

TONG GUO (郭通)

(+86) 131-212-08575 · buaaguotong@foxmail.com · Doctor of Engineering

PROFILE SUMMARY

Tong Guo is currently a Postdoctoral Research Fellow at Nanyang Technological University, Singapore. His research interests include combinatorial optimization, evolutionary computation, learning-assisted optimization, air traffic flow management, and low-altitude intelligent transportation systems.

He has published over 20 SCI papers in top-tier journals, including IEEE TPAMI/TEVC/TMC/TITS/TAI, with 16 papers authored as first author or corresponding author. His research has received more than 600 Google Scholar citations, and 2 of his papers have been selected as ESI Highly Cited Papers and Hot Papers. He has also been granted more than 10 Chinese national invention patents and 2 U.S. invention patents.

EDUCATION

- ▷ **Beihang University**, School of Electronic and Information Engineering, *Ph.D.* 2019.9 – 2025.6
· **Rank: 1/319**; *Graduate Student National Scholarship (twice)*; *Outstanding Student of Beihang University*
- ▷ **Beihang University**, Shenyuan Honors College, *Bachelor's Degree with Honors* 2015.9 – 2019.6
· **Rank: 9/50**; *Beijing Outstanding Graduate*; *Star of Academic Excellence* (highest undergraduate honor)

WORK EXPERIENCE

- ▷ **Nanyang Technological University**, Singapore, *Postdoctoral Research Fellow* 2025.8 – Present
- ▷ **Victoria University of Wellington**, New Zealand, *Visiting Scholar* 2023.5 – 2024.5
- ▷ **Arizona State University**, USA, *Visiting Scholar* 2017.2 – 2017.3

SELECTED PUBLICATIONS

First Author

1. **Tong Guo**, Yi Mei, Mengjie Zhang, Haoran Zhao, Kaiquan Cai, and Wenbo Du. Learning-aided neighborhood search for vehicle routing problems. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2025.
2. **Tong Guo**, Yi Mei, Mengjie Zhang, Hui Ding, and Wenbo Du. Multitree genetic programming with behavioral semantics for large-scale dynamic air traffic flow management. *IEEE Transactions on Evolutionary Computation*, 2026.
3. **Tong Guo**, Yi Mei, Mengjie Zhang, Ke Tang, Kaiquan Cai, and Wenbo Du. Enhanced evolution of parallel algorithm portfolio for vehicle routing problem via transfer optimization. *IEEE Transactions on Evolutionary Computation*, 2025.
4. **Tong Guo**, Yi Mei, Wenbo Du, Yisheng Lv, Yumeng Li, and Tao Song. Emergency scheduling of aerial vehicles via graph neural neighborhood search. *IEEE Transactions on Artificial Intelligence*, vol. 6, no. 7, pp. 1808–1822, 2025.
5. **Tong Guo**, Yi Mei, Mengjie Zhang, Ruofei Sun, Yanbo Zhu, and Wenbo Du. Genetic programming with multifidelity surrogates for large-scale dynamic air traffic flow management. *IEEE Transactions on Evolutionary Computation*, vol. 29, no. 6, pp. 2671–2685, 2024.
6. **Tong Guo**, Yi Mei, Ke Tang, and Wenbo Du. Cooperative co-evolution for large-scale multiobjective air traffic flow management. *IEEE Transactions on Evolutionary Computation*, vol. 28, no. 6, pp. 1644–1658, 2023.
7. **Tong Guo**, Yi Mei, Ke Tang, and Wenbo Du. A knee-guided evolutionary algorithm for multi-objective air traffic flow management. *IEEE Transactions on Evolutionary Computation*, vol. 28, no. 4, pp. 994–1008, 2023.
8. **Tong Guo**, Nan Jiang, Biye Li, Xi Zhu, Ya Wang, and Wenbo Du. UAV navigation in high dynamic environments: A deep reinforcement learning approach. *Chinese Journal of Aeronautics*, vol. 34, no. 2, pp. 479–489, 2021. **High-Impact Paper Award of CJA.**
9. **Tong Guo**, Wenbo Du, Jun Chen, Biye Li, Guangxiang Zhu, and Xianbin Cao. Cooperative pursuit of unauthorized UAVs in urban airspace via multi-agent reinforcement learning. *Transportation Research Part C: Emerging Technologies*, vol. 128, article 103122, 2021.
10. **Tong Guo**, Yumeng Li, Jun Chen, Jianjun Wu, Yu Zhang, Sameer Alam, Kaiquan Cai, and Wenbo Du. Urban air mobility: Review and challenges. *IEEE Intelligent Transportation Systems Magazine*, 2024.

11. **Tong Guo**, Caishun Chen, and Yew Soon Ong. Automated large-scale CVRP solver design via LLM-assisted flexible MCTS. *arXiv preprint arXiv:2605.03339*, 2026.

