayesian networks, by YAP, Ghim-Eng; TAN, Ah-Hwee; PANG, Hwee Hwa. (2008). *Applied Intelligence*, 29 (3), 263-278. <https://doi.org/10.1007/s10489-007-0093-8> (Published)
- A lightweight buyer-seller watermarking protocol, by WU, Yongdong; PANG, Hwee Hwa. (2008). *Advances in Multimedia*, 2008 905065-1-7. <https://doi.org/10.1155/2008/905065> (Published)
- Verifying completeness of relational query answers from online servers, by PANG, Hwee Hwa; TAN, Kian-Lee. (2008). *ACM Transactions on Information and System Security*, 11 (2), 1-50. <https://doi.org/10.1145/1330332.1330337> (Published)
- Discovering and exploiting causal dependencies for robust mobile context-aware recommenders, by YAP, Ghim-Eng; TAN, Ah-Hwee; PANG, Hwee Hwa. (2007). *IEEE Transactions on Knowledge and Data Engineering*, 19 (7), 977-992. <https://doi.ieeecomputersociety.org/10.1109/TKDE.2007.1065> (Published)
- Masking page reference patterns in encryption databases on untrusted storage, by MA, Xi; PANG, Hwee Hwa; TAN, Kian-Lee. (2006). *Data & Knowledge Engineering*, 58 (3), 466-483. <https://doi.org/10.1016/j.datak.2005.06.003> (Published)
- Three architectures for trusted data dissemination in edge computing, by GOH, Shen-Tat; PANG, Hwee Hwa; DENG, Robert H.; BAO, Feng. (2006). *Data & Knowledge Engineering*, 58 (3), 381-409. <https://doi.org/10.1016/j.datak.2005.05.003> (Published)
- Social network discovery by mining spatio-temporal events, by LAUW, Hady W.; LIM, Ee Peng; PANG, Hwee Hwa; TAN, Teck-Tim. (2005). *Computational and Mathematical Organization Theory*, 11 (2), 97-118. <https://doi.org/10.1007/s10588-005-3939-9> (Published)
- Steganographic schemes for file system and B-tree, by PANG, Hwee Hwa; TAN, Kian-Lee; ZHOU, Xuan. (2004). *IEEE Transactions on Knowledge and Data Engineering*, 16 (6), 701-713. <https://doi.org/10.1109/TKDE.2004.15> (Published)
- Load sharing in distributed multimedia-on-demand systems, by TAY, Y. C.; PANG, Hwee Hwa. (2000). *IEEE Transactions on Knowledge and Data Engineering*, 12 (3), 410-428. <https://doi.org/10.1109/69.846293> (Published)
- Resource scheduling in a high-performance multimedia server, by PANG, Hwee Hwa; JOSE, Bobby; KRISHNAN, M. S.. (1999). *IEEE Transactions on Knowledge and Data Engineering*, 11 (2), 303-320. <https://doi.org/10.1109/69.761665> (Published)
- Tertiary storage in multimedia systems: staging or direct access?, by PANG, Hwee Hwa. (1997). *Multimedia Systems*, 5 (6), 386-399. <https://doi.org/10.1007/s005300050070> (Published)

Multiclass query scheduling in real-time database systems, by PANG, Hwee Hwa; CAREY, Michael J.; LIVNY, Miron. (1995). *IEEE Transactions on Knowledge and Data Engineering*, 7 (4), 533-551. <https://doi.org/10.1109/69.404028> (Published)

### Books (Refereed)

*Query answer authentication* by PANG, Hwee Hwa; TAN, Kian-Lee. (2012). Synthesis lectures on data management, San Rafael, CA: Morgan & Claypool Publishers. <https://doi.org/10.2200/S00405ED1V01Y201202DTM024> (Published)

### Conference Proceedings

AKMA+: Security and privacy-enhanced and standard-compatible AKMA for 5G communication, by YANG, Yang; YANG, Guomin; LI, Yingjiu; HUANG, Minming; SHEN, Zilin; KARIM, Imtiaz; SASSE, Ralf; BASIN, David; BERTINO, Elisa; WENG, Jian; PANG, Hwee Hwa; DENG, Robert H.. (2025.0). *SEC '25: Proceedings of the 34th USENIX Conference on Security Symposium, Seattle, USA, August 13 - 15*, (pp. 5327-5345) New York: ACM. (Published)

