Aldy GUNAWAN

School of Computing and Information Systems
Singapore Management University (SMU)
80 Stamford Road
Singapore 178902

Email: aldygunawan@smu.edu.sg

Education

PhD, National University of Singapore, Singapore, 2009

Master of Engineering, National University of Singapore, Singapore, 2004

Master of Science, National University of Singapore, Singapore, 2002

Bachelor of Engineering, University of Surabaya, Indonesia, 1998

Academic Appointments

Associate Professor of Computer Science (Practice), School of Computing and Information Systems, SMU, Jul 2023 - Present

Assistant Professor of Computer Science (Practice), School of Computing and Information Systems, SMU, Apr 2021 - Jun 2023

Assistant Professor of Information Systems (Practice), School of Computing and Information Systems, SMU, Jan 2020 - Mar 2021

Visiting Assistant Professor of Information Systems, School of Computing and Information Systems, SMU, Jan 2018 - Dec 2019

Academic Administrative Positions

Technical Advisor, DHL-SMU Analytics Lab, School of Computing and Information Systems, SMU, Sep 2018 - Aug 2019

RESEARCH

Research Interests

1. Heuristics Search and Optimization
2. Planning and Scheduling
3. Operations Analytics
4. Algorithms Configuration and Algorithm Portfolio
5. Recommender System

Publications

Journal Articles [Refereed]

Deep reinforcement learning for solving the stochastic e-waste collection problem, by NGUYEN, Dang Viet Anh; GUNAWAN, Aldy; MISIR, Mustafa; LIM, Kwan Hui; VANSTEENWEGEN, Pieter. (2025). *European Journal of Operational Research, 327* (1), 309-325. https://doi.org/10.1016/j.ejor.2025.04.033 (Published)

Branch-and-cut-and-price for agile Earth observation satellite scheduling, by PENG, Guansheng; WANG, Jianjiang; SONG, Guopeng; GUNAWAN, Aldy; XING, Lining; VANSTEENWEGEN, Pieter. (2025). *European Journal of Operational Research, 326* (3), 427-438. https://doi.org/10.1016/j.ejor.2025.04.014 (Published)

A three-stage matheuristic for the blood stochastic inventory routing problem, by YU, Vincent F.; SALSABILA, Nabila; Yuraisyah; GUNAWAN, Aldy; SISWANTO, Nurhadi. (2025). *Transportation Research Part E: Logistics and Transportation Review, 200* 1-31. https://doi.org/10.1016/j.tre.2025.104143 (Published)

Optimizing group utility in itinerary planning: A strategic and crowd-aware approach, by LIU, Junhua; GUNAWAN, Aldy; WOOD, Kristin L.; LIM, Kwan Hui. (2025). *Journal Of Big Data, 12* (201), 1-27. https://doi.org/10.1186/s40537-025-01249-9 (Published)

Analysis of extended producer responsibility in e-waste management: Policy drivers and challenges in Singapore, by GUNAWAN, Aldy; WONG, Aidan M.; VISAWAMETEEKUL, Tasaporn; HUYNH, Minh Phuong; TRAN, Linh Chi. (2025). *Annals of Operations Research,* 1-27. https://doi.org/10.1007/s10479-025-06800-8 (Advance Online)

Multi-UAV reconnaissance mission planning via deep reinforcement learning with simulated annealing, by FAN, Mingfeng; LIU, Huan; WU, Guohua; GUNAWAN, Aldy; SARTORETTI, Guillaume. (2025). *Swarm and Evolutionary Computation, 93* 1-15. https://doi.org/10.1016/j.swevo.2025.101858 (Published)

Application of an improved harmony search algorithm on electric vehicle routing problems, by MINANDA, Vanny; LIANG, Yun-Chia; CHEN, Angela H. L.; GUNAWAN, Aldy. (2024). *Energies, 17* (15), 1-22. https://doi.org/10.3390/en17153716 (Published)

Long-term mine planning: A survey of classical, hybrid and artificial intelligence-based methods, by AZHAR, Nurul A.B.; GUNAWAN, Aldy; CHENG, Shih-Fen; LEONARDI, Erwin. (2024). *Asia-Pacific Journal of Operational Research,* 1-31. https://doi.org/10.1142/S0217595924400141 (Advance Online)

An adaptive large neighborhood search for the multi-vehicle profitable tour problem with flexible compartments and mandatory customers, by YU, Vincent F.; SALSABILA, Nabila Yuraisyah; GUNAWAN, Aldy; HANDOKO, Anggun Nurfitriani. (2024). *Applied Soft Computing, 156* 1-17. https://doi.org/10.1016/j.asoc.2024.111482 (Published)

The important role of system dynamics investigation on business model, industry and performance management, by GOZALI, Lina; ZAGLOEL, Teuku Yuri M.; SIMATUPANG, Togar Mangihut; SUTOPO, Wahyudi; GUNAWAN, Aldy; LIANG, Yun-Chia; YAHYA, Bernardo Nugroho; GARZA-REYES, Jose Arturo; IRAWAN, Agustinus Purna; SUSENO, Yuliani. (2024). *International Journal of Productivity and Performance Management, 73* (4), 945-980. https://doi.org/10.1108/IJPPM-07-2021-0399 (Published)

Simulated annealing with reinforcement learning for the set team orienteering problem with time windows, by YU, Vincent F.; SALSABILA, Nabila Y.; LIN, Shih-Wei; GUNAWAN, Aldy. (2024). *Expert Systems with Applications, 238* 1-15. https://doi.org/10.1016/j.eswa.2023.121996 (Published)

A simulated annealing with variable neighborhood descent approach for the heterogeneous fleet vehicle routing problem with multiple forward/reverse cross-docks, by YU, Vincent F.; ANH, Pham Tuan; GUNAWAN, Aldy; HAN, Hsun. (2024). *Expert Systems with Applications, 237* 1-18. https://doi.org/10.1016/j.eswa.2023.121631 (Published)

