

## LAU Hoong Chuin

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## Education

PhD, Tokyo Institute of Technology, Japan, 1996  
Doctorate of Engineering in Computer Science

Master of Science, University of Minnesota, United States of America, 1988  
MSc in Computer Science (Summa Cum Laude)

Bachelor of Science, University of Minnesota, United States of America, 1986  
BSc in Computer Science (Summa Cum Laude)

## Academic Appointments

Professor of Computer Science, School of Computing and Information Systems, SMU, Apr 2021 - Present

Professor of Information Systems, School of Computing and Information Systems, SMU, Jan 2014 - Mar 2021

Associate Professor of Information Systems, School of Computing and Information Systems, SMU, Jul 2005 - Dec 2013

Assistant Professor, School of Computing, National University of Singapore, Singapore, Sep 1999 - Jun 2005

Member of Research Staff, Kent Ridge Digital Labs (now Infocomms Institute of Research), Singapore, Oct 1996 - Sep 1999

Member of Technical Staff, Information Technology Institute, National Computer Board, Singapore, Jan 1991 - Jan 1993

Full-time National Service, invited as Part-time Tutor, School of Computing, National University of Singapore, Singapore, Jan 1988 - Jan 1990

Teaching Assistant, Department of Computer Science, University of Minnesota, Minneapolis, USA, United States of America, Jan 1987 - Jan 1988

## Academic Administrative Positions

Director, Fujitsu-SMU Urban Computing & Engineering (UNiCEN) Corp. Lab, School of Computing and Information Systems, SMU, Jul 2014 - Mar 2021

Deputy Director, Living Analytics Research Centre, SMU, Apr 2011 - Jun 2015

Director, Information Systems (Adjunct), The Logistics Institute Asia Pacific, National University of Singapore, Singapore, Jul 2005 - Dec 2012

Director, Defense Logistics, The Logistics Institute Asia Pacific, National University of Singapore, Singapore, Apr 2001 - Jun 2005

### **Other Positions and Affiliations**

Specially Appointed Professor, Institute of Innovative Research, Tokyo Institute of Technology, Japan, Dec 2019 - Dec 2022

Visiting Professor, Ningbo Institute of Technology, Zhejiang University, China, Jun 2014

Visiting, Visiting, Xiamen University, China, Jul 2013

Visiting Professor, Visiting, Tokyo Institute of Technology, Japan, Feb 2013 - Mar 2013

Visiting Professor, Institute of Computing Technologies, Chinese Academy of Sciences, China, Dec 2012

Visiting Professor, Wharton Business School, University of Pennsylvania, United States of America, Nov 2010 - Dec 2010

Chief Technology Officer, Optimization Consultant, iFusion Pte Ltd, Singapore, Sep 1999 - Sep 2001

Visiting Scholar, Graduate School of Informatics, Kyoto University, Japan, Dec 2000 - Jan 2001

Visiting Scholar, Visiting Scholar, AI Research Lab, Fujitsu Laboratories Limited, Japan, Oct 1993 - Oct 1996

Visiting Scholar, Max Planck Institute for Informatics, Germany, Jun 1996 - Sep 1996

### **Awards and Honors**

Best Paper Award Honorary Mention, ACM Conference on CSCW, 2016

Best Paper Award Runner Up, Learning and Intelligent Optimization Conference LION, 2015

Best Paper Award (Honorable Mention), IEEE International Conference on IEEM, 2011

Singapore Management University Lee Kwan Yew Research Fellowship, Singapore Management University, 2008

Defense Technology Prize (individual category) Nomination, Defense Science Technology Agency (DSTA), 2007

National IQC Star Award (team category), Ministry of Defense, 2006

Japan-Singapore Promotion of Science (JSPS) Fellowship, Japan-Singapore Promotion of Science (JSPS), 2000

Infocomm Development Authority Postgraduate Scholarship, Infocomm Development Authority, 1993

National Computer Board Undergraduate Scholarship, National Computer Board (i.e. IMDA today), 1984

## **RESEARCH**

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### **Research Interests**

- Applied Optimization for problems in Logistics, Supply chain management, e-Commerce
- AI Planning and Scheduling
- Interface of AI and Operations Research
- Autonomous Agents and Multi-agent systems
- Analytics for urban management and service improvement
- Algorithm engineering for combinatorial optimization
- Quantum and quantum-inspired computing for combinatorial optimization

## Publications

### Journal Articles [Refereed]

Bi-objective dynamic tugboat scheduling with speed optimization under stochastic and time-varying service demands, by WEI, Xiaoyang; LAU, Hoong Chuin; XIAO, Zhe; FU, Xiuju; ZHANG, Xiaocai; QIN, Zheng. (2025). *Transportation Research Part E: Logistics and Transportation Review*, 193 1-25. <https://doi.org/10.1016/j.tre.2024.103876> (Published)

Multiobjective linear ensembles for robust and sparse training of few-bit neural networks, by BERNARDELLI, Ambrogio Maria; GUALANDI, Stefano; MILANESI, Simone; LAU, Hoong Chuin; NEIL, Yorke-Smith . (2024). *INFORMS Journal on Computing*, 1-21. <https://doi.org/10.1287/ijoc.2023.0281> (Published)

Optimization of customer service and driver dispatch areas for on-demand food delivery, by YANG, Jingfeng; LAU, Hoong Chuin; WANG, Hai. (2024). *Transportation Research Part C: Emerging Technologies*, 165 1-30. <https://doi.org/10.1016/j.trc.2024.104653> (Published)

A feasibility-preserved quantum approximate solver for the capacitated vehicle routing problem, by XIE, Ningyi; LEE, Xinwei; CAI, Dongsheng; SAITO, Yoshiyuki; ASAI, Nobuyoshi; LAU, Hoong Chuin. (2024). *Quantum Information Processing*, 23 (8), 1-10. <https://doi.org/10.1007/s11128-024-04497-5> (Published)