Make revocation cheaper: Hardware-based revocable attribute-based encryption, by LI, Xiaoguo; YANG, Guomin; XIANG, Tao; XU, Shengmin; ZHAO, Bowen; PANG, HweeHwa; DENG, Robert H.. (2024.0). *Proceedings of the 2024 IEEE Symposium on Security and Privacy (SP), San Francisco, California, May 19-23*, (pp. 3109-3127) Piscataway, NJ: IEEE. <https://doi.org/10.1109/SP54263.2024.00100> (Published)

PriSrv : Privacy-enhanced and highly usable service discovery in wireless communications, by YANG, Yang; DENG, Robert H.; YANG, Guomin; LI, Yingjiu; PANG, HweeHwa; HUANG, Minming; SHI, Rui; WENG, Jian . (2024.0). *Proceedings of the Network and Distributed System Security Symposium (NDSS 2024) : San Diego, CA, USA, February 26 - March 1*, San Diego, California, USA: NDSS. <https://doi.org/10.14722/ndss.2024.24174> (Published)

FREED: an efficient privacy-preserving solution for person re-identification, by ZHAO, Bowen; LI, Yingjiu; LIU, Ximeng; PANG, Hwee Hwa; Deng, Robert H.; . (2022.0). *Proceedings of the 5th IEEE Conference on Dependable and Secure Computing, Edinburgh, United Kingdom, 2022 June 22 - 24*, Edinburgh: <https://doi.org/10.1109/DSC54232.2022.9888863> (Published)

Expressive bilateral access control for Internet-of-Things in cloud-fog computing, by XU, Shengmin; NING, Jianting; MA, Jinhua; HUANG, Xinyi; PANG, Hwee Hwa; DENG, Robert H.. (2021.0). *Proceedings of the 26th ACM Symposium on Access Control Models and Technologies (SACMAT 2021), Virtual Conference, June 16-18*, (pp. 143-154) Virtual Conference: ACM. (Published)

Efficient verifiable computation of linear and quadratic functions over encrypted data, by TRAN, Ngoc Hieu; PANG, Hwee Hwa; DENG, Robert H.. (2016.0). *Asia CCS '16: Proceedings of the 11th ACM Asia Conference on Computer and Communications Security, Xi'an, China, May 30 - June 3*, (pp. 605-616) New York: ACM. <https://doi.org/10.1145/2897845.2897892> (Published)

Privacy-preserving and verifiable data aggregation, by TRAN, Ngoc Hieu; DENG, Robert H.; PANG, Hwee Hwa. (2016.0). *Proceedings of the Singapore Cyber-Security Conference (SG-CRC) 2016: Singapore, January 14-15*, (pp. 115-122) Amsterdam: IOS Press. <https://doi.org/10.3233/978-1-61499-617-0-115> (Published)

Maximum rank query, by MOURATIDIS, Kyriakos; ZHANG, Jilian; PANG, Hwee Hwa. (2015.0). *Proceedings of the VLDB Endowment: 41st VLDB 2015, Kohala Coast, Hawaii, August 31-September 4*, (pp. 1554-1565) Saratoga, CA: VLDB Endowment. <https://doi.org/10.14778/2824032.2824053> (Published)

Verifiable computation on outsourced encrypted data, by LAI, Junzuo; DENG, Robert H.; PANG, Hwee Hwa; WENG, Jian. (2014.0). *Computer Security - ESORICS 2014: 19th European Symposium on Research in Computer Security, Wroclaw, Poland, September 7-11: Proceedings, Part I*, (pp. 273-291) Cham: Springer. [https://doi.org/10.1007/978-3-319-11203-9\\_16](https://doi.org/10.1007/978-3-319-11203-9_16) (Published)

Global immutable region computation, by ZHANG, Jilian; MOURATIDIS, Kyriakos; PANG, Hwee Hwa. (2014.0). *SIGMOD '14: Proceedings of the 2014 ACM SIGMOD International Conference on Management of Data: Snowbird, UT, June 22-27*, (pp. 1151-1162) New York: ACM. <https://doi.org/10.1145/2588555.2610508> (Published)