The vehicle routing problem with simultaneous pickup and delivery and occasional drivers, by YU, Vincent F.; ALOINA, Grace; JODIAWAN, Panca; GUNAWAN, Aldy; HUANG, Tsung-C.. (2023). *Expert Systems with Applications, 214* 1-16. https://doi.org/10.1016/j.eswa.2022.119118 (Published)

The Two-echelon vehicle routing problem with transshipment nodes and occasional drivers: Formulation and adaptive large neighborhood search heuristic, by YU, Vincent F.; NGUYEN, Minh P. K.; PUTRA, Kuza; GUNAWAN, Aldy; DHARMA, I. Gusti Bagus Budi. (2022). *Journal of Advances Transportation, 2022* (1), 1-23. https://doi.org/10.1155/2022/5603956 (Published)

Two-phase matheuristic for the vehicle routing problem with reverse cross-docking, by GUNAWAN, Aldy;

WIDJAJA, Audrey T.; VANSTEENWEGEN, Pieter; YU, Vincent F.. (2022). *Annals of Mathematics and Artificial Intelligence, 90* (7-9), 915-949. https://doi.org/10.1007/s10472-021-09753-3 (Published)

Time dependent orienteering problem with time windows and service time dependent profits, by KHODADADIAN, M.; DIVSALAR, A.; VERBEECK, C.; GUNAWAN, Aldy; WANSTEENWEGEN, P.. (2022). *Computers and Operations Research, 143* 1-18. https://doi.org/10.1016/j.cor.2022.105794 (Published)

Metaheuristics for time-dependent vehicle routing problem with time windows, by LIANG, Yun-C; MINANDA, Vanny; GUNAWAN, Aldy; CHEN, Hsiang-L.. (2022). *International Journal of Operational Research,* 1-20. (Forthcoming)

Design of a two-echelon freight distribution system in last-mile logistics considering covering locations and occasional drivers, by YU, Vincent F.; JODIAWAN, Panca; HOU, Ming-Lu; GUNAWAN, Aldy. (2021). *Transportation Research Part E: Logistics and Transportation Review, 154* 1-30. https://doi.org/10.1016/j.tre.2021.102461 (Published)

Vehicle routing: Review of benchmark datasets, by GUNAWAN, Aldy; KENDALL, Graham; McCOLLUM, Barry; SEOW, Hsin-Vonn; LEE, Lai Soon. (2021). *Journal of the Operational Research Society, 72* (8), 1794-1807. https://doi.org/10.1080/01605682.2021.1884505 (Published)

The Multi-Vehicle Cyclic Inventory Routing Problem: Formulation and a Metaheuristic Approach, by YU, Vincent. F.; WIDJAJA, Audrey W.; GUNAWAN, Aldy; VANSTEENWEGEN, Pieter. (2021). *Computers & Industrial Engineering, 157* 1-17. https://doi.org/10.1016/j.cie.2021.107320 (Published)

An adaptive large neighborhood search for the green mixed fleet vehicle routing problem with realistic energy consumption and partial recharges, by YU, Vincent F.; JODIAWAN, Panca; GUNAWAN, Aldy. (2021). *Applied Soft Computing, 105* 1-16. https://doi.org/10.1016/j.asoc.2021.107251 (Published)

Waste collection routing problem: A mini-review of recent heuristic approaches and applications, by LIANG, Yun-Chia; MINANDA, Vanny; GUNAWAN, Aldy.. (2022). *Waste Management & Research, 40* (5), 1-19. https://doi.org/10.1177/0734242X211003975 (Published)

A matheuristic algorithm for the vehicle routing problem with cross-docking, by GUNAWAN, Aldy; WIDJAJA, Audrey T.; VANSTEENWEGEN, Pieter; YU, Vincent F.. (2021). *Applied Soft Computing, 103* 1-13. https://doi.org/10.1016/j.asoc.2021.107163 (Published)

Optimal collaborative path planning for unmanned surface vehicles carried by a parent boat along a planned route, by PRASETIA, Ari Carisza Graha; WANG, I-Lin; GUNAWAN, Aldy. (2020). *International Journal of Operational Research, 17* (4), 101-116. https://doi.org/10.6886/IJOR.202012_17(4).0001 (Published)

Design of a two-echelon freight distribution system in an urban area considering third-party logistics and loading-unloading zones, by YU, Vincent F.; WINARNO; LIN, Shih-Wei; GUNAWAN, Aldy. (2020). *Applied Soft Computing, 97* (B), 1-14. https://doi.org/10.1016/j.asoc.2020.106707 (Published)

European floating strike lookback options: Alpha prediction and generation using unsupervised learning, by LIM, Tristan; ONG, Chin Sin; GUNAWAN, Aldy. (2020). *The Journal of Financial Data Science, 2* (4), 59-70. https://doi.org/10.3905/jfds.2020.1.043 (Published)

An Exact Algorithm for Agile Earth Observation Satellite Scheduling with Time-Dependent Profits, by PENG, Guansheng; SONG, Guopeng; XING, Lining; GUNAWAN, Aldy; VANSTEENWEGEN, Pieter. (2020). *Computers and Operations Research, 120* 1-15. https://doi.org/10.1016/j.cor.2020.104946 (Published)

Selective discrete particle swarm optimization for the team orienteering problem with time windows and partial scores, by YU, Vincent F.; REDI, Perwira A. A. N.; JEWPANYA, Parida; GUNAWAN, Aldy. (2019). *Computers & Industrial Engineering, 138* 1-13. https://doi-org/10.1016/j.cie.2019.106084 (Published)

Agile earth observation satellite scheduling: An orienteering problem with time-dependent profits and travel times, by PENG, Guansheng; DEWIL, Reginald; VERBEECK, Cédric; GUNAWAN, Aldy; XING, Lining; VANSTEENWEGEN, Pieter. (2019). *Computers and Operations Research, 111* 84-98. https://doi.org/10.1016/j.cor.2019.05.030 (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)

