Resume

Name: **Kaizhou GAO**

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Education:

April, 2016	Ph. D. degree in School electrical and electronic engineering, Nanyang Technological University (NTU), Singapore. (Supervisor: P.N. Suganthan, IEEE Fellow)
June, 2008	Master degree in College of Information Engineering, Yangzhou University, China.
July, 2005	B. S. degree, School of Computer, Liaocheng University, China.

Research interests:

Artificial Intelligence; Optimization and scheduling; Smart city; Intelligent transportation; Smart building; Intelligent manufacturing and scheduling

Experience:

Sep. 2018 – Current	Assistant Professor, Institute of Systems Engineering, Macau University of Science and Technology, Macau
Apr. 2015– Apr. 2018	Research Fellow, Nanyang Technological University, Singapore.
Feb. 2012 - Dec. 2013	Research associate, Nanyang Technological University, Singapore.
Jul. 2008 - Jan. 2012	Lecturer, Liaocheng University, Shandong Province, China.

Affiliations:

[1] Member of IEEE

[2] 中國仿真學會智能仿真優化與調度專委會委员

Awards:

[1] 2019 年，中國仿真學會智能仿真優化與調度專委會優秀論文二等獎, “Flexible job shop rescheduling for new job insertion by using discrete Jaya algorithm”，位次 1/1.

[2] 2016 年，山東高等學校優秀科研成果獎一等獎，“新型智能優化算法及其在實際生產調度中的應用研究”，位次 2/4，證書編號：2016BK10160.

[3] 2015 年，山東高等學校優秀科研成果獎二等獎，“新型智能優化算法及其在實際生產調度中的應用研究”，位次 4/5，證書編號：2015BZ20023.

Professional activities and services:

[1] Associate Editor: Swarm and Evolutionary Computation, Elsevier, since 2019.

[2] Associate Editor: IET Collaborative Intelligent Manufacturing, IET, since 2020.

[3] Keynote Speech: 2017 Workshop on Swarm and Intelligence Optimization Algorithm, Huazhong University of Science and Technology, Wuhan, 2017.

[4] Special session Chair: 2019 IEEE Congress on Evolutionary Computation, Wellington, New Zealand, 10-13 June 2019.

[5] Serving a reviewer for the following journals and conferences:

- IEEE Transactions on Evolutionary Computation
- IEEE Transactions on Cybernetics
- IEEE Transactions on Automation Science and Engineering
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on SMC Systems
- Omega: The International Journal of Management Science
- Information Sciences
- Computer & Industry Engineering
- Knowledge-based systems
- Swarm and Evolutionary Computation
- Computers and Operational Research
- International Journal of Production Research
- Computers & Industrial Engineering
- Expert Systems with Applications
- IEEE/CAA Journal of Automatica Sinica
- Applied Soft Computing
- Journal of Cleaner Production
- Journal of Intelligent and fuzzy system
- Neural computing and applications
- Engineering Optimization
- IEEE Access
- Advances in Mechanical Engineering
- Algorithm
- …...

Project:

[1] 國家自然科學基金，複雜約束再製造調度及基於協作策略的離散群智能算法研究（批准號：61603169），2017.01-2019.12，項目負責人。

[2] 澳門科技大學研究基金，再製造綠色節能調度及新型智能優化算法研究 2019.06-2020.06，項目負責人。

[3] UK-China-Global Education Partnership Fund, Intelligent Manufacturing, 2019.02-2021.02， Macau University of Science and Technology，Co-PI。

[4] Economic and Development Board （EDB）， Singapore, Next Generation Traffic network Mobility, 2015.01-2018.04, team leader。

[5] Nanyang Technological University（NTU）and Agency for Science, Technology and Research (A*Star), Singapore, Remanufacturing planning and scheduling，2011.09-2013.09，team leader。

[6] 國家自然科學基金，多模態多目標混合流水車間調度進化優化算法研究（批准號：61803192），2019.01-2021.12，主要成员。

[7] 國家自然科學基金，基於自組織云演化算法的鐵水運輸調度理論與方法研究（批准號：61773192），2018.01-2021.12，主要成员。

[8] 國家自然科學基金，基於離散入侵雜草優化和問題結構特征的批量流調度方法研究（批准號：61503170），2016.01-2018.12，主要成员。

[9] 國家自然科學基金，柔性工序選擇的混合流水車間調度及其離散群智能算法研究（批准號：61573178），2016.01-2016.12，主要成员。

[10] 國家自然科學基金，時間約束的多目標柔性作業車間調度及其新型離散群智能算法研究（批准號：61104179），2012.01-2014.12，主要成员。

Publications:

Selected journal articles:

2020

[1] **KZ Gao**, ZM He, Y Huang, PY Duan, PN Suganthan, A survey on meta-heuristics for solving disassembly line balancing, planning and scheduling problems in remanufacturing, ***Swarm and Evolutionary Computation***, 57, Sep 2020.