L-opacity: Linkage-aware graph anonymization, by NOBARI, Sadegh; KARRAS, Panagiotis; PANG, Hwee

- Hwa; BRESSAN, Stephane. (2014.0). *Advances in Database Technology: EDBT 2014, 17th International Conference on Extending Database Technology, Athens, Greece, March 24-28, Proceedings*, (pp. 583-594) Konstanz: OpenProceedings. <https://doi.org/10.5441/002/edbt.2014.52> (Published)
- Computing immutable regions for subspace top-k queries, by MOURATIDIS, Kyriakos; PANG, Hwee Hwa. (2013.0). *Proceedings of the VLDB Endowment: 39th VLDB 2013, August 26-30, Riva del Garda, Trento, Italy*, (pp. 73-84) New York: VLDB Endowment. <https://doi.org/10.14778/2535568.2448941> (Published)
- Verifiable and private top-k monitoring, by DING, Xuhua; PANG, Hwee Hwa. (2013.0). *ASIA CCS '13: Proceedings of the 8th ACM SIGSAC Symposium on Information, Computer and Communications Security, Hangzhou, China, May 8-10*, (pp. 553-558) New York: ACM. <https://doi.org/10.1145/2484313.2484388> (Published)
- Detecting anomalies in bipartite graphs with mutual dependency principles, by DAI, Hanbo; ZHU, Feida; LIM, Ee Peng; PANG, Hwee Hwa. (2012.0). *2012 IEEE 12th International Conference on Data Mining: ICDM 2012: Brussels, Belgium, 10-13 December*, (pp. 171-180) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/ICDM.2012.167> (Published)
- Mining coherent anomaly collections on web data, by DAI, Hanbo; ZHU, Feida; LIM, Ee Peng; PANG, Hwee Hwa. (2012.0). *CIKM '12: Proceedings of the 21st ACM International Conference on Information and Knowledge Management: Maui, Hawaii, October 29 - November 2*, (pp. 1557-1561) New York: ACM. <https://doi.org/10.1145/2396761.2398472> (Published)
- Modeling concept dynamics for large scale music search, by SHEN, Jialie; PANG, Hwee Hwa; WANG, Meng; YAN, Shuicheng. (2012.0). *SIGIR '12: Proceedings of the International ACM SIGIR Conference on Research & Development in Information Retrieval: Portland, Oregon, August 12-16*, (pp. 455-464) New York: ACM. <https://doi.org/10.1145/2348283.2348346> (Published)
- Detecting anomalous Twitter users by extreme group behaviors, by DAI, Hanbo; LIM, Ee Peng; ZHU, Feida; PANG, Hwee Hwa. (2012.0). *Proceedings of the ACM International Conference on Net Science (NetSci)*, Chicago, Illinois: (Published)
- Detecting extreme rank anomalous collections, by DAI, Hanbo; ZHU, Feida; LIM, Ee Peng; PANG, Hwee Hwa. (2012.0). *12th SIAM International Conference on Data Mining 2012: Anaheim, California, 26-28 April*, (pp. 883-894) Philadelphia, PA: SIAM. <https://doi.org/10.1137/1.9781611972825.76> (Published)
- Obfuscating the topical intention in enterprise text search, by PANG, Hwee Hwa; XIAO, Xiaokui; SHEN, Jialie. (2012.0). *ICDE 2012: IEEE 28th International Conference on Data Engineering, Arlington Virginia, 1-5 April: Proceedings*, (pp. 1168-1179) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/ICDE.2012.43> (Published)
- Heuristic algorithms for balanced multi-way number partitioning, by ZHANG, Jilian; MOURATIDIS, Kyriakos; PANG, Hwee Hwa. (2011.0). *Proceedings of the Twenty-Second International Joint Conference on Artificial Intelligence, IJCAI-11: Barcelona, Catalonia, Spain, 16-22 July*, (pp. 693-698) Menlo Park, CA: AAAI Press. <https://doi.org/10.5591/978-1-57735-516-8/IJCAI11-122> (Published)
- Learning feature dependencies for noise correction in biomedical prediction, by YAP, Ghim-Eng; TAN, Ah-Hwee; PANG, Hwee Hwa. (2011.0). *11th SIAM International Conference on Data Mining 2011: Mesa, Arizona, 28-30 April: Proceedings*, (pp. 71-82) Philadelphia, PA: SIAM. <https://doi.org/10.1137/1.9781611972818.7> (Published)
- Exploiting intensity inhomogeneity to extract textured objects from natural scenes, by DING, Jundi; SHEN, Jialie; PANG, Hwee Hwa; CHEN, Songcan; YANG, Jingyu. (2010.0). *Computer vision: ACCV 2009: 9th Asian Conference on Computer Vision, Xi'an, September 23-27*, (pp. 1-10) Cham: Springer Verlag. [https://doi.org/10.1007/978-3-642-12297-2\\_1](https://doi.org/10.1007/978-3-642-12297-2_1) (Published)
- A multi-user steganographic file system on untrusted shared storage, by HAN, Jin; PAN, Meng; GAO, Debin; PANG, Hwee Hwa. (2010.0). *ACSAC '10: Proceedings of the 26th Annual Computer Security Applications Conference, Austin, Texas, December 6-10*, (pp. 317-326) New York: ACM. <https://doi.org/10.1145/1920261.1920309> (Published)
- Embellishing text search queries to protect user privacy, by PANG, Hwee Hwa; DING, Xuhua; XIAO, Xiaokui. (2010.0). *Proceedings of the VLDB Endowment: 36th International Conference on Very Large Data Bases: Singapore, 13-17 September 2010*, (pp. 598-607) New York: ACM. <https://doi.org/10.14778/1920841.1920918> (Published)