An iterated local search algorithm for the team orienteering problem with variable profits, by GUNAWAN,

Aldy; NG, Kien Ming; KENDALL, Graham; LAI, Junhan. (2018). *Engineering Optimization, 50* (7), 1148-1163. https://doi.org/10.1080/0305215X.2017.1417398 (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)

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)

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)

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)

A hybridized Lagrangian relaxation and simulated annealing method for the course timetabling problem, by GUNAWAN, Aldy, NG, Kien Ming; POH, Kim Leng. (2012). *Computers and Operations Research, 39* (12), 3074-3088. https://doi.org/10.1016/j.cor.2012.03.011 (Published)

Journal Articles [Non-Refereed]

Solving the teacher assignment problem by two Metaheuristics, by GUNAWAN, Aldy; NG, Kien Ming. (2011). *International Journal of Information and Management Sciences, 22* (1), 73-86. (Published)

An improvement heuristic for the timetabling problem, by GUNAWAN, Aldy; NG, Kien Ming; POH, Kim Leng. (2007). *International Journal Computational Science, 1* (2), 162-178. (Published)

Solving the teacher assignment-course scheduling problem by a hybrid Algorithm, by GUNAWAN, Aldy; NG, Kien Ming; POH, Kim Leng. (2007). *International Journal of Computer, Information, and Systems Science, and Engineering, 1* (2), 136-141. (Published)

Books (Refereed)

Orienteering problems: Models and algorithms for vehicle routing problems with profits (EURO Advanced Tutorials on Operational Research), by VANSTEENWEGEN, Pieter; GUNAWAN, Aldy. (2019). Cham: Springer. https://doi.org/10.1007/978-3-030-29746-6 (Published)

Book Chapters

Other orienteering problem variants, by VANSTEENWEGEN, Pieter; GUNAWAN, Aldy. (2019). In VANSTEENWEGEN, Pieter; GUNAWAN, Aldy (Ed.), *Orienteering problems: Models and algorithms for vehicle routing problems with profits* (pp. 95-112) Cham: Springer Nature. https://doi.org/10.1007/978-3-030-29746-6_8 (Published)

State-of-the-art solution techniques for OPTW and TOPTW, by VANSTEENWEGEN, Pieter; GUNAWAN, Aldy. (2019). In Pieter Vansteenwegen; Aldy Gunawan (Ed.), *Orienteering problems: Models and algorithms for vehicle routing problems with profits* (pp. 33-40) Cham: Springer. https://doi.org/10.1007/978-3-030-29746-6_6 (Published)

State-of-the-art solution techniques for OP and TOP, by VANSTEENWEGEN, Pieter; GUNAWAN, Aldy. (2019). In Pieter Vansteenwegen; Aldy Gunawan (Ed.), *Orienteering problems: Models and algorithms for vehicle routing problems with profits* (pp. 41-66) Cham: Springer. https://doi.org/10.1007/978-3-030-29746-6_5 (Published)

Applications of the OP, by VANSTEENWEGEN, Pieter; GUNAWAN, Aldy. (2019). In Pieter Vansteenwegen; Aldy Gunawan (Ed.), *Orienteering problems: Models and algorithms for vehicle routing problems with profits* (pp. 83-93) Springer. https://doi.org/10.1007/978-3-030-29746-6_7 (Published)

Definitions and mathematical models of single vehicle routing problems with profits, by VANSTEENWEGEN, Pieter; GUNAWAN, Aldy. (2019). In Pieter Vansteenwegen; Aldy Gunawan (Ed.), *Orienteering problems: Models and algorithms for vehicle routing problems with profits* (pp. 7-19) Cham: Springer. https://doi.org/10.1007/978-3-030-29746-6_2 (Published)

Conference Proceedings

A learningaugmented dynamic programming approach for orienteering problem with time windows, by PENG, Guansheng; XING, Lining; MA, Fuyan SONG, Guopeng; GUNAWAN, Aldy; VANSTEENWEGEN, Pieter. (2025.0). *Proceedings of the Thirty-Ninth Annual Conference on Neural Information Processing Systems (NeurIPS 2025), San Diego, USA, December 2-7*

, (pp. 1-26) USA: Curran Associates. (Accepted)

Storage location optimization in automated storage and retrieval systems: A deep reinforcement learning approach, by WANG, Lingjun; GUNAWAN, Aldy; VANSTEENWEGEN, Pieter. (2025.0). *Joint conference 16th International Conference on Computational Logistics (ICCL) | 1st EURO Mini Conference on Maritime Optimization and Logistics (EUROMar), Delft, Netherland, 2025 September 8-10* , (pp. 1-15) Cham : Springer. (Published)

Outperforming the best with minimal effort: Algorithm selection for constrained multi-objective optimization, by MISIR, Mustafa; GUNAWAN, Aldy. (2025.0). *2025 IEEE Congress on Evolutionary Computation (CEC): Hangzhou, June 8-12: Proceedings,* (pp. 1-8) Piscataway, NJ: IEEE. https://doi.org/10.1109/CEC65147.2025.11043080 (Published)

A selective vehicle routing problem for the Bloodmobile system, by GUNAWAN, Aldy; DARMASAPUTRA, Samuel Alan; DO, Sy Hoang; YU, Vincent F.. (2025.0). *Proceedings of the 25th European Conference, EvoCOP 2025, Held as Part of EvoStar 2025, Trieste, Italy, April 23–25,* (pp. 101-115) Cham: Springer. (Published)

On unraveling student resilience and academic performance in higher education, by GUNAWAN, Aldy; LIM, Ee-Peng; WIDJAJA, Audrey T.; TOV, William; FOO, James; DEMEESTER, Lieven.. (2025.0). *Proceedings of the 17th International Conference on Computer Supported Education, CSEDU 2025: Porto, April 1-3,* (pp. 208-215) Portugal: Science and Technology Publications. https://doi.org/10.5220/0013197500003932 (Published)