A hierarchical optimization approach for dynamic pickup and delivery problem with LIFO constraints, by DU, Jianhui; ZHANG, Zhiqin; WANG, Xu; LAU, Hoong Chuin. (2023). *Transportation Research Part E: Logistics and Transportation Review*, 175 1-19. <https://doi.org/10.1016/j.tre.2023.103131> (Published)

Coordinating multi-party vehicle routing with location congestion via iterative best response, by JOE, Waldy; LAU, Hoong Chuin. (2023). *SN Computer Science*, 4 <https://doi.org/10.1007/s42979-022-01551-w> (Published)

Coordinated Delivery to Shopping Malls with Limited Docking Capacity, by SONG, Ruidian; LAU, Hoong Chuin; LUO, Xue; ZHAO, Lei. (2022). *Transportation Science*, 56 (2), 501-527. <https://doi.org/10.1287/trsc.2021.1109> (Published)

Solving the winner determination problem for online B2B transportation matching platforms, by LAU, Hoong Chuin; LI, Baoxiang. (2021). *Transportation Research Part E: Logistics and Transportation Review*, 150 1-19. <https://doi.org/10.1016/j.tre.2021.102324> (Published)

Distributed Gibbs: A Linear-Space Sampling-Based DCOP Algorithm, by NGUYEN, Duc Thien; YEOH, William; LAU, Hoong Chuin; ZIVAN, Roie. (2019). *Journal of Artificial Intelligence Research*, 64 705-748. <https://doi.org/10.1613/jair.1.11400> (Published)

An artificial bee colony-based hybrid approach for waste collection problem with midway disposal pattern, by WEI, Qu; GUO, Zhaoxia; LAU, Hoong Chuin; HE, Zhenggang. (2019). *Applied Soft Computing*, 76 629-637. <https://doi.org/10.1016/j.asoc.2018.12.033> (Published)

A State Aggregation Approach for Stochastic Multiperiod Last-Mile Ride-Sharing Problems, by AGUSSURJA, Lucas; CHENG, Shih-Fen; LAU, Hoong Chuin. (2019). *Transportation Science*, 53 (1), 148-166. <https://doi.org/10.1287/trsc.2018.0840> (Published)

ADOPT: Combining parameter tuning and Adaptive Operator Ordering for solving a class of Orienteering Problems, by GUNAWAN, Aldy; LAU, Hoong Chuin; LU, Kun. (2018). *Computers & Industrial Engineering*, 121 82-96. <https://doi.org/10.1016/j.cie.2018.05.016> (Published)

- Obfuscation at-source: Privacy in context-aware mobile crowd-sourcing, by KANDAPPU, Thivya; MISRA, Archan; CHENG, Shih-Fen; TANDRIANSYAH, Randy; LAU, Hoong Chuin. (2018). *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 2(1), 16: 1-24. <https://doi.org/10.1145/3191748> (Published)
- Risk-Sensitive Stochastic Orienteering Problems for Trip Optimization in Urban Environments, by VARAKANTHAM, Pradeep; KUMAR, Akshat; LAU, Hoong Chuin. (2018). *ACM Transactions on Intelligent Systems and Technology*, 9(3), 1-25. <https://doi.org/10.1145/3080575> (Published)
- Well-tuned algorithms for the Team Orienteering Problem with Time Windows, by GUNAWAN, Aldy; LAU, Hoong Chuin; VANSTEENWEGEN, Pieter; LU, Kun. (2017). *Journal of the Operational Research Society*, 68(8), 861-876. <https://doi.org/10.1057/s41274-017-0244-1> (Published)
- Local Gaussian processes for efficient fine-grained traffic speed prediction, by LE, Truc Viet; OENTARYO, Richard; LIU, Siyuan; LAU, Hoong Chuin. (2017). *IEEE Transactions on Big Data*, 3(2), 194-207. <https://doi.org/10.1109/TBDATA.2016.2620488> (Published)
- Scalable Urban Mobile Crowdsourcing: Handling Uncertainty in Worker Movement, by CHENG, Shih-Fen; CHEN, Cen; KANDAPPU, Thivya; LAU, Hoong Chuin; MISRA, Archan; JAIMAN, Nikita; TANDRIANSYAH, Randy; KOH, Desmond. (2018). *ACM Transactions on Intelligent Systems and Technology*, 9(3), 1-24. <https://doi.org/10.1145/3078842> (Published)
- Orienteering Problem: A survey of recent variants, solution approaches and applications, by GUNAWAN, Aldy; LAU, Hoong Chuin; VANSTEENWEGEN, Pieter. (2016). *European Journal of Operational Research*, 255(2), 315-332. <https://doi.org/10.1016/j.ejor.2016.04.059> (Published)
- Achieving Economic and Environmental Sustainabilities in Urban Consolidation Center With Bicriteria Auction, by HANDOKO, Stephanus Daniel; LAU, Hoong Chuin; CHENG, Shih-Fen. (2016). *IEEE Transactions on Automation Science and Engineering*, 13(4), 1471-1479. <http://doi.org/10.1109/TASE.2016.2563459> (Published)
- Patrol scheduling in urban rail network, by LAU Hoong Chuin; YUAN, Zhi; GUNAWAN Aldy. (2016). *Annals of Operations Research*, 239(1), 1-26. <http://dx.doi.org/10.1007/s10479-014-1648-9> (Published)
- Robust execution strategies for project scheduling with unreliable resources and stochastic durations, by FU, Na; LAU, Hoong Chuin; VARAKANTHAM, Pradeep. (2015). *Journal of Scheduling*, 18(6), 607-622. <http://doi.org/10.1007/s10951-015-0425-1> (Published)
- A hybrid heuristic algorithm for the 2D problem variable-sized bin packing, by HONG, Shaohui; ZHANG, Defu; LAU, Hoong Chuin.; ZENG, XiangXiang; SI, Yain-Whar. (2014). *European Journal of Operational Research*, 238(1), 95-103. <http://dx.doi.org/10.1016/j.ejor.2014.03.049> (Published)
- Multi-agent orienteering problem with time-dependent capacity constraints, by CHEN, Cen; CHENG, Shih-Fen; LAU, Hoong Chuin. (2014). *Web Intelligence and Agent Systems*, 12(4), 347-358. <https://doi.org/10.3233/WIA-140304> (Published)
- Clustering of search trajectory and its application to parameter tuning, by Lindawati, Linda; LAU, Hoong Chuin; LO, David. (2013). *Journal of the Operational Research Society*, 64(12), 1742-1752. <http://doi.org/10.1057/jors.2012.167> (Published)
- Master physician scheduling problem, by GUNAWAN, Aldy; LAU, Hoong Chuin. (2013). *Journal of the Operational Research Society*, 64(3), 410-425. <https://doi.org/10.1057/jors.2012.48> (Published)
- Robust distributed scheduling via time-period aggregation, by CHENG, Shih-Fen; TAJAN, John; LAU, Hoong Chuin. (2012). *Web Intelligence and Agent Systems*, 10(3), 305-318. <http://doi.org/10.3233/WIA-2012-0248> (Published)
- Robust Local Search for Solving RCPSP/max with Durational Uncertainty, by FU, Na; LAU, Hoong Chuin; VARAKANTHAM, Pradeep; XIAO, Fei. (2012). *Journal of Artificial Intelligence Research*, 43 43-86. <http://www.jair.org/papers/paper3424.html> (Published)
- Allocating Resources in Multiagent Flowshops With Adaptive Auctions, by LAU, Hoong Chuin; ZHAO, Zhengyi; GE, Sam Shuzhi; LEE, Thong Heng. (2011). *IEEE Transactions on Automation Science and Engineering*, 8(4), 732-743. <http://doi.org/10.1109/TASE.2011.2160536> (Published)
- Periodic Resource Reallocation in Two-Echelon Repairable Item Inventory Systems, by LAU, Hoong Chuin;