- Effective music tagging through advanced statistical modeling, by SHEN, Jialie; WANG, Meng; YAN, Shuicheng; PANG, Hwee Hwa; HUA, Xian-Sheng. (2010.0). *SIGIR 2010: Proceedings: 33rd Annual International ACM SIGIR Conference on Research and Development in Information Retrieval: Geneva, Switzerland, July 19-23*, (pp. 635-642) New York: ACM. <https://doi.org/10.1145/1835449.1835555> (Published)
- Dual phase learning for large scale video gait recognition, by SHEN, Jialie; PANG, Hwee Hwa; TAO, Dacheng; LI, Xuelong. (2010.0). *Advances in Multimedia Modeling: 16th International Multimedia Modeling Conference, MMM 2010, Chongqing, China, January 6-8: Proceedings*, (pp. 500-510) Berlin: Springer Verlag. [https://doi.org/10.1007/978-3-642-11301-7\\_50](https://doi.org/10.1007/978-3-642-11301-7_50) (Published)
- Scalable verification for outsourced dynamic databases, by PANG, Hwee Hwa; ZHANG, Jilian; MOURATIDIS, Kyriakos. (2009.0). *Proceedings of the VLDB Endowment: VLDB 2009, Lyon, France, August 24-28*, (pp. 802-813) New York: VLDB Endowment. <https://doi.org/10.14778/1687627.1687718> (Published)
- An incremental threshold method for continuous text search queries, by MOURATIDIS, Kyriakos; PANG, Hwee Hwa. (2009.0). *ICDE 2009: 25th IEEE International Conference on Data Engineering: Proceedings, Shanghai, China, 29 March-2 April*, (pp. 1187-1190) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/ICDE.2009.197> (Published)
- Authenticating the query results of text search engines, by PANG, Hwee Hwa; MOURATIDIS, Kyriakos. (2008.0). *Proceedings of the VLDB Endowment: VLDB 2008, Auckland, New Zealand, August 24-30*, (pp. 126-137) New York: VLDB Endowment. <https://doi.org/10.14778/1453856.1453875> (Published)
- Visual analytics for supporting entity relationship discovery on text data, by DAI, Hanbo; LIM, Ee Peng; LAUW, Hady W.; PANG, Hwee Hwa. (2008.0). *IEEE International Conference on Intelligence and Security Informatics, ISI 2008 Workshops: PAISI, PACCF, and SOCO 2008, Taipei, Taiwan, 17 June*, (pp. 183-194) Cham: Springer Verlag. [https://doi.org/10.1007/978-3-540-69304-8\\_19](https://doi.org/10.1007/978-3-540-69304-8_19) (Published)
- Learning causal models for noisy biological data mining: An application to ovarian cancer detection, by YAP, Ghim-Eng; TAN, Ah-Hwee; PANG, Hwee Hwa. (2007.0). *Proceedings of the Twenty-second AAAI Conference on Artificial Intelligence: 22-26 July 2007, Vancouver, British Columbia, Canada*, (pp. 354-360) Menlo Park, CA: AAAI Press. (Published)
- Query-based watermarking for XML data, by ZHOU, Xuan; PANG, Hwee Hwa; TAN, Kian-Lee. (2007.0). *ASIACCS '07: Proceedings of the ACM Symposium on Information, Computer, and Communications Security: Singapore, March 20-22*, (pp. 253-264) New York: ACM. <https://doi.org/10.1145/1229285.1266991> (Published)
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- Authenticating multi-dimensional query results in data publishing, by CHENG, Weiwei; PANG, Hwee Hwa; TAN, Kian-Lee. (2006.0). *Data and Applications Security XX: 20th Annual IFIP WG 11.3 Working Conference on Data and Applications Security, Sophia Antipolis, France, July 31-August 2, 2006: Proceedings*, (pp. 60-73) Berlin: Springer Verlag. [https://doi.org/10.1007/11805588\\_5](https://doi.org/10.1007/11805588_5) (Published)
- Discovering causal dependencies in mobile context-aware recommenders, by YAP, Ghim-Eng; TAN, Ah-Hwee; PANG, Hwee Hwa. (2006.0). *MDM 2006: 7th International Conference on Mobile Data Management: Proceedings, Nara, Japan, May 10-12*, (pp. 1-4) Piscataway, NJ: IEEE. <https://doi.org/10.1109/MDM.2006.72> (Published)
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- DSIM: A Distance-Based Indexing Method for genomic sequences, by CAO, Xia; OOI, Beng-Chin; PANG, Hwee Hwa; TAN, Kian-Lee; TUNG, Anthony K. H.. (2005.0). *BIBE 2005: Fifth IEEE International Symposium on Bioinformatic and Bioengineering, Minneapolis, 19-21 October*, (pp. 97-104) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/BIBE.2005.24> (Published)
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Mining social network from spatio-temporal events, by LAUW, Hady W.; LIM, Ee Peng; TAN, Teck Tim; PANG, Hwee Hwa. (2005.0). *Workshop on Link Analysis, Counterterrorism and Security 2005: Proceedings, Newport Beach, 23 April*, (pp. 82-93) Kingston, Canada: Queen's University. (Published)