[2] **KZ Gao**, FJ Yang, JQ Li, HY Sang, JP Luo, Improved Jaya algorithm for flexible job shop rescheduling problems, ***IEEE Access***, May 2020, DOI: 10.1109/ACCESS.2020.2992478.

[3] A Sadollah, **KZ Gao**, JH Kim, Memetic computing for imprecise solution of T-shaped heat transfer fins, ***Engineering Optimization***, Aug 2020, DOI: 10.1080/0305215X.2020.1806256

[4] PW Shaikh, M El-Abd, M Khanafer, **KZ Gao**, A Review on Swarm Intelligence and Evolutionary Algorithms for Solving the Traffic Signal Control Problem, ***IEEE Transactions on Intelligent Transportation Systems***, Apr. 2020, DOI: 10.1109/TITS.2020.3014296

[5] ZH Chen, M Wu, **KZ Gao**, et al, A Novel Ensemble Deep Learning Approach for Sleep-Wake Detection Using Heart Rate Variability and Acceleration, ***IEEE Transactions on Emerging Topics in Computational Intelligence***, June, 2020, DOI: 10.1109/TETCI.2020.2996943

[6] YY Niu, YP Zhang, ZG Cao, **KZ Gao**, JH Xiao, W Song, FW Zhang, MIMOA: A Membrane-Inspired Multi-Objective Algorithm for Green Vehicle Routing Problem with Stochastic Demands, ***Swarm and Evolutionary Computation***, 60, Dec 2020.

[7] YY Han, JQ Li, HY Sang, YP Liu, **KZ Gao**, QK Pan, Discrete evolutionary multi-objective optimization for energy-efficient blocking flow shop scheduling with setup time, ***Applied Soft***

Computing, May 2020, DOI: 10.1016/j.asoc.2020.106343

[8] ZG Cao, HL Guo, W Song, **KZ Gao**, LJ Kang, XX Zhang, QL Wu, Improving the Performance of Transportation Networks: A Semi-Centralized Pricing Approach, ***IEEE Transactions on Intelligent Transportation Systems***, Apr. 2020, DOI: 10.1109/TITS.2020.2991759

[9] L Zhang, ZH Chen, W Cui, B Li, C Chen, ZG Cao, **KZ Gao**, WiFi-Based Indoor Robot Positioning Using Deep Fuzzy Forests, ***IEEE Internet of Things Journal***, Apr. 2020, DOI：10.1109/JIOT.2020.2986685

[10] ZG Cao, HL Guo, W Song, **KZ Gao**, ZH Chen, L Zhang, XX Zhang, Using reinforcement learning to minimize the probability of delay occurrence in transportation, ***IEEE Transactions on Vehicular Technology***, 69(3): 2424-2436, Jan 2020.

[11] J. Lin, L. Zhu, **KZ Gao**, A genetic programming hyper-heuristic approach for the multi-skill resource constrained project scheduling problem, ***Expert Systems with Applications***, 140, 112915, 2020.

2019

[12] **KZ Gao**, Y Huang, A Sadollah, L Wang, A review of energy-efficient scheduling in intelligent production systems, ***Complex & Intelligent Systems***, Sep 2019 online

[13] WH Li, JQ Li, **KZ Gao** et al., Solving robotic distributed flowshop problem using an improved iterated greedy algorithm, ***International Journal of Advanced Robotic Systems***, 16(5), Article Number: 1729881419879819 Published: SEP 2019

[14] J. Li, Q. Pan, P. Duan, H. Sang, **KZ Gao**. Solving multi-area environmental/economic dispatch by Pareto-based chemical-reaction optimization algorithm. ***IEEE/CAA Journal of Automatica Sinica***, 6(5): 1240-1250, Sep 2019.

[15] **KZ Gao**, Y Zhang, R Su, FJ Yang, PN Suganthan, MC Zhou, Solving Traffic signal scheduling problems in heterogeneous traffic network by using meta-heuristics, ***IEEE Transactions on Intelligent Transportation Systems***, 20 (9), 3272-3282, Sep 2019.

[16] A Sadollah, **KZ Gao**, Y Zhang, Y Zhang, R Su, Management of traffic congestion in adaptive traffic signals using a novel classification-based approach, ***Engineering Optimization***, 51(9), 1509-1528, Sep 2019.