Comparison of evolutionary algorithms: A case study on the multi-objective carbon-aware mine planning, by AZHAR, Nurul Asyikeen; GUNAWAN, Aldy; CHENG, Shih-Fen; LEONARDI, Erwin. (2024.0). *2024 IEEE 20th International Conference on Automation Science and Engineering (CASE): Bari, Italy, August 28 - September 1: Proceedings,* (pp. 962-969) Piscataway, NJ: IEEE. https://doi.org/10.1109/CASE59546.2024.10711825 (Published)

A two-stage matheuristic for the home healthcare routing and scheduling problem with perishable products, by GUNAWAN, Aldy; SALSABILA, Nabila Yuraisyah; YU, Vincent F.; NGUYEN, Pham Kien Minh. (2024.0). *Proceedings of the 20th Annual IEEE International Conference on Automation Science and Engineering (IEEE CASE 2024),* New York: IEEE. (Published)

Q-Learning based framework for solving the stochastic E-waste collection problem, by NGUYEN, Dang Viet Anh; GUNAWAN, Aldy; MISIR, Mustafa; VANSTEENWEGEN, Pieter. (2024.0). *Proceedings of the 24th European Conference on Evolutionary Computation in Combinatorial Optimisation (EVOSTAR 2024) : Aberystwyth Wales, UK, April 3-5,* (pp. 49-64) Aberystwyth, UK: Springer. (Published)

ExploreLah: Personalised and smart trip planner for mobile tourism, by GUNAWAN, Aldy; HOE, Siu Loon; LIM, Xun Yi; TRAN, Linh Chi; NGUYEN, Dang Viet Anh. (2023.0). *2023 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM) : Singapore, December 18-21: Proceedings,* (pp. 1-5) Piscataway, NJ: IEEE. https://doi.org/10.1109/IEEM58616.2023.10406555 (Published)

Carbon-aware mine planning with a novel multi-objective framework, by AZHAR, Nurul Asyikeen Binte; GUNAWAN, Aldy; CHENG, Shih-Fen; LEONARDI, Erwin. (2023.0). *Proceedings of the Fourteenth International Conference on Computational Logistics, Berlin, Germany, 2023 September 6-8,* (pp. 1-16) ICCL: (Published)

GRASP solution approach for the e-waste collection problem, by GUNAWAN, Aldy; NGUYEN, Dang Viet Anh; NGUYEN, Pham Kien Minh; VANSTEENWEGEN, Pieter. (2023.0). *Proceedings of the 14th International Conferences on Computational Logistics, Berlin, Germany, 2023 Sep 6-8,* (pp. 260-275) Switzerland: Springer Nature. https://doi.org/10.1007/978-3-031-43612-3_16 (Published)

An adaptive large neighborhood search for heterogeneous vehicle routing problem with time windows, by NGUYEN, Minh Pham Kien; GUNAWAN, Aldy; YU, Vincent F.; MISIR, Mustafa. (2023.0). *Proceedings of the*

19th IEEE International Conference on Automation Science and Engineering (CASE), Auckland, New Zealand, 2023 Aug 26-30, New York: IEEE. https://doi.org/10.1109/CASE56687.2023.10260380 (Published)

The heterogeneous vehicle routing problem with multiple time windows for the e-waste collection problem, by GUNAWAN, Aldy; NGUYEN, Minh P.K; YU, Vincent F.; NGUYEN, Dang V.A.. (2023.0). *Proceedings of 2023 IEEE 19th International Conference on Automation Science and Engineering (CASE), Auckland, New Zealand, August 26-30,* (pp. 1-6) Auckland: IEEE. https://doi.org/10.1109/CASE56687.2023.10260477 (Published)

GRASP based metaheuristic to solve the mixed fleet e-waste collection route planning problem, by GUNAWAN, Aldy; NGUYEN, Dang V.A.; NGUYEN, Pham K.M.; VANSTEENWEGEN, Pieter.. (2023.0). *Proceedings of the 17th International Congress on Logistics and SCM Systems (ICLS 2023), Seoul, South Korea, 2023 Aug 9-12,* Seoul: Springer. (Published)

Vehicle routing problem with parcel locker and public transportation: Goods delivery using mass-rapid-transit system, by NGUYEN, Pham K.M.; YU, Vincent F.; GUNAWAN, Aldy. (2023.0). *Proceedings of the 17th International Congress on Logistics and SCM Systems (ICLS 2023), Seoul, August 9-12,* Seoul: (Published)

Lean manufacturing approach to increase packaging efficiency, by GOZALI, Lina; KURNIAWAN, Irsandy; SALIM, Aldo; MARIE, Iveline Anne; TJAHJONO, Benny; LIANG, Yun Chia; GUNAWAN, Aldy; SIE, Nnovia Hardjo; SUSENO, Yuliani. (2023.0). *Proceedings of the 4th Tarumanagara International Conference of the Applications of Technology and Engineering (TICATE) 2021: Virtual, August 5-6,* (pp. 1-12) New York: American Institute of Physics. https://doi.org/10.1063/5.0126725 (Published)

An exploratory study on museum visitor ship trends in Singapore, by GUNAWAN, Aldy; LIU, Chentao; SUBRAMANIAM, Heranshan S/O; TAN, Melissa; TAN, Ranice; TAY, Clarence; VISAWAMETEEKUL, Tasaporn. . (2023.0). *Proceedings of the International Conference on Industrial Engineering and Operations Management Manila, Philippines, 2023 March 7-9,* (pp. 233-242) Manila: IEOM Society International. (Published)

Pickup and multi-delivery problem with time windows, by ANH, Pham Tuan; GUNAWAN, Aldy; YU, Vincent F.; CHAU, Tuan C.. (2022.0). *2022 IEEE International Conference on Industrial Engineering and Engineering Management IEEM: Kuala Lumpur, December 7-10: Proceedings,* (pp. 571-575) Piscataway, NJ: IEEE. https://doi.org/10.1109/IEEM55944.2022.9989995 (Published)