Evaluation of MPEG-4 IPMP extension, by PANG, Hwee Hwa; WU, Yongdong. (2005.0). *2005 IEEE International Conference on Acoustics, Speech, and Signal Processing: Proceedings: Philadelphia, March 18-23*, (pp. 1161-1164) Piscataway, NJ: IEEE. <https://doi.org/10.1109/ICASSP.2005.1415616> (Published)

Finding constrained frequent episodes using minimal occurrences, by MA, Xi; PANG, Hwee Hwa; TAN, Kian-Lee. (2004.0). *Fourth IEEE International Conference on Data Mining: ICDM 2004: Proceedings: Brighton, 1-4 November*, (pp. 471-474) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/ICDM.2004.10043> (Published)

Authenticating query results in edge computing, by PANG, Hwee Hwa; TAN, Kian-Lee. (2004.0). *ICDE 2004: 20th IEEE International Conference on Data Engineering: Proceedings: Boston, 30 March-2 April*, (pp. 560-571) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/ICDE.2004.1320027> (Published)

Hiding data accesses in steganographic file system, by ZHOU, Xuan; PANG, Hwee Hwa; TAN, Kian-Lee. (2004.0). *ICDE 2004: 20th IEEE International Conference on Data Engineering: Proceedings: Boston, 30 March-2 April*, (pp. 572-583) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/ICDE.2004.1320028> (Published)