- PAN, Jie; SONG, Huawei. (2010). *IEEE Transactions on Automation Science and Engineering*, 7(3), 474-485. <http://doi.org/10.1109/TASE.2010.2040827> (Published)
- The price of stability in selfish scheduling games, by AGUSSURJA, Lucas; LAU, Hoong Chuin. (2009). *Web Intelligence and Agent Systems*, 7(4), 321-332. <http://doi.org/10.3233/WIA-2009-0171> (Published)
- Optimizing Service Systems Based on Application-Level QoS, by LIANG, Qianhui; WU, Xindong; LAU, Hoong Chuin. (2009). *IEEE Transactions on Services Computing*, 2(2), 108-121. <http://doi.org/10.1109/TSC.2009.13> (Published)
- Integrated Resource Allocation and Scheduling in a Bidirectional Flowshop With Multimachine and COS Constraints, by LAU, Hoong Chuin; ZHAO, Zhengyi; GE, Shuzhi Sam. (2009). *IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews*, 39(2), 190-200. <https://doi.org/10.1109/TSMCC.2008.2007500> (Published)
- Efficient algorithms for machine scheduling problems with earliness and tardiness penalties, by FENG, Guang; LAU, Hoong Chuin. (2008). *Annals of Operations Research*, 159(1), 83-95. <http://doi.org/10.1007/s10479-007-0284-z> (Published)
- Multi-echelon repairable item inventory system with limited repair capacity under nonstationary demands, by LAU, Hoong Chuin; SONG, Huawei. (2008). *International Journal of Inventory Research*, 1(1), 67-92. <http://dx.doi.org/10.1504/IJIR.2008.019209> (Published)
- Real-time supply chain control via multi-agent adjustable autonomy, by LAU, Hoong Chuin; Agussurja, Lucas; Thangarajoo, Ramesh. (2008). *Computers and Operations Research*, 35(11), 3452-3464. <http://doi.org/10.1016/j.cor.2007.01.027> (Published)
- A software framework for fast prototyping of meta-heuristics hybridization, by LAU, Hoong Chuin; Wan, W. C.; Halim, S.; Toh, K. Y.. (2007). *International Transactions in Operational Research*, 14(2), 123-141. <http://dx.doi.org/10.1111/j.1475-3995.2007.00578.x> (Published)
- Finding a length-constrained maximum-sum or maximum-density subtree and its application to logistics, by LAU, Hoong Chuin; NGO, Trung Hieu; NGUYEN, Bao Nguyen. (2006). *Discrete Optimization*, 3(4), 385-391. <https://doi.org/10.1016/j.disopt.2006.06.002> (Published)
- Evaluation of time-varying availability in multi-echelon spare parts systems with passivation, by LAU, Hoong Chuin; SONG, Huawei; SEE, Chuen Teck; CHENG, Siew Yen. (2006). *European Journal of Operational Research*, 170(1), 91-105. <http://doi.org/10.1016/j.ejor.2004.06.022> (Published)
- A periodic-review inventory model with application to the continuous-review obsolescence problem, by SONG, Yuyue; LAU, Hoong Chuin. (2004). *European Journal of Operational Research*, 159(1), 110-120. [http://doi.org/10.1016/s0377-2217\(03\)00399-0](http://doi.org/10.1016/s0377-2217(03)00399-0) (Published)
- Vehicle routing problem with time windows and a limited number of vehicles, by LAU, Hoong Chuin; SIM, Melvyn; TEO, Kwong Meng. (2003). *European Journal of Operational Research*, 148(3), 559-569. [http://dx.doi.org/10.1016/s0377-2217\(02\)00363-6](http://dx.doi.org/10.1016/s0377-2217(02)00363-6) (Published)
- Pickup and delivery problem with time windows: Algorithms and test case generation, by LAU, Hoong Chuin; LIANG, Zhe. (2002). *International Journal on Artificial Intelligence Tools*, 11(3), 455-472. <http://doi.org/10.1142/S0218213002000988> (Published)
- A new approach for weighted constraint satisfaction, by LAU, Hoong Chuin. (2002). *Constraints*, 7(2), 151-165. <https://doi.org/10.1023/a:1015157615164> (Published)
- Low-degree graph partitioning via local search with applications to constraint satisfaction, max cut, and coloring, by Halldorsson, Magnus M.; LAU, Hoong Chuin. (1997). *Journal of Graph Algorithms and Applications*, 1(3), 1-13. <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.44.5060> (Published)
- Combinatorial approaches for hard problems in manpower scheduling, by LAU, Hoong Chuin. (1996). *Journal- Operations Research Society of Japan*, 39(1), 88-98. <http://ci.nii.ac.jp/naid/110001184438/> (Published)
- On the complexity of manpower shift scheduling, by LAU, Hoong Chuin. (1996). *Computers and Operations Research*, 23(1), 93-102. [http://doi.org/10.1016/0305-0548\(94\)00094-o](http://doi.org/10.1016/0305-0548(94)00094-o) (Published)
- Randomized approximations of the constraint satisfaction problem, by LAU, Hoong Chuin; WATANABE, Osamu. (1996). *Nordic Journal of Computing*, 3(4), 405-424.