Cold calls to enhance class participation and student engagement, by THULASIDAS, Manoj; GUNAWAN, Aldy. (2022.0). *2022 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE); Hong Kong, December 4-7: Proceedings,* (pp. 699-702) Piscataway, NJ: IEEE. https://doi.org/10.1109/TALE54877.2022.00122 (Published)

A carbon-aware planning framework for production scheduling in mining, by AZHAR, Nurul A.; GUNAWAN, Aldy; CHENG, Shih-Fen; LEONARDI, Erwin . (2022.0). *ICCL 2022: Proceedings of the 13th International Conference, Barcelona, September 21–23,* (pp. 441-456) Cham: Springer. https://doi.org/10.1007/978-3-031-16579-5_30 (Published)

Integrating forward and reverse logistics in vehicle routing problem with cross-docking, by YU, Vincent F.; ANH, Pham Tuan; GUNAWAN, Aldy; HAN, Hsun. (2022.0). *Proceedings of the 16th International Congress on Logistics and SCM Systems: Logistics Technology and Innovation in the VUCA World, Khon Kaen, Thailand, 2022 August 28-30,* Thailand: (Published)

Algorithm selection for the team orienteering problem, by MISIR, Mustafa; GUNAWAN, Aldy; VANSTEENWEGEN, Pieter. (2022.0). *Evolutionary Computation in Combinatorial Optimization: European Conference, EvoCOP 2022, Madrid, Spain, April 20-22: Proceedings,* (pp. 33-45) Cham: Springer. https://doi.org/10.1007/978-3-031-04148-8_3 (Published)

Exploring and evaluating the impact of COVID-19 on mobility changes in Singapore, by GUNAWAN, Aldy; TRAN, Linh Chi; TAN, Kar Way; WANG, I-Lin. (2022.0). *Proceedings of the 12th Annual International Conference on Industrial Engineering and Operations Management, Istanbul, Turkey, 2022 March 7-10,* (pp. 4104-4115) Istanbul, Turkey: IEOM. https://ieomsociety.org/proceedings/2022istanbul/773.pdf (Published)

Analyzing the impact of digital payment on efficiency and productivity of commercial banks: A case study in China, by WANG, Haopeng; GUNAWAN, Aldy. (2022.0). *Proceedings of the 12th Annual International Conference on Industrial Engineering and Operations Management, Istanbul, Turkey, March 7-10,* (pp. 1-11) Turkey: IEOM. (Published)

On analysing student resilience in higher education programs using a data-driven approach, by WIDJAJA, Audrey Tedja; LIM, Ee-Peng; GUNAWAN, Aldy. (2021.0). *2021 IEEE International Conference on Engineering, Technology & Education (TALE): Wuhan, December 5-8: Proceedings,* (pp. 261-267) Piscataway, NJ: IEEE. https://doi.org/10.1109/TALE52509.2021.9678537 (Published)

Redesigning patient flow in paediatric eye clinic for pandemic using simulation, by TAN, Kar W.; GOH, Bee K.; GUNAWAN, Aldy. (2021.0). *Proceedings of the 2021 IEEE International Smart Cities Conference (ISC2),* USA: IEEE. (Published)

Set Team Orienteering Problem with Time Windows, by GUNAWAN, Aldy; YU, Vincent F.; SUTANTO, Andro N.; JODIAWAN, Panca. (2021.0). *Learning and Intelligent Optimization: 15th International Conference, LION 15 2021, Athens, Greece, Virtual, June 20-25: Proceedings,* (pp. 142-149) Cham: Springer. https://doi.org/10.1007/978-3-030-92121-7_12 (Published)

Vehicle routing problem with reverse cross-docking: An adaptive large neighborhood search algorithm, by GUNAWAN, Aldy; WIDJAJA, Audrey T.; VANSTEENWEGEN, Pieter; YU, Vincent F.. (2020.0). *Proceedings of the 11th International Conference on Computational Logistics (ICCL 2020): September 28–30, Enschede, The Netherlands,* Germany: Springer. https://doi.org/10.1007/978-3-030-59747-4_11 (Published)

Adaptive large neighborhood search for vehicle routing problem with cross-docking, by GUNAWAN, Aldy; WIDJAJA, Audrey Tedja; VANSTEENWEGEN, Pieter; YU, Vincent F.. (2020.0). *2020 IEEE World Congress on Computational Intelligence (WCCI): Virtual, Glasgow, July 19-24: Proceedings,* (pp. 1-8) Piscataway, NJ: IEEE. https://doi.org/10.1109/CEC48606.2020.9185514 (Published)

Next-term grade prediction: A machine learning approach, by WIDJAJA, Audrey Tedja; WANG, Lei; TRUONG, Nghia Trong; GUNAWAN, Aldy; LIM, Ee-Peng. (2020.0). *Proceedings of the Thirteenth International Conference on Educational Data Mining (EDM 2020): Virtual conference, July 10-13,* (pp. 700-703) Virtual: (Published)

A matheuristic algorithm for solving the vehicle routing problem with cross-docking, by GUNAWAN, Aldy; WIDJAJA, Audrey Tedja; VANSTEENWEGEN, Pieter; YU, Vincent F.. (2020.0). *Proceedings of the 14th Learning and Intelligent OptimizatioN Conference (LION 2020), Athens, Greece, May 24-28,* (pp. 9-15) Greece: Springer. https://doi.org/10.1007/978-3-030-53552-0_2 (Published)