StegFS: A steganographic file system, by PANG, Hwee Hwa; TAN, Kian-Lee; ZHOU, Xuan. (2003.0). *ICDE 2003: 19th IEEE International Conference on Data Engineering: Proceedings: Bangalore, 5-8 March*, (pp. 657-667) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/ICDE.2003.1260829> (Published)

Fast filter-and-refine algorithms for subsequence selection, by OOI, Beng-Chin; PANG, Hwee Hwa; WANG, Hao; WONG, Limsoon; YU, Cui. (2002.0). *IDEAS 2002: International Database Engineering and Applications Symposium Proceedings: Edmonton, Canada, July 17-19*, (pp. 243-254) Los Alamitos, CA: IEEE Computer Society. <https://doi.ieeecomputersociety.org/10.1109/IDEAS.2002.1029677> (Published)

Two tools for solving bioinformatics problems, by KANDASAMY, T.; PANG, Hwee Hwa; TING, A.; WANG, J.; WONG, L.. (1998.0). *Proceedings of the IEEE Knowledge and Data Engineering Exchange Workshop: November 9, 1998, Taipei, Taiwan*, (pp. 79-86) Piscataway, NJ: IEEE. (Published)

A disk based multimedia server, by PANG, Hwee Hwa; KRISHNAN, M. S.; NARASIMHALU, Arcot Desai. (1996.0). *Proceedings of the Multimedia Japan Conference: Yokohama, Japan, March 18-20, 1996*, (pp. 232-239) Tokyo: Information Processing Society of Japan. <https://www.worldcat.org/oclc/76874497> (Published)

Managing memory for real-time queries, by PANG, Hwee Hwa; CAREY, Michael J.; LIVNY, Miron. (1994.0). *SIGMOD '94: Proceedings of the 1994 ACM SIGMOD International Conference on Management of Data: Minneapolis, Minnesota, May 24-27*, (pp. 221-232) New York: ACM. <https://doi.org/10.1145/191843.191882> (Published)

Memory-adaptive external sorting, by PANG, Hwee Hwa; CAREY, Michael J.; LIVNY, Miron. (1993.0). *19th International Conference on Very Large Data Bases: August 24-27 1993, Dublin, Ireland: Proceedings*, (pp.

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Transition scheduling in multiclass real time database systems, by PANG, Hwee Hwa; LIVNY, Miron; CAREY, Michael J.. (1992.0). *Real Time Systems Symposium RTSS 1992: Proceedings, Phoenix, Arizona, December 2-4*, (pp. 23-34) Los Alamitos, CA: IEEE Computer Society. <https://doi.org/10.1109/REAL.1992.242679> (Published)

Query optimization in OODB, by PANG, Hwee Hwa; LU, Hongjun; OOI, Beng Chin. (1992.0). *Database Systems for Advanced Applications '91: Proceedings of the Second International Symposium on Database Systems for Advanced Applications, April 2-4, 1991, Tokyo, Japan*, (pp. 1-10) Singapore: World Scientific. <http://worldcat.org/isbn/9789810210557> (Published)

An efficient semantic query optimization algorithm, by PANG, Hwee Hwa; LU, Hongjun; LU, Beng Chin. (1991.0). *Proceedings of the 7th IEEE International Conference on Data Engineering (ICDE): April 8-12, 1991, Kobe, Japan*, (pp. 326-335) Los Alamitos, CA: IEEE Computer Society. <http://doi.org/10.1109/ICDE.1991.131480> (Published)

Multilevel security control in multidatabase systems, by LU, Hongjun; OOI, Beng-Chin; PANG, Hwee Hwa. (1991.0). *IMS '91: First International Workshop on Interoperability in Multidatabase Systems: April 7-9, 1991, Kyoto, Japan: Proceedings*, (pp. 359-363) Los Alamitos, CA: IEEE Computer Society. <http://doi.org/10.1109/IMS.1991.153736> (Published)

### Edited Conference Proceedings

*Applied public key infrastructure: 4th International Workshop on Applied Public Key Infrastructure*, edited by ZHOU, Jianying; KANG, Meng-Chow; BAO, Feng; PANG, Hwee Hwa. (01/09/2005). Washington, DC: IOS Press. <http://worldcat.org/isbn/9781423799696> (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)