[17] **KZ Gao**, F.J. Yang, M.C. Zhou, Q.K. Pan, P. N. Sugnathan, Flexible job shop rescheduling for new job insertion by using discrete Jaya algorithm. ***IEEE Transactions on Cybernetics***, vol. 49, no. 5, pp: 1944-1955, May 2019. **(ESI high cited paper)**

[18] **KZ Gao**, ZG Cao, L Zhang et al., A review on swarm intelligence and evolutionary algorithms for solving flexible job shop scheduling problems, ***IEEE/CAA Journal of Automatica Sinica***, 6(4), 904-916, July 2019. **(ESI high cited paper)**

[19] **KZ Gao**, Y Zhang, Y Zhang, R Su, PN Suganthan, Meta-Heuristics for Bi-Objective Urban Traffic Light Scheduling Problems, ***IEEE Transactions on Intelligent Transportation Systems,*** 20 (7), 2618-2629, July 2019.

[20] Y Zhang, **KZ Gao**, YC Zhang, R Su, Traffic light scheduling for pedestrian-vehicle mixed-flow networks, ***IEEE Transactions on Intelligent Transportation Systems***, 20(4): 1468-1483, Apr 2019.

[21] Y Huang, K Wang, **KZ Gao***, T Qu, H Liu, Jointly optimizing microgrid configuration and energy consumption scheduling of smart homes, ***Swarm and Evolutionary computation***, 48, 251-261, Feb 2019.

[22] QQ Wang, H Liu, **KZ Gao**, Le Zhang, Improved multi-agent reinforcement learning for path planning based crowd simulation, ***IEEE Access***, 7, 73841-73855, 2019.

[23] S.N. Wang, H. Liu, **KZ Gao**, J.X. Zhang, A multi-species artificial bee colony algorithm and its

applications for crowd simulation, ***IEEE Access***, 7: 2549-2558, 2019.

[24] H.Y. Sang, Q.K. Pan, J.Q. Li, P. Wang, Y.Y. Han, **KZ Gao**, P Duan, Effective invasive weed optimization algorithms for distributed assembly permutation flow shop problem with total flowtime criterion, ***Swarm and evolutionary computation***, 44, 64-73, 2019.

2018

[25] **KZ Gao**, L. Wang. Discrete harmony search algorithm for scheduling and rescheduling the re-processing problems in remanufacturing: A case study. ***Engineering Optimization***, 50(6): 965-981, 2018.

[26] F. Yang, **KZ Gao**, I.W. Simon, Yuting Zhu, Rong Su. Decomposition methods for manufacturing system scheduling: a survey, ***IEEE/CAA Journal of Automatica Sinica***, 5(2): 389-400, 2018.

[27] FJ Yang, Y Qiao, **KZ Gao**, NQ Wu, YT Zhu, IW Simon, R Su, Efficient Approach to Scheduling of Transient Processes for Time-Constrained Single-Arm Cluster Tools With Parallel Chambers, ***IEEE Transactions on Systems, Man, and Cybernetics: Systems***, DOI: 10.1109/TSMC.2018.2852724, 2018.

[28] F. Yang, N. Wu, **KZ Gao**. Efficient Approach to Cyclic Scheduling of Single-arm Cluster Tools with Chamber Cleaning Operations and Wafer Residency Time Constraint, ***IEEE Transactions on Semiconductor Manufacturing***, 31(2): 196-205, 2018.

[29] JQ Li, HY Sang, YY Han, CG Wang, **KZ Gao**, efficient multi-objective optimization algorithm for hybrid flow shop scheduling problem with setup energy consumptions, ***Journal of Cleaner Production***, 181: 584-598, 2018. **(ESI high cited paper)**

[30] JP. Luo, Y Yang, X. Li, QQ Liu, MR Chen, **KZ Gao**, A decomposition-based multi-objective evolutionary algorithm with quality indicator, ***Swarm and Evolutionary Computation***, 39: 339-355, 2018.

[31] JP. Luo, Y Yang, QQ Liu, X. Li, MR Chen, **KZ Gao**, A new hybrid memetic multi-objective optimization algorithm for multi-objective optimization, ***Information Sciences***, 448: 164-186, 2018.

2017

[32] **KZ Gao**, A. Sadollah, Y. Zhang, R. Su. Jaya, harmony search and water cycle algorithms for solving large-scale real-life urban traffic light scheduling problem. ***Swarm and Evolutionary computation***, 37: 58-72, 2017.

[33] A. Sadollah, N. Yadav, **KZ Gao**, R. Su. Metaheuristic optimization methods for approximate solving of singular boundary value problems, ***Journal of Experimental & Theoretical Artificial***, 29: (4): 823-842, 2017.