Incorporating a reverse logistics scheme in a vehicle routing problem with cross-docking network: A modelling approach, by WIDJAJA, Audrey Tedja; GUNAWAN, Aldy; JODIAWAN, Panca; YU, Vincent F.. (2020.0). *2020 IEEE 7th International Conference on Industrial Engineering and Applications (ICIEA): Bangkok, Thailand, April 16-21: Proceedings,* (pp. 854-858) Piscataway, NJ: IEEE. https://doi.org/10.1109/ICIEA49774.2020.9101972 (Published)

Vehicle routing problem for multi-product cross-docking, by GUNAWAN, Aldy; WIDJAJA, Audrey T.; GAN, Benjamin Gan Kok Siew; YU, Vincent F.; JODIAWAN, Panca. (2020.0). *Proceedings of the International Conference on Industrial Engineering and Operations Management 2020: Dubai, UAE, March 10-12,* (pp. 66-77) Southfield, MI: IEOM Society. (Published)

A mathematical programming model for the green mixed fleet vehicle routing problem with realistic energy consumption and partial recharges, by YU, Vincent F.; JODIAWAN, Panca; GUNAWAN, Aldy; WIDJAJA, Audrey Tedja. (2019.0). *2019 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM): Macau, December 15-18: Proceedings,* (pp. 1339-1343) Piscataway, NJ: IEEE. https://doi.org/10.1109/IEEM44572.2019.8978715 (Published)

Harmony search algorithm for time-dependent vehicle routing problem with time windows, by LIANG, Yun-Chia; MINANDA, Vanny; GUNAWAN, Aldy; CHEN, Angela Hsiang-Ling. (2019.0). *Proceedings of APIEMS 2019: The 20th Asia Pacific Industrial Engineering And Management Systems, Kanazawa, Japan, December 2-5,* (pp. 753-757) Kanazawa, Japan: APIEMS. (Published)

Simulated annealing for the multi-vehicle cyclic inventory routing problem, by GUNAWAN, Aldy; YU, Vincent F.; WIDJAJA, Audrey T.; VANSTEENWEGEN, Pieter. (2019.0). *2019 IEEE 15th International Conference on Automation Science and Engineering: Vancouver, Canada, August 22-26: Proceedings,* (pp. 691-696) Piscataway, NJ: IEEE. https://doi.org/10.1109/COASE.2019.8842945 (Published)

InSPeCT: Iterated local search for solving path conditions, by CHEN, Fuxiang; GUNAWAN, Aldy; LO, David; KIM, Sunghun. (2019.0). *2019 15th IEEE International Conference on Automation Science and Engineering (CASE): Vancouver, August 22-26: Proceedings,* (pp. 1724-1729) Piscataway, NJ: IEEE. https://doi.org/10.1109/COASE.2019.8843039 (Published)

Simulated annealing for the single-vehicle cyclic inventory routing problem, by GUNAWAN, Aldy; YU, Vincent F.; WIDJAJA, Audrey T.; VANSTEENWEGEN, Pieter.. (2019.0). *GECCO '19: Proceedings of the Genetic and Evolutionary Computation Conference Companion, Prague, Czech Republic, 2019 July 13-17,* (pp. 1-2) Prague, Czech Republic: ACM. https://doi.org/10.1145/3319619.3321888 (Published)

The capacitated team orienteering problem, by GUNAWAN, Aldy; NG, Kien Ming; YU, Vincent F.; ADIPRASETYO, Gordy; LAU, Hoong Chuin. (2019.0). *Proceedings of the 9th International Conference on Industrial Engineering and Operations Management 2019: Bangkok, Thailand, March 5-7,* (pp. 1630-1638) Bangkok: IEOM Society. (Published)

An essential Applied Statistical Analysis course using RStudio with Project-Based Learning for data science, by GUNAWAN, Aldy; CHEONG, Michelle L. F.; POH, Johnson. (2018.0). *2018 IEEE International Conference on Teaching, Assessment and Learning for Engineering (TALE): Wollongong, Australia, December 4-7,* (pp. 581-588) Piscataway, NJ: IEEE. https://doi.org/10.1109/TALE.2018.8615145 (Published)

Iterated local search algorithm for the capacitated team orienteering problem, by GUNAWAN, Aldy; NG, Kien Ming; YU, Vincent F.; ADIPRASETYO, Gordy; LAU, Hoong Chuin.. (2018.0). *Proceedings of the 12th International Conference on the Practice and Theory of Automated Timetabling (PATAT 2018), Vienna, Austria, August 28-31,* (pp. 493-496) Vienna: PATAT. (Published)

Instance-specific selection of AOS methods for solving combinatorial optimisation problems via neural networks, by TENG, Teck Hou; LAU, Hoong Chuin; GUNAWAN, Aldy. (2018.0). *Learning and Intelligent Optimization: 12th International Conference, LION 12, Kalamata, Greece, June 10-15: Proceedings,* (pp. 98-114) Cham: Springer. https://doi.org/10.1007/978-3-030-05348-2_9 (Published)

Home health care delivery problem, by GUNAWAN, Aldy; LAU, Hoong Chuin; LU, Kun. (2017.0). *MISTA 2017: Proceedings of the 8th Multidisciplinary International Conference on Scheduling: Theory and Applications: Kuala Lumpur, December 5-8,* (pp. 244-255) Kuala Lumpur: MISTA. (Published)

A selective-discrete particle swarm optimization algorithm for solving a class of orienteering problems, by GUNAWAN, Aldy; YU, Vincent; REDI, Perwira; JEWPANYA, Parida; LAU, Hoong Chuin. (2017.0). *MISTA 2017: Proceedings of the 8th Multidisciplinary International Conference on Scheduling: Theory and Applications: Kuala Lumpur, December 5-8,* (pp. 229-243) Kuala Lumpur: MISTA. (Published)

An intelligent system for personalized conference event recommendation and scheduling, by GUNAWAN, Aldy; LAU, Hoong Chuin; VARAKANTHAM, Pradeep; WANG, Wenjie. (2016.0). *ECAI 2016: 22nd European Conference on Artificial Intelligence, 29 August-2 September 2016, The Hague,* (pp. 1797-1802) Amsterdam: IOS Press. https://doi.org/10.3233/978-1-61499-672-9-1797 (Published)