### **Other Outputs and Contributions**

#### Reports

*Semantic query optimization in OODB* by PANG, Hwee Hwa; LU, HJ; NARASIMHALU, Arcot Desai. (1990). (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

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

Secure Mobile Centre - Technologies and Solutions for Securing Mobile Computing, National Cybersecurity R&D (NCR) Programme, National Research Foundation (NRF) , PI (Project 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

Intelligent Text Analysis for Business Intelligence, IBM Innovations Unstructured Information Management Architecture (UIMA) Award , PI (Project Level): PANG Hwee Hwa, 2006, S\$22,762.2

Resource-Efficient Oblivious Storage, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2014, S\$36,845.56

Privacy-Preserving Ad-Hoc Join on Outsourced Database, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2013, S\$36,845.55

Privacy and Verifiability in Trend Analysis on Social Media, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2012, S\$35,428.33

Direct Neighbor Search over Multi-Attribute Data, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2011, S\$33,809.67

Preserving Topical Privacy in Text Search Engines, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2010, S\$30,427.33

Privacy-Preserving Relational DBMS, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2009, S\$29,565.33

Top-k Query Processing, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2008, S\$29,128.44

Text-cUBE (TUBE) for Exploratory Search, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2007, S\$27,807.56

Privacy-Preserving, Authenticated Information Retrieval, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2006, S\$26,483.33

Authentication of Query Results from Untrusted Servers, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): PANG Hwee Hwa, 2005, S\$25,222.22

### Other Institutions

Mobile Client, Strategic Research Grant, Singapore National Science and Technology Board PI (Project Level): PANG Hwee Hwa, 1997, SGD2,800,000

### **Intellectual Property**

Granted: PANG Hwee Hwa, "Distribution of Digital Content in Mobile Computing Environments", SG 95094

Granted: PANG Hwee Hwa, "Computing System and Method for Migrating A Mobile Computing Environment", US 6,804,718

Granted: PANG Hwee Hwa, "Software Distribution, Execution and Upgrading", SG 82917

Granted: PANG Hwee Hwa, "Softgoods Distribution Via A Network", SG89743

Granted: PANG Hwee Hwa, "Aparatus for Discovering Computing Services and Method Therefor"

Granted: PANG Hwee Hwa, "Method for Adapting Migrating Processes to Host Machines", SG 81497

Granted: PANG Hwee Hwa, "A Mobile Computing System and Method for a Network", US 6,629,143

Granted: PANG Hwee Hwa, "A Method of Connecting a Plurality of Remote Sites to a Server"

Granted: PANG Hwee Hwa, "Process-Oriented Computing Environment", SG 81493

Granted: PANG Hwee Hwa, "Transfer of Computing Environment", SG 91120

Granted: PANG Hwee Hwa, "A Method of Transferring an Active Application from a Sender to a Recipient", SG 81494

Granted: PANG Hwee Hwa, "A Method for Detaching and Re-attaching Components of a Computing Process", SG 81496

Granted: PANG Hwee Hwa, "Distribution of Digital Content in Mobile Computing Environments", SG95094

Granted: PANG Hwee Hwa, "Method for Matching Probabilistically Encrypted Data", WO 2015/088448, 18 Jun 2015

Granted: PANG Hwee Hwa, "Probabilistic Encryption Method for Querying Database", SG 201204376-6, 13 Jun 2012

## THESES AND DISSERTATIONS

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### Theses and Dissertations Supervised

#### Singapore Management University

Supervisor, "Recommendation Support for Multi-attribute Databases", Dissertation by ZHANG JILIAN, PhD in Information Systems, Singapore Management University, 2014

### Theses and Dissertations Assessed

#### Singapore Management University

Committee Member, "Data Preparation for Social Network Mining and Analysis", Dissertation by WANG YAZHE, PhD in Information Systems, Singapore Management University, 2015

Committee Member, "Multi-cost and Upgradable Spatial Network Databases", Dissertation by LIN YIMIN, PhD in Information Systems, Singapore Management University, 2014

Committee Member, "Anomaly Detection on Social Data", Dissertation by DAI HANBO, PhD in Information Systems, Singapore Management University, 2013

## UNIVERSITY SERVICE

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### Singapore Management University