<http://dl.acm.org/citation.cfm?id=763878.763886> (Published)

Manpower scheduling with shift change constraints, by LAU, Hoong Chuin. (1995). *IPSJ Journal*, 36 (5), 1271-1279. <http://ci.nii.ac.jp/naid/110002721876/en> (Published)

Automated manpower rostering: Techniques and experience, by Khoong, C. M.; LAU, Hoong Chuin; Chew, L. W.. (1994). *International Transactions in Operational Research*, 1 (3), 353-353. <http://doi.org/10.1111/1475-3995.d01-46> (Published)

Branch distance optimization of structured programs, by Powell, P.; LAU, Hoong Chuin. (1990). *Computers & Mathematics with Applications*, 19 (12), 53-64. [http://doi.org/10.1016/0898-1221\(90\)90251-e](http://doi.org/10.1016/0898-1221(90)90251-e) (Published)

### Journal Articles [Non-Refereed]

Collaborative model and algorithms for supporting real-time distribution logistics systems, by LAU, Hoong Chuin; LIU, Qi Zhang. (2000). *Electronic Notes in Discrete Mathematics*, 4 1-15. [http://doi.org/10.1016/S1571-0653\(05\)80103-9](http://doi.org/10.1016/S1571-0653(05)80103-9) (Published)

### Editorials

New developments in metaheuristics and their applications Selected extended contributions from the 10th Metaheuristics International Conference (MIC 2013), by LAU, Hoong Chuin; Raidl, Günther R.; Van Hentenryck, Pascal. (2016). *Journal of Heuristics*, 22 (4), 359-363. <http://doi.org/10.1007/s10732-016-9313-x> (Published)

Agent-based problem solving methods in big data environment, by ZHANG, Hao Lan; LAU, Hoong Chuin. (2014). *Web Intelligence and Agent Systems*, 12 (4), 343-345. <http://doi.org/10.3233/WIA-140300> (Published)

Message from General Chair and Program Co-Chairs [of 14th ICEC '12, held in Singapore, 7-8 August], by KAUFFMAN, R. J.; BICHLER, Martin; LAU, Hoong Chuin; YANG, Christopher; YANG, Yinping. (2012). *International Conference on Electronic Commerce*, 1-4. <https://doi.org/10.1145/2346536> (Published)

### Book Chapters

Towards personalized data-driven bundle design with QoS constraint, by MISIR, Mustafa; LAU, Hoong Chuin. (2019). In P. Moscato P., & N. de Vries (Ed.), *Business and consumer analytics: New ideas* (pp. 865-909) Cham: Springer. [https://doi.org/10.1007/978-3-030-06222-4\\_23](https://doi.org/10.1007/978-3-030-06222-4_23) (Published)

The Oil Drilling Model and Iterative Deepening Genetic Annealing Algorithm for the Traveling Salesman Problem, by LAU, Hoong Chuin; XIAO, Fei. (2008). *Advances in computational intelligence in transport, logistics, and supply chain management* (pp. 169-184) Berlin: Springer Verlag. [http://doi.org/10.1007/978-3-540-69390-1\\_9](http://doi.org/10.1007/978-3-540-69390-1_9) (Published)

Tuning Tabu Search strategies via visual diagnosis, by HALIM, Steven; LAU, Hoong Chuin. (2007). In K. F. Doerner, M. Gendreau, P. Greistorfer, W. Gutjahr, R. F. Hartl, and M. Reimann (Ed.), *Metaheuristics: Progress in complex systems optimization* (pp. 365-388) New York: Springer Verlag. [http://doi.org/10.1007/978-0-387-71921-4\\_19](http://doi.org/10.1007/978-0-387-71921-4_19) (Published)

A generic object-oriented Tabu Search Framework, by LAU, Hoong Chuin; JIA, Xiaomin; WAN, Wee Chong. (2005). In T. Ibaraki, K. Nonobe, and M. Yagiura (Ed.), *Metaheuristics: Progress as real problem solvers* (pp. 203-226) New York: Springer Verlag. [http://doi.org/10.1007/0-387-25383-1\\_9](http://doi.org/10.1007/0-387-25383-1_9) (Published)

ROMAN: An integrated approach to manpower planning and scheduling, by KHOONG, Chan Meng; LAU, Hoong Chuin. (1992). In O. Balci, R.Sharda and S.Zenios (Ed.), *Computer science and operations research: New development in their interfaces* (pp. 383-396) New York: Pergammon Press. <http://www.worldcat.org/isbn/9780080408064> (Published)

### Conference Proceedings

Learning to optimize the dispatch time interval for on-demand food delivery service, by YANG, Jingfeng; ZHANG, Zhiqin; LAU, Hoong Chuin. (2024.0). *Proceedings of the 2024 IEEE 27th International Conference*

on *Intelligent Transportation Systems (ITSC)*, Edmonton, Canada, September 24- 27, Edmonton, Canada: <https://its.papercept.net/conferences/scripts/abstract.pl?ConfID=87&Number=700> (Published)