Enhancing local search with adaptive operator ordering and its application to the time dependent orienteering problem, by GUNAWAN, Aldy; LAU, Hoong Chuin; LU, Kun. (2016.0). *PATAT 2016: Proceedings of the 11th International Conference of the Practice and Theory of Automated Timetabling: Udine, Italy, August 23-26, 2016,* (pp. 181-193) Udine, Italy: PATAT. http://www.patatconference.org/patat2016/files/proceedings/paper_16.pdf (Published)

A fast algorithm for personalized travel planning recommendation, by GUNAWAN, Aldy; LAU, Hoong Chuin; LU, Kun. (2016.0). *PATAT 2016: Proceedings of the 11th International Conference of the Practice and Theory of Automated Timetabling: Udine, Italy, August 23-26, 2016,* (pp. 163-179) Udine, Italy: PATAT. http://www.patatconference.org/patat2016/files/proceedings/paper_15.pdf (Published)

Designing and comparing multiple portfolios of parameter configurations for online algorithm selection, by GUNAWAN, Aldy; LAU, Hoong Chuin; MISIR, Mustafa. (2016.0). *Learning and Intelligent Optimization: 10th International Conference, LION 10, Ischia, Italy, May 29 - June 1, 2016, Revised Selected Papers,* (pp. 91-106) Cham: Springer. https://doi.org/10.1007/978-3-319-50349-3_7 (Published)

PRESS: Personalized event scheduling recommender system (demonstration), by LAU, Hoong Chuin; GUNAWAN, Aldy; VARAKANTHAM, Pradeep; WANG, Wenjie. (2016.0). *15th International Conference on Autonomous Agents and Multiagent Systems: AAMAS 2016, Singapore, 2016 May 9-13,* (pp. 1513-1514) Singapore: International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS). (Published)

Performance based contracting for the manufacturing industry by using integrated platform and dynamic pricing model, by LINDAWATI; GUNAWAN, Aldy. (2015.0). *2015 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM): Singapore, December 6-9: Proceedings,* (pp. 1578-1582) Piscataway, NJ: IEEE. https://doi.org/10.1109/IEEM.2015.7385913 (Published)

SAILS: Hybrid algorithm for the Team Orienteering Problem with Time Windows, by GUNAWAN, Aldy; LAU, Hoong Chuin; LU, Kun. (2015.0). *MISTA 2015: Proceedings of the 7th Multidisciplinary International Scheduling Conference, Prague, Czech Republic, August 25-28, 2015,* (pp. 276-295) Prague: MISTA. http://schedulingconference.org/proceedings/2015/mista2015.pdf (Published)

An iterated local search algorithm for solving the Orienteering Problem with Time Windows, by GUNAWAN, Aldy; LAU, Hoong Chuin; LU, Kun. (2015.0). *Evolutionary Computation in Combinatorial Optimization: 15th European Conference, EvoCOP 2015, Copenhagen, Denmark, April 8-10, 2015, Proceedings,* (pp. 61-73) Cham: Springer. http://doi.org/10.1007/978-3-319-16468-7_6 (Published)

Designing a portfolio of parameter configurations for online algorithm selection, by GUNAWAN, Aldy; LAU, Hoong Chuin; MISIR, Mustafa. (2015.0). *Algorithm Configuration: Papers from the 2015 AAAI Workshop: January 25-29, Austin, TX,* (pp. 2-8) Palo Alto, CA: AAAI Press. (Published)

Second order-response surface model for the automated parameter tuning problem, by GUNAWAN, Aldy; LAU, Hoong Chuin. (2014.0). *2014 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM): 9-12 December, Selangor: Proceedings,* (pp. 652-656) Piscataway, NJ: IEEE. https://doi.org/10.1109/IEEM.2014.7058719 (Published)

TRACCS: Trajectory-Aware Coordinated Urban Crowd-Sourcing, by CHEN, Cen; CHENG, Shih-Fen; GUNAWAN, Aldy; MISRA, Archan; Dasgupta, Koustuv; Chander, Deepthi. (2014.0). *Proceedings of the Second AAAI Conference on Human Computation and Crowdsourcing HCOMP 2014: November 2-4, 2014, Pittsburgh,* (pp. 30-40) Palo Alto, CA: AAAI Press. http://www.aaai.org/ocs/index.php/HCOMP/HCOMP14/paper/view/8966 (Published)

A mathematical model and metaheuristics for Time Dependent Orienteering Problem, by GUNAWAN, Aldy; YUAN, Zhi; LAU, Hoong Chuin. (2014.0). *PATAT 2014: International Conference on Practice and Theory of Automated Timetabling: York, 26-29 August 2014: Proceedings,* (pp. 202-217) York: PATAT. http://www.patatconference.org/patat2014/proceedings/2_11.pdf (Published)

Hybrid metaheuristics for solving the quadratic assignment problem and the generalized quadratic assignment problem, by GUNAWAN, Aldy; NG, Kien Ming; POH, Kim Leng; LAU, Hoong Chuin. (2014.0). *2014 IEEE International Conference on Automation Science and Engineering (CASE): Frontiers of Intelligent Automation Science and Technology for Better Quality of Life: August 18-22, 2014, Taipei,* (pp. 119-124) Piscataway, NJ: IEEE. http://doi.org/10.1109/CoASE.2014.6899314 (Published)

Real-world parameter tuning using factorial design with parameter decomposition, by GUNAWAN, Aldy; LAU, Hoong Chuin; WONG, Elaine. (2013.0). *Advances in metaheuristics: Proceedings of the Ninth Meta-heuristics International Conference, Udine, Italy, 25-28 July 2011,* (pp. 37-59) Cham: Springer Verlag. http://doi.org/10.1007/978-1-4614-6322-1_3 (Published)