Committee Member, Academic Affairs Committee, Feb 2023 - Present

Committee Member, Enterprise Board, Jun 2020 - May 2022

Committee Member, Manpower Review Committee, Jan 2017 - Dec 2019

Committee Member, Institutional Review Board, Jan 2010 - Dec 2012

## EXTERNAL SERVICE – PROFESSIONAL

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Committee Member, Research Program Committee, Proceedings of the VLDB Endowment (PVLDB), 2015 - 2016

Committee Member, Program Committee, IEEE International Conference on Data Engineering, 2011

Publicity Co-Chair, APSIPA Annual Summit and Conference, 2010

Committee Member, Program Committee, International Conference on Database Systems for Advanced Applications, 2010

Committee Member, Program Committee, International Conference on Very Large Data Bases, 2010

Committee Member, Program Committee, ACM International Conference on Management of Data, 2010

Tutorial Program Co-Chair, International Conference on Very Large Data Bases, 2010

Committee Member, Program Committee (Industrial, Applications and Experience Track), International Conference On Very Large Data Bases, 2009

Member, Editorial Review Board, Journal of Database Management, 2009 - 2016

Area Editor, Editorial Board, Electronic Commerce Research and Applications, 2009 - 2014

Committee Member, Program Committee, International Conference on Database Systems for Advanced Applications, 2008

Technical Review Panel, A\*STAR (Agency for Science, Technology and Research, Singapore) HOME2015, 2007 - 2010

Committee Member, Program Committee, Symposium on Information, Computer and Communications Security (AsiaCCS), 2007

Committee Member, Program Committee, 2nd Information Security Practice and Experience Conference, 2006

Committee Chair, Industrial Program Committee, International Conference on Database Systems for Advanced Applications, 2006

Committee Member, Organizing Committee, Third Asia Pacific Bioinformatics Conference, 2005

Committee Member, Program Committee, IASTED International Conference on Communication, Network and Information Security, 2005

Committee Member, Program Committee, International Conference on Digital Rights Management: Technologies, Issues, Challenges and Systems, 2005

Program Committee Co-Chair, 1st Information Security Practice and Experience Conference, 2005

Committee Member, Program Committee, Information Security Conference, 2005

General Co-Chair, 4th International Workshop for Applied PKI, 2005

Committee Member, Selection Committee for the IT Leader Awards, Singapore Computer Society, 2005

Committee Member, Program Committee, IEEE International Conference on Data Engineering, 2005

Committee Member, Program Committee, International Conference on Information, Communications & Signal Processing, 2005

Reviewer for the Young Scientist Award, Singapore National Academy of Science, 2004

Member Advisory Committee, Steering Committee, International Conference on Smart Home and Health Telematics, 2004

Committee Member, Program Committee, International Conference on Asian Digital Libraries, 2003

Committee Member, Program Committee, International Conference on Human.Society@Internet, 2003

Committee Member, Program Committee, International Conference on Asian Digital Libraries, 2002

Committee Member, Program Committee, Pervasive Computing Conference co-sponsored by the National University of Singapore and the IBM Academy of Technology, 1999

Fast East Coordinator, ACM SIGMOD International Conference, 1999

Committee Member, Program Committee, SPIE International Conference on Multimedia Storage and Archiving Systems II, 1997

## **EXTERNAL SERVICE – PUBLIC SECTOR AND COMMUNITY SERVICE**

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Board Member, SkillsFuture Singapore Agency, 2016 - 2020

Advisory Council Member, Singapore Lifelong Learning Endowment Fund, 2016 - 2020

Committee Member, Organizing Committee, Singapore National Research Foundation' Global Young Scientist Summit, 2014 - 2015

Advisory Board Member of Integrated Program, Hwa Chong Institution, 2012 - 2020

Advisory Board Member of Diploma Program, Hwa Chong Institution, 2008 - 2012

Resource Team, A\*STAR (Agency for Science, Technology and Research, Singapore) National Science and Technology Plan, 2006 - 2010

Resource Team, Singapore Infocomm Development Authority's Cluster Strategy, 2003

Resource Team, Singapore Infocomm Development Authority's Technology Roadmap for Next Generation Internet Applications, 2002