A data-driven approach for automated multi-site competitive facility location, by TAN, Ming Hui; TAN, Kar Way; LAU, Hoong Chuin. (2024.0). *Proceedings of the 2024 IEEE International Conference on Big Data (IEEE BigData 2024)*, Piscataway, New Jersey, USA: IEEE. (Forthcoming)

Quantum relaxation for solving multiple knapsack problems, by SHARMA, Monit; YAN, Jin; LAU, Hoong Chuin; RAYMOND, Rudy. (2024.0). *Proceedings of the IEEE International Conference on Quantum Computing and Engineering (QCE 2024) : Montreal, Quebec, Canada, September 15-20*, Montreal, Canada: (Published)

Quantum-enhanced simulation-based optimization for newsvendor problems, by SHARMA, Monet; LAU, Hoong Chuin; RAYMOND, Rudy. (2024.0). *Proceedings of the IEEE International Conference on Quantum Computing and Engineering (QCE 2024) : Montreal, Quebec, Canada, September 15-20*, Montreal, Canada: IEEE. <https://doi.org/10.1109/QCE60285.2024.00060> (Published)

Fuel-saving route planning with data-driven and learning-based approaches: A systematic solution for harbor tugs, by WANG, Shengming; ZHANG, Xiaocai; LI, Jing; WEI, Xiaoyang; LAU, Hoong Chuin; DAI, Bing Tian; HUANG, Binbin Huang; XIAO, Zhe; FU, Xiuju; QIN, Zheng. (2024.0). *Proceedings of the 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024): Jeju, South Korea, August 3-9*, (pp. 7483-7490) Jeju: IJCAI. <https://doi.org/10.24963/ijcai.2024/828> (Published)

Online control of adaptive large neighborhood search using deep reinforcement learning, by REIJNEN, Reijnen; ZHANG, Yingqian; LAU, Hoong Chuin; BUKHSH, Zaharah . (2024.0). *Proceedings of the 34th International Conference on Automated Planning and Scheduling (ICAPS-2024) : Banff, Alberta, Canada, Jun 1-6*, (pp. 475-483) Banff, Canada: PKP Publishing Services Network. <https://doi.org/10.1609/icaps.v34i1.31507> (Published)

A big data approach to augmenting the Huff model with road network and mobility data for store footfall prediction, by TAN, Ming Hui; TAN, Kar Way; LAU, Hoong Chuin. (2023.0). *2023 IEEE International Conference on Big Data: Sorrento, Italy, December 15-18: Proceedings*, (pp. 1533-1538) Piscataway, NJ: IEEE. <https://doi.org/10.1109/BigData59044.2023.10386152> (Published)

When routing meets recommendation: Solving dynamic order recommendations problem in peer-to-peer logistics platforms, by ZHANG, Zhiqin; JOE, Waldy; ER, Yuyang; LAU, Hoong Chuin. (2023.0). *Proceedings of the 14th International Conferences on Computational Logistics, Berlin, Germany, 2023 September 6-8*, (pp. 18-35) Germany: Springer. [https://doi.org/10.1007/978-3-031-43612-3\\_2](https://doi.org/10.1007/978-3-031-43612-3_2) (Published)

Learning to send reinforcements: Coordinating multi-agent dynamic police patrol dispatching and rescheduling via reinforcement learning, by JOE, Waldy; LAU, Hoong Chuin. (2023.0). *Proceedings of the 32nd International Joint Conference on Artificial Intelligence, IJCAI 2023: Macao, August 19-25*, (pp. 153-161) Washington, DC: AAAI Press. <https://doi.org/10.24963/ijcai.2023/18> (Published)

An efficient hybrid genetic algorithm for the quadratic traveling salesman problem, by PHAM, Quang Anh; LAU, Hoong Chuin; HA, Minh Hoang; VU, Lam. (2023.0). *33rd International Conference on Automated Planning and Scheduling (ICAPS-2023), Prague, Czech Republic, July 2023*, Prague, Czech Republic: Association for the Advancement of Artificial Intelligence. (Published)

The BeMi Stardust: A structured ensemble of Binarized Neural Networks, by BERNARDELLI, Ambrogio Maria; GUALANDI, Stefano; LAU, Hoong Chuin; MILANESI, Simone. (2023.0). *Learning and Intelligent Optimization: 17th International Conference, LION, Nice, France, 4-8 June 2023: Proceedings*, (pp. 443-458) Cham: Springer. [https://doi.org/10.1007/978-3-031-44505-7\\_30](https://doi.org/10.1007/978-3-031-44505-7_30) (Published)

Dynamic police patrol scheduling with multi-agent reinforcement learning, by WONG, Songhan; JOE, Waldy; LAU, Hoong Chuin. (2023.0). *Proceedings of the 17th International Conference on Learning and Intelligent Optimization, Nice, France, 2023 June 4-8*, (pp. 567-582) Berlin : Springer. [https://doi.org/10.1007/978-3-031-44505-7\\_38](https://doi.org/10.1007/978-3-031-44505-7_38) (Published)

Generative STResnet for crime prediction, by PHONG, Tran; LAU, Hoong Chuin. (2023.0). *International Conference on Learning Representations (ICLR) 2023: Kigali, Rwanda, May 1-5: Proceedings*, (pp. 1-4) Kigali, Rwanda: ICLR. (Published)

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Towards an intelligent meta-heuristics development framework, by LAU, Hoong Chuin; XIAO, Fei. (2007.0). *Metaheuristics International Conference 7th MIC 2007, June 25-29, Montreal, Canada.* (Published)

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### Magazine Articles

Navigating through chaos, by LAU, Hoong Chuin. (2024, March). *Asian Management Insights*, 11 (1), 54-57. <https://cmp.smu.edu.sg/ami/article/20240326/navigating-through-chaos> (Published)

### **Working Papers**

*A hybrid framework using a QUBO solver for permutation-based combinatorial optimization*, by GOH, Siong Thye; GOPALAKRISHNAN, Sabrish; BO, Jianyuan; LAU, Hoong Chuin. (2020). <https://arxiv.org/abs/2009.12767> (Published)

### **Other Outputs and Contributions**

#### Reports

*On the Strategy of Supply Hubs for Cost Reduction and Responsiveness* by Barnes, Earl; DAI, Jim; DENG, Shijie; Down, Doug; GOH, Mark; LAU, Hoong Chuin. (2003).