The patrol scheduling problem, by LAU, Hoong Chuin; GUNAWAN, Aldy. (2012.0). *Practice and Theory of Automated Timetabling (PATAT 2012): 29-31 August: Proceedings,* (pp. 175-192) Son, Norway: PATAT. http://www.patatconference.org/patat2012/proceedings.html (Published)

Fine-tuning algorithm parameters using the design of experiments approach, by GUNAWAN, Aldy; LAU, Hoong Chuin; Lindawati, Linda. (2011.0). *Learning and intelligent optimization: 5th International Conference, LION 5: Rome, Italy, January 17-21, 2011: Selected papers,* (pp. 278-292) Berlin: Springer Verlag. http://doi.org/10.1007/978-3-642-25566-3_21 (Published)

Solving the quadratic assignment problem by a Hybrid Algorithm, by GUNAWAN, Aldy; NG, Kien Ming; POH, Kim Leng. (2011.0). *Proceeding of the International Conference on Advanced Science, Engineering and Information Technology 2011, Malaysia, 14-15 January,* (pp. 36-41) Bangi-Putrajaya, Malaysia: (Published)

The Bi-objective master physician scheduling problem, by GUNAWAN, Aldy; LAU, Hoong Chuin. (2010.0). *PATAT 2010: Proceedings of 8th International Conference on the Practice and Theory of Automated Timetabling: Belfast, 10-13 August,* (pp. 241-258) New York: Springer. (Published)

Conference Papers

The analysis of extended producer responsibility (EPR) for e-waste management policy drivers and challenges in Singapore, by GUNAWAN, Aldy; VISAWAMETEEKUL, Tasaporn; WONG, Aidan; TRAN, Linh C.. (2023.0). *International Congress on Logistics and SCM Systems, ICLS 2023),* Seoul. (Published)

Solving the vehicle routing problem with simultaneous pickup and delivery and occasional drivers by simulated annealing, by YU, Vincent F.; ALOINA, Grace; JODIAWAN, Panca; GUNAWAN, Aldy; HUANG, Tsung-C.. (2021.0). *IEEE International Conference on Industrial Engineering and Engineering Management 28th IEEM 2021, December 13-16,* Singapore. (Presented)

Vehicle routing problem with parcel locker sharing in a collaborative environment, by MUHAMMAD, Fajri Rasyid; YU, Vincent F.; SOPHA, Bertha Maya; GUNAWAN, Aldy. (2020.0). *International Conference on Intelligent Production and Operations 1st IPO 2020,* Taiwan. http://www.ipo2020.org/ (Published)

Two-echelon vehicle routing problem with occasional drivers, by PUTRA, Kuza; YU, Vincent F.; DHARMA, I Gusti Bagus Budi; GUNAWAN, Aldy. (2020.0). *International Conference on Intelligent Production and Operations 1st IPO 2020,* Taiwan. (Published)

Simulated annealing for the share-a-ride problem with adjustable compartment, by PUTU, Agus Yudisuda Indrakarna; YU, Vincent F.; GUNAWAN, Aldy. (2019.0). *IEEE International Conference on Industrial Engineering and Engineering Management (IEEM 2019), Macau, December 15-18,* Macao, China. (Published)

Integrated assignment and routing with mixed service mode cross-dock, by YU, Vincent, F.; GUNAWAN, Aldy; JUNAIDI, Eric I.; WIDJAJA, Audrey T.. (2019.0). *International Congress on Logistics and SCM Systems 14th ICLS 2019, Taipei, Taiwan, August 19-22,* Taipei, Taiwan. (Published)

A green mixed fleet vehicle routing problem with realistic energy consumption and partial recharges, by YU, Vincent F.; JODIAWAN, Panca; GUNAWAN, Aldy. (2019.0). *International Congress on Logistics and SCM Systems 14th ICLC 2019, Taipei, Taiwan, August 19-22,* Taipei, Taiwan. (Published)

EzLog: Data visualization for logistics, by GUNAWAN, Aldy; GAN Benjamin; TAN, Jin An; VILLANUEVA, Sheena L.S.L; WEN, Timothy K.J.. (2019.0). *International Congress on Logistics and SCM Systems 14th ICLC 2019, Taipei, Taiwan, August 19-22,* Taipei, Taiwan. (Published)

Research Grants

Singapore Management University

"E-waste must never be wasted" : Vehicle Route Planning Optimization for E-Waste Collection, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Aldy GUNAWAN , Co-PI (Project Level): Aidan WONG, 2022, S$91,140.07

Vehicle Routing Problem with a Reverse Cross-Dock, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Aldy GUNAWAN, 2019, S$86,000

Other Institutions

Transition from Living Analytics Research Centre to Social Urban Observatory, Strategic Capabilities Research Centres Funding Initiative, NRF PI (Project Level): LIM Ee Peng, Co-PI (Project Level): ZHENG Baihua, Archan MISRA, Jing JIANG, Wei GAO, SUN Qianru, HARA, Kotaro, Palakorn ACHANANUPARP, 2021, SGD2,687,280

Optimization Models for City Logistics with Electric Vehicles, Ministry of Science and Technology (MOST) Taiwan, Ministry of Science and Technology (MOST) Taiwan Vincent F. Yu, PI (Project Level): Aldy GUNAWAN, Vincent F. Yu, 2019, TWD160,000

TEACHING

Courses Taught

<u>Singapore Management University</u>

Undergraduate Programmes :

    Analytics Foundation

    Modeling & Data Analytics

    Spreadsheet Modeling and Analytics

Postgraduate Professional Programmes :

    Applied Statistical Analysis with R

    Project

    Spreadsheet Modeling for Decision Making

    Spreadsheet Modelling for Technology & Operations Decisions

    Statistical Thinking for Data Science

Postgraduate Research Programmes :

    Dissertation

    Empirical Research Project I

    Empirical Research Project II

    Empirical Research Project III