[34] Quan-Ke Pan, Liang Gao, Xin-Yu Li, **KZ Gao**. Effective metaheuristics for scheduling a hybrid flow shop with sequence-dependent setup times. ***Applied mathematics and computation***, 303: 89-112, 2017. **(ESI high cited paper)**

[35] J. Li, J. Wang, Q. Pan, P. Duan, H. Sang, **KZ Gao**. A hybrid artificial bee colony for optimizing a reverse logistics network system. ***Soft Computing***, 21(20): 6001-6018, 2017.

2016

[36] **KZ Gao**, et al. Optimizing Urban Traffic Light Scheduling Problem Using Harmony Search with Ensemble of Local Search. *Applied Soft Computing*, 48: 359-372, 2016.

[37] **KZ Gao**, P. N. Suganthan, Q.K. Pan, M. F. Tasgetiren, A. Sadollah. Artificial Bee Colony Algorithm

for Scheduling and Rescheduling Fuzzy Flexible Job Shop Problem with New Job Insertion. ***Knowledge-based systems***, 109: 1-16, 2016.

[38] **KZ Gao**, P.N. Suganthan, Tay Jin Chua et al. Discrete Harmony Search Algorithm for Flexible Job Shop Scheduling Problem with Weighted Combination of Multiple Objectives, ***Journal of Intelligent Manufacturing***, 27(2): 363-374, 2016. **(ESI high cited paper)**

[39] Mehmet Fatih Tasgetiren, Quan-Ke Pan, Damla Kizilay, **KZ Gao**. A Variable Block Insertion Heuristic for the Blocking Flowshop Scheduling Problem with Total Flowtime Criterion, ***Algorithms***, 9(4): 71, 2016.

[40] **KZ Gao**, et al. An improved artificial bee colony algorithm for multi-objective flexible job shop scheduling problem with fuzzy processing time. ***Expert systems with applications***, 65: 52-67, 2016.

2015 and before

[41] **KZ Gao**, P.N. Suganthan, Q.K. Pan, M.F. Tasgetiren. Effective ensembles of heuristics for scheduling multi-objective flexible job shop problem with new job insertion. *Computer & Industrial Engineering*, 90: 107-117, 2015.

[42] **KZ Gao**, P.N. Suganthan, Q. K. Pan, M.F. Tasgetiren. An effective discrete harmony search algorithm for flexible job shop scheduling problem with fuzzy processing time. ***International Journal of Production Research***, 53 (19), 5896-5911, 2015.

[43] **KZ Gao**, P. N. Suganthan, T.J. Chua, C. S. Chong, T. X. Cai, Q. K. Pan. A two-stage artificial bee colony algorithm scheduling flexible job-shop scheduling problem with new job insertion. ***Expert systems with applications***, 42(21), 7652-7663, 2015.

[44] **KZ Gao**, P.N. Suganthan, Tay Jin Chua, et al. Pareto-based Grouping Discrete Harmony Search Algorithm for Multi-objective Flexible Job Shop Scheduling, ***Information Sciences***, 289, 76-90,2014.

[45] **KZ Gao**, Q. Pan, P.N. Suganthan, J. Li. Effective heuristics for the no-wait flow shop scheduling problem with total flow time minimization. ***International Journal of Advanced Manufacturing Technology***, 66(9-12):683-692, 2013.

[46] **KZ Gao**, Q. Pan, J. Li, Y. Wang, Liang Jing. A novel hybrid harmony search algorithm for the no-wait flow shop scheduling problems with total flow time criteria. ***Asia-Pacific Journal of Operational Research***, 29(2):12500121-23, 2012.

[47] **KZ Gao**, Q. Pan, J. Li. Discrete harmony search algorithm for the no-wait flow shop scheduling problem with total flow time criterion. ***International Journal of Advanced Manufacturing Technology***, 56(5):683-692, 2011.

[48] J. Li, Q. Pan, **KZ Gao**. Pareto-based discrete artificial bee colony algorithm for multi-objective flexible job shop scheduling problems. ***International Journal of Advanced Manufacturing Technology***, 55: 1159-1169, 2011.

[49] Y. Wang, J. Li, **KZ Gao**, Q. Pan. Memetic algorithm based on improved Inver-over operator and lin-kernighan local search for the Euclidean traveling salesman problem. ***Computers & Mathematics with Applications***, 62:2743-2754, 2011.