[http://www.tliap.nus.edu.sg/tliap/Research\\_WhitePapers/Supply\\_Hub\\_Research.pdf](http://www.tliap.nus.edu.sg/tliap/Research_WhitePapers/Supply_Hub_Research.pdf) (Published)

## Research Grants

### Singapore Management University

Acute workforce response to “Demand pulled” patient lifecycle data via Generative Flow Networks and Graph Neural Networks, AI Singapore 100 Experiments, AI Singapore , PI (Project Level): LAU Hoong Chuin, 2023, S\$410,280

Next generation roster management via reinforcement learning, AI Singapore 100 Experiments, AI Singapore , PI (Project Level): LAU Hoong Chuin, 2022, S\$419,050

Optimizing Supply Chain Resilience with Quantum Sampling, National Research Foundation (NRF) , PI (Project Level): LAU Hoong Chuin, 2022, S\$300,000

CUDO Customization and Integration, 0.0, Y3 Technologies Pte Ltd , PI (Project Level): LAU Hoong Chuin, 2021, S\$150,000

Supply Chain Risk Resiliency Project for Supply Assurance/Procurement and Logistics, 0.0, IBM Manufacturing Solutions Pte Ltd , PI (Project Level): LAU Hoong Chuin, 2021, S\$104,780

Enhancing Digital Annealer (EDA), Fujitsu Laboratories Ltd , PI (Project Level): LAU Hoong Chuin, 2021, S\$154,860

On Demand Delivery Assignment Recommender, AI Singapore 100 Experiments, AI Singapore , PI (Project Level): LAU Hoong Chuin, 2021, S\$350,370

Enhancing Digital Annealer (EDA), Fujitsu Laboratories Ltd , PI (Project Level): LAU Hoong Chuin, 2020, S\$300,000

MHA-Merlion Initiative – SCDF 02, MHA Merlion Initiative, Ministry of Home Affairs , PI (Project Level): Pradeep Reddy VARAKANTHAM , Co-PI (Project Level): LAU Hoong Chuin, 2019

MHA-MERLION INITIATIVE – SCDF, MHA Merlion Initiative, Ministry of Home Affairs , PI (Project Level): Pradeep Reddy VARAKANTHAM , Co-PI (Project Level): LAU Hoong Chuin, 2016

MHA-MERLION INITIATIVE – SPF 01, MHA Merlion Initiative, Ministry of Home Affairs , PI (Project Level): LAU Hoong Chuin, 2016

Urban Computing Platform for the Urban Computing and Engineering Centre of Excellence, Science and Engineering Research Council Grant, Agency for Science, Technology and Research (A\*STAR) , PI (Project Level): LAU Hoong Chuin, 2015, S\$2,500,000

Urban Computing and Engineering Centre of Excellence, Corporate Laboratory@University, National Research Foundation (NRF) & Fujitsu (Multiple Funding Sources) , PI (Programme Level): LAU Hoong Chuin , PI (Project Level): CHENG Shih-Fen, Pradeep Reddy VARAKANTHAM, Akshat KUMAR, 2014, S\$18,500,000

Coordinating Automated Para-Transit Service Operations (2014), Future Urban Mobility (FM) IRG, Singapore-MIT Alliance for Research and Technology (SMART) , PI (Project Level): LAU Hoong Chuin , Co-PI (Project Level): CHENG Shih-Fen, 2014, S\$74,541.98

Market Mechanisms for Multi-Party Coordination of Urban Logistics Operations, Collaborative Urban Logistics (CUL) Program, Agency for Science, Technology and Research (A\*STAR) , PI (Project Level): LAU Hoong Chuin , Co-PI (Project Level): LIM Yun Fong, 2013, S\$578,400

Coordinating Automated Para-Transit Service Operations (2013), Future Urban Mobility (FM) IRG, Singapore-MIT Alliance for Research and Technology (SMART) , PI (Project Level): CHENG Shih-Fen , Co-PI (Project Level): LAU Hoong Chuin, 2013, S\$141,189.92

Coordinating Automated Para-Transit Service Operations (2011), Future Urban Mobility (FM) IRG, Singapore-MIT Alliance for Research and Technology (SMART) , PI (Project Level): LAU Hoong Chuin , Co-PI (Project Level): CHENG Shih-Fen, 2012, S\$104,299.84

Coordinating Automated Para-Transit Service Operations (2012), Future Urban Mobility (FM) IRG,

Singapore-MIT Alliance for Research and Technology (SMART) , PI (Project Level): LAU Hoong Chuin , Co-PI (Project Level): CHENG Shih-Fen, 2012, S\$122,758.68

Coordinating Automated Para-Transit Service Operations (2010), Future Urban Mobility (FM) IRG, Singapore-MIT Alliance for Research and Technology (SMART) , PI (Project Level): LAU Hoong Chuin , Co-PI (Project Level): CHENG Shih-Fen, 2011, S\$39,726

Development of a Warehouse Resource Allocation Optimization Engine, Singapore Technologies Dynamics Pte Ltd (STD) , PI (Project Level): LAU Hoong Chuin, 2010, S\$66,000

Living Analytics Centre, Interactive Digital Media (IDM) International Research Centres (IRCs) Funding Scheme, National Research Foundation (NRF) , PI (Programme Level): LIM Ee Peng , PI (Project Level): LAU Hoong Chuin, Archan MISRA, 2010, S\$52,476,910