Corresponding Author

1. Wenbo Du, Lingling Han, Ying Xiong, Ling Zhang, Biye Li, Yisheng Lv, and **Tong Guo***. Airport passenger flow forecasting via deformable temporal-spectral transformer approach. *IEEE Transactions on Intelligent Transportation Systems*, 2026.
2. Ruonan Zhai, Zihong Chen, Zhaokun Hu, Yuanhao Cui, Yi Mei, Wenbo Du, **Tong Guo***, and Yumeng Li*. Collaborative truck-drone routing with pickup and delivery networks: A memetic optimization approach. *IEEE Transactions on Mobile Computing*, 2026.
3. Ruonan Zhai, Xuejun Zhang, Yi Mei, **Tong Guo***, and Wenbo Du. Co-evolution with hierarchical decomposition for vehicle routing problem with drones. *Swarm and Evolutionary Computation*, vol. 105, article 102402, 2026.
4. Ruonan Zhai, Xuejun Zhang, Yi Mei, Wenbo Du, **Tong Guo***, and Tao Song. Collaborative truck-drone routing with multi-visit via surrogate-assisted bi-level optimization. *IEEE Transactions on Artificial Intelligence*, 2026.
5. Xiaoyi Jia, **Tong Guo***, Yi Mei, Mengjie Zhang, Fan Xiao, Xuechen Gu, and Wenbo Du. A self-adapting memetic algorithm with reinforcement learning for multi-objective aircraft recovery problems. *Applied Soft Computing*.
6. Ce Yu, Xianbin Cao, Bo Zhang, Wenbo Du, and **Tong Guo***. Coevolutionary genetic programming for large-scale dynamic multi-aircraft task allocation. *Frontiers of Information Technology & Electronic Engineering*, vol. 26, no. 12, pp. 2440–2454, 2025.
7. Ce Yu, Xianbin Cao, Yumeng Li, and **Tong Guo***. Enhanced neighborhood search with knowledge transfer for multi-aircraft collaborative task allocation in emergency scenarios. *Robotic Intelligence and Automation*, vol. 45, no. 3, pp. 386–399, 2025.

Other Publications

1. Chunxiao Zhang, Wenbo Du, **Tong Guo**, Rongjie Yu, Tao Song, and Yumeng Li. Multi-objective hub location for urban air mobility via self-adaptive evolutionary algorithm. *Advanced Engineering Informatics*, vol. 64, article 102974, 2025.
2. Wenbo Du, Qihui Zhu, Shenwen Chen, **Tong Guo**, and Yanbo Zhu. Flight delay prediction via learning long short-term relationship between airports. *IEEE Intelligent Transportation Systems Magazine*, vol. 17, no. 5, pp. 6–19, 2024.
3. Qihui Zhu, Shenwen Chen, **Tong Guo**, Yisheng Lv, and Wenbo Du. A spatio-temporal approach with self-corrective causal inference for flight delay prediction. *IEEE Transactions on Intelligent Transportation Systems*, vol. 25, no. 12, pp. 20820–20831, 2024.
4. Jiahao Xing, **Tong Guo**, and Lu Carol Tong. Reliable truck-drone routing with dynamic synchronization: A high-dimensional network programming approach. *Transportation Research Part C: Emerging Technologies*, vol. 165, article 104698, 2024.
5. Yumeng Li, Yunhe Zhang, **Tong Guo**, Yu Liu, Yisheng Lv, and Wenbo Du. Graph reinforcement learning for multi-aircraft conflict resolution. *IEEE Transactions on Intelligent Vehicles*, vol. 9, no. 3, pp. 4529–4540, 2024.
6. Ruonan Zhai, Yi Mei, **Tong Guo**, and Wenbo Du. A collaborative drone-truck delivery system with memetic computing optimization. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 54, no. 6, pp. 3618–3630, 2024.
7. Biye Li, **Tong Guo**, Yi Mei, Yumeng Li, Jun Chen, Yu Zhang, Ke Tang, and Wenbo Du. A multi-objective memetic algorithm with adaptive local search for airspace complexity mitigation. *Swarm and Evolutionary Computation*, vol. 83, article 101400, 2023.
8. Kaiquan Cai, Ziqi Li, **Tong Guo**, and Wenbo Du. Multi-airport departure scheduling via multiagent reinforcement learning. *IEEE Intelligent Transportation Systems Magazine*, vol. 16, no. 2, pp. 102–116, 2023.

AWARDS

- **Doctoral Program of the Youth Talent Support Project**, China Association for Science and Technology, Ranked 1/1, October 2024
- **Second Prize of the Science and Technology Progress Award**, China Intelligent Transportation Association, Ranked 5/10, October 2023
- **Second Prize of the Science and Technology Progress Award**, China Intelligent Transportation Association, Ranked 7/13, October 2025

- **National Grand Prize**, China Youth Science and Technology Innovation “Challenge and Competition” Program, Ranked 1/10, October 2025
- **National Scholarship** (Twice), Ministry of Education of China, Ranked 1/1, October 2024/2020
- **High-Impact Paper Award**, *Chinese Journal of Aeronautics*, Ranked 1/1, January 2024
- **Silver Award**, China “Internet+” Innovation and Entrepreneurship Competition, Ranked 2/10, August 2023
- **Beijing Outstanding Graduate Award**, Beijing Municipal Education Commission, June 2025/2019
- **Star of Academic Excellence**, Beihang University, highest undergraduate honor, Ranked 1/1, December 2018

ACADEMIC SERVICE

- **Editorial Service:** Associate Editor of *Complex & Intelligent Systems*; Assistant Editor-in-Chief of *Journal of Transportation Information and Safety* (交通信息安全).
- **Program Committee Member:** *IEEE IJCNN/CEC/WCCI/SSCI*, *PPSN*, and *ACM GECCO*.
- **Reviewer:** *IEEE Computational Intelligence Magazine*, *IEEE Transactions on Evolutionary Computation*, *IEEE Transactions on Neural Networks and Learning Systems*, *IEEE Transactions on Intelligent Transportation Systems*, *IEEE Intelligent Transportation Systems Magazine*, *IEEE Transactions on Artificial Intelligence*, and *IEEE Transactions on Emerging Topics in Computational Intelligence*.
- **Reviewer:** *Knowledge-Based Systems*, *Expert Systems with Applications*, *Engineering Applications of Artificial Intelligence*, *Information Sciences*, *Applied Soft Computing*, *Swarm and Evolutionary Computation*, *Transportation Research Part C: Emerging Technologies*, and *Neurocomputing*.