Conference papers:

2019

[1] **K.Z. Gao,** M.C. Zhou, Jaya algorithm for rescheduling flexible job shop problem with machine recovery, ***International Conference on Systems, Man, and Cybernetics, SMC2 2019***, Oct 6-9, Bari, Italy.

[2] **KZ Gao**, NQ Wu, R Wang, Meta-heuristic and MILP for Solving Urban Traffic Signal Control, ***2019 the 8th International Conference on Industrial Engineering and Systems Management, IESM 2019***, Sep 25-27, 2019, Shanghai, China.

[3] J Luo, X Huang, X Li, **KZ Gao**. A novel particle swarm optimizer for many-objective optimization, ***2019 IEEE Conference on Evolutionary Computation, CEC 2019***, June 10-13, Wellington, New Zealand.

2017

[4] **KZ Gao**, Yicheng Zhang, Yi Zhang, Rong Su. A meta-heuristic with ensemble of local search operators for urban traffic light optimization, Proceedings of ***2017 IEEE symposium series on computational intelligence (SSCI 2017)***, 1532-1539.

[5] **KZ Gao**, Peiyong Duan, Rong Su, Junqing Li. Bi-objective water cycle algorithm for solving remanufacturing rescheduling problem, Processing's of ***2017 Asia-Pacific conference on Simulated evolution and learning (SEAL'17)***, 671-683.

[6] **KZ Gao**, Yicheng Zhang, Rong Su. Improved artificial bee colony algorithm for urban traffic light scheduling problem, ***2017 IEEE Conference on Evolutionary Computation, CEC 2017***, June 5-8, Donostia-San Sebastian, Spain.

[7] Jing Guo, **KZ Gao ***, Chao Wang, Hongyan Sang, Junqing Li, Peiyong Duan. Discrete Jaya algorithm for solving flexible job shop rescheduling problem. ***29th Chinese control and decision conference (CCDC 2017)***

2016

[8] **KZ Gao**, Yicheng Zhang, Rong Su and Antonios Lentzakis. Discrete Harmony Search Algorithm for Solving Urban Traffic Light Scheduling Problem. ***Proceedings of 2016 America Control conference (ACC 2016)***.

[9] **K.Z. Gao**, Y. Zhang, A. Sadollah and R. Su, (2016). Solving Large-scale Urban Traffic Signal Control Problem Using Improved Jaya Algorithm. ***International Conference on Control, Automation, Robotics & Vision (ICARCV 2016)***

[10] **K.Z. Gao**, Y. Zhang, A. Sadollah and R. Su, (2016). Jaya Algorithm for Solving Urban Traffic Signal Control Problem. ***International Conference on Control, Automation, Robotics & Vision (ICARCV 2016)***

[11] A. Sadollah, R. Su, J. H. Kim, **KZ Gao**. (2016). Approximate solutions of heat transfer fins with convex and exponential profiles using Fourier-based optimization method. ***2016 IEEE Congress on Evolutionary Computation***, Vancouver (WCCI-CEC'16).

2015 and before

[12] Yicheng Zhang, Rong Su and **KZ Gao**. Urban Road Traffic Light Real-Time Scheduling. ***2015 IEEE 54th IEEE Conference on Decision and Control (CDC'15)***, Dec 2015, Japan, 2810-2815.

[13] **KZ Gao**, P.N. Suganthan, Tay Jin Chua. An Enhanced Migrating Birds Optimization Algorithm for No-wait Flow Shop Scheduling Problem. ***Proc. (CIShed 2013), Computational Intelligence in Scheduling***, 9-13, April 2013, Singapore. (IEEE SSCI 2013).

[14] **KZ Gao**, P.N. Suganthan, T.J. Chua, T. X. Cai and C. S. Chong. Hybrid Discrete Harmony Search Algorithm for Scheduling Re-processing Problem in Remanufacturing. ***Proceeding of the fifteenth annual conference on Genetic and evolutionary computation conference (GECCO' 2013)***, 1261-1268.

[15] **KZ Gao**, P.N. Suganthan, Tay Jin Chua. Discrete Harmony Search Algorithm for Dynamic FJSSP in Remanufacturing Engineering, ***In Proc. SEMCCO 2012***, LNCS, 7677: 9-16.

[16] **KZ Gao**, P.N. Suganthan, Tay Jin Chua. Pareto-based discrete harmony search algorithm for flexible

job shop scheduling, ***In Proc. ISDA*** Dec 2012, 953-956.

[17] **KZ Gao**, P.N. Suganthan, Bao Zhenqiang. A composite heuristic for the no-wait flow shop scheduling. ***2012 IEEE conference of Evolutionary Computation (WCCI-CEC'12)***, Brisbane, Australia, June, 10-15, 2012.