Time-Sensitive Flexible Coordination in a Service-Oriented Enterprise Chain, Thematic Strategic Research Program (TSRP), Agency for Science, Technology and Research (A\*STAR) , PI (Project Level): LAU Hoong Chuin, S\$443,600

Project Description: To develop a Decision Support Software Tool, PSA International , PI (Project Level): LAU Hoong Chuin, S\$48,000

Service improvement for A&E via Robust Optimization, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): LAU Hoong Chuin, 2011, S\$24,898.42

Computational Game Models and Tool for Transportation Network Analysis against Disruptions, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): LAU Hoong Chuin, 2009, S\$25,301.55

Computational game models for Network Design with Selfish Agents, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): LAU Hoong Chuin, 2008, S\$19,455.56

Evolutionary computing approaches to the deliberation problem for constrained optimization models, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): LAU Hoong Chuin, 2008, S\$39,050

Game-theoretic models for Scheduling with Selfish Agents, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): LAU Hoong Chuin, 2007, S\$18,888.89

Multi-Agent Adjustable Autonomy System in Supply Chain Crisis Management, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): LAU Hoong Chuin, 2006, S\$40,377.78

## Work in Progress

LAU Hoong Chuin, YANG, JINGFENG, Jonathan David CHASE, Lu Liu, Multi-period Risk-Aware Procurement Optimization under COVID-19 disruption, 2024

LAU Hoong Chuin, Waldy Joe, Coordinating multi-party vehicle routing with location congestion via iterative best response, 2023

## TEACHING

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### Courses Taught

#### Singapore Management University

Undergraduate Programmes :

Computer Science Project Experience

Design and Analysis of Algorithms



## Guided Advanced Research in Computer Science

### Postgraduate Professional Programmes :

AI Planning and Decision Making  
Algorithm Design and Implementation  
Capstone Project - Data Science and Engineering  
Project

### Postgraduate Research Programmes :

Algorithms and Optimization  
Empirical Research Project 1  
Empirical Research Project 2  
Empirical Research Project 3  
Empirical Research Project 4  
Empirical Research Project I  
Empirical Research Project II  
Empirical Research Project III

### Other Institutions

Combinatorial and Graph Algorithms, Masters, SMU  
Computer as an Analysis Tool, Undergraduate, SMU  
Design and Analysis of Algorithms, Undergraduate, SMU  
Object-Oriented Software Design, Undergraduate, SMU

## Teaching Publications

### Textbooks

*Business analytics for decision making* by KIMBROUGH, Steven O.; LAU, Hoong Chuin. (2016). Boca Raton: CRC Press. <http://worldcat.org/isbn/9781482221763> (Published)

## THESES AND DISSERTATIONS

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### Theses and Dissertations Supervised

#### Singapore Management University

Supervisor, "Reinforcement Learning For Collective Multi-Agent Decision Making", Dissertation by NGUYEN DUC THIEN, PhD in Information Systems, Singapore Management University, 2019

Supervisor, "An Integrated Framework for Modeling and Predicting Spatiotemporal Phenomena in Urban Environments", Dissertation by LE TRUC VIET, PhD in Information Systems, Singapore Management University, 2018

Supervisor, "Recommending Personalized Schedules in Urban Environments", Dissertation by CHEN CEN, PhD in Information Systems, Singapore Management University, 2017

Supervisor, Dissertation by CHEN Cen, PhD in Information Systems, Singapore Management University, 2017

Supervisor, "Dynamic Queue Management for Hospital Emergency Room Services", Dissertation by TAN Kar Way, PhD in Information Systems, Singapore Management University, 2014

Supervisor, "Generic Instance-specific Automated Parameter Tuning Framework", Dissertation by LINDAWATI, PhD in Information Systems, Singapore Management University, 2014

Supervisor, "Robust Execution Strategy for Scheduling Under Uncertainty", Dissertation by FU NA, PhD in Information Systems, Singapore Management University, 2012

### Other Institutions

Supervisor, "Combinatorial Auctions for Decentralized Job Scheduling", Dissertation by Zhao Zhengyi, PhD, National University of Singapore, 2010

Supervisor, "Visualization of Local Search Trajectory", Dissertation by Steven Halim, PhD, National University of Singapore, 2010

### **Theses and Dissertations Assessed**

#### Singapore Management University

Co Supervisor, Dissertation by CHUNG-KYUN HAN, PhD in Computer Science, Singapore Management University, 2020

Co Supervisor, Dissertation by Larry LIN Junjie, PhD in Information Systems, Singapore Management University, 2018

Committee Member, "Proactive Resource (Re)distribution for Improving Efficiency in Urban Environments", Dissertation by SUPRIYO GHOSH, PhD in Information Systems, Singapore Management University, 2018

Co Supervisor, "Modelling Movement Decisions in Networks: A Discrete Choice Model Approach", Dissertation by LIN JUNJIE, LARRY, PhD in Information Systems, Singapore Management University, 2018

Co Supervisor, "Proactive and Reactive Strategies to Handle Surges in Urban Crowds", Dissertation by DU JIALI, PhD in Information Systems, Singapore Management University, 2017

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

### Other Institutions

Co Supervisor, "Relationship-Preserving Auctions in e-Procurement", Dissertation by Park Jonghan, PhD, KAIST, 2009

### **Consultancy**

ST Dynamics, Jan 2010 - Jan 2011  
 Lavie TimeTECH (Israel), Jan 2009  
 EADS Singapore Pte Ltd, Jan 2008  
 Tan Tock Seng Hospital, Jan 2007  
 Bax Global (Thailand), Jan 2005  
 Multimedia Development Corp (Malaysia), Jan 2004  
 DHL (Singapore), Jan 2002  
 PSA International, Jan 1996 - Jan 2001  
 Ministry of Defence, Jan 1996 - Jan 2001  
 Singapore Computer Society, Jan 1996 - Jan 2001  
 ST Electronics, Jan 1996 - Jan 2001  
 iFusion, Jan 1996 - Jan 2001  
 FriarTuck, Jan 1996 - Jan 2001

## **EXTERNAL SERVICE – PROFESSIONAL**

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Senior Programme Committee Member, International Conf on Automated Planning and Scheduling (ICAPS), 2022 - Present

Editorial Review Board Member, International Maritime and Port Technology and Development Conference (MTEC) and 4th International Conference for Maritime Autonomous Surface Ships (ICMASS), 2022 - Present

Stream Organizer, Logistics, Transportation and Traffic, International Federation of OR Societies Conf.(IFORS), 2021

Committee Member, Programme Committee, Innovative Application of Artificial Intelligence, 2020 - Present

Member, Senior Programme Committee, Association of Advancement in Artificial Intelligence (AAAI), 2019

Editor Associate Editor, Editorial Board, Journal of Scheduling, 2018 - Present

Member, Programme Committee, Association of Advancement in Artificial Intelligence (AAAI), 2016 - 2017

Member, Senior Programme Committee, International Joint Conference on Artificial Intelligence (IJCAI), 2016 - 2017

Vice Chairman, Programme Committee, IEEE/ACM/WIC Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT), 2015

Vice Chairman, Programme Committee, IEEE/ACM/WIC Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT), 2015

Member, Editorial Board, Web Intelligence Journal, 2015 - Present

Member, Program Committee, AAAI 2015 Workshop on Algorithm Configuration, 2015

Member, Program Committee, Learning and Intelligent Optimization Conference (LION), 2014 - 2016

Chairperson, Organizing Committee, Meta-heuristics International Conference (MIC), 2013

Guest Editor, Journal of Heuristics, 2013 - 2014

Guest Editor, Web Intelligence and Agent Systems, An International Journal, 2013 - 2014

Member, Programme Committee, Genetic and Evolutionary Computation Conference (GECCO), 2013 - 2016

Member, Senior Program Committee (2013)  
 Programme Committee (2014, 2015), Autonomous Agents and Multiagent Systems (AAMAS), 2013 - 2015

Member, Program Committee, International Conference on Computational Logistics, 2012 - 2014

Associate Editor, Editorial Board, IEEE Transactions on Automation Science and Engineering (T-ASE), 2012 - Present

Chairperson, Program Committee, International Conference on Electronic Commerce (ICEC), 2012

Chairperson, Program Committee, IEEE/WIC/ACM International Conf. on Intelligent Agent Technology (IAT), 2012

Member Board of Directors, Chartered Institute of Logistics and Transportation, Singapore, 2012 - Present

Member, Editorial Board, Research in Logistics & Production Journal, 2011 - Present

Associate Editor, Conference Editorial Board, IEEE Conf. on Automation Science and Engineering (CASE), 2011 - Present

Member, Program Committee, Metaheuristics International Conference (MIC), 2009 - 2015

Member, Technical Program Committee, d-Logistics Seminar (d-Log), 2009

Mentor, Doctoral Symposium, International Conference on Automated Planning and Scheduling (ICAPS), 2008

Stream Organizer, International Federation of OR Societies Conf.(IFORS), 2008

Member, Program Committee, Multi-Disciplinary Intl Conf. on Scheduling Theory and Applications (MISTA), 2007 - 2011

Member, International Conference on Transportation and Logistics (T-LOG), 2007, 2007

Member, Program Committee, Evolutionary Computing (EVO\*) Workshop on Transportation and Logistics, 2007 - 2009

Member, Program Committee, Intl Conf. on Tools with Artificial Intelligence (ICTAI), 2006

Member, Program Committee, Intl Conf. on E-Commerce (ICEC), 2006

Member, Program Committee, IEEE/WIC/ACM Conf. on Intelligent Agents Technology (IAT), 2006 - 2011

Member, Program Committee, Intl Conf. on Automated Planning and Scheduling (ICAPS), 2006 - 2008

Member, Program Committee, Intl Conf. Transportation and Logistics (T-LOG), 2005

Member, Program Committee, IEEE Conf. on Automation Science and Engineering, 2005 - 2006

Vice President, Executive Committee, International Society of Logistics, Singapore, 2002 - 2004

Member, Organizing and Program Committee, 5th Asia Pacific Conference of the Operational Research Society (APORS), 2000

Reviewer Conference Paper, International Joint Conference on AI (IJCAI);  
 AAAI National Conference (AAAI);  
 Decision Sciences Institute Annual Meeting (DSI);  
 European Conf. on AI (ECAI);  
 International Symposium on Algorithms and Computation (ISAAC);  
 International Conf. on Principles and Practice of Constraint Programming (CP);  
 Pacific Rims International Conference on AI (PRICAI);  
 Workshop on Algorithmic Theory (WATS), Association for the Advancement of Artificial Intelligence, Decision Sciences Institute, 1996 - 2010

Reviewer Journal Article,  
Asia Pacific Journal of Operations Research;  
Computers and Operations Research;  
Constraints Journal;  
European Journal of Operations Research;  
International Journal of Inventory Research;  
IEEE Transactions on Automation Science and Engineering;  
Journal of Heuristics,  
Journal of Global Optimization;  
Journal of Scheduling;  
Journal of Food Engineering (Special issue OR in Food Logistics)  
Transportation Research (Part A), World Scientific,  
Elsevier,  
Springer,  
Inderscience Publishers,  
Institute of Electrical and Electronics Engineers (IEEE), 1996 - 2010

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

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Committee Member, National HPC Roadmap Drafting Committee, National Supercomputing Centre (NSCC), 2022 - Present

Committee Member, Educational HPC Project Evaluation Committee (EPEC), National Supercomputing Centre (NSCC), 2020 - 2022

Committee Member, Selection Committee, President's Science and Technology Awards (PSTA), 2020 - Present

Committee Chair, AI Challenge (Urban Solutions), AI Singapore, 2017 - 2018

Committee Member, Public Sector Funding Review Panel, A\*STAR Science & Engineering Research Council, 2016 - Present