

Mingrui Jiang

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About me

Currently I am a second-year M.Sc. student in the College of Urban Construction, Nanjing Tech University. Before that, I got my B.Sc. degree in the College of Urban Construction in June 2020 from Nanjing Tech University. In the same year, I was admitted to study for a M.Sc degree in Nanjing Tech University with entrance examination.

Research Interests: Built Environment Monitoring (based on mobile robot), Indoor Pollutant Transmission and Control, Indoor Air Quality.

Educations

M. S., Nanjing Tech University (NTU), Nanjing, Jiangsu 2020.09 till now

- **Major:** Heating, Ventilation, and Air Conditioning (HVAC), College of Urban Construction
- **Advisor:** Prof. Hao Cai
- **Average Score:** 87.8/100
- **Honors and Scholarship:** Merit Postgraduate (2021.12), Special-Class Academic Scholarship (2021.09), Second-Class Academic Scholarship (2020.09)

B. Sc., Nanjing Tech University (NTU), Nanjing, Jiangsu 2018.09 ~ 2020.06

- **Major:** Building Environment and Energy Application Engineering, College of Urban Construction
- **GPA:** 3.2/4.0

Army Engineering University, Nanjing, Jiangsu 2015.09 ~ 2018.08

- **Major:** National Defense Engineering, College of National Defense Engineering
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Publications

[1] **Mingrui Jiang**, Yu Liao, Xun Guo, Hao Cai*, Wenqing Jiang, Zhou Yang, Fei Li, Fei Liu, A comparative experimental study of two multi-robot olfaction methods: Towards locating time-varying indoor pollutant sources, *Building and Environment*, Volume 207, Part B, 2022, 108560. [JCR Q1]

[2] Qilin Feng, Hao Cai*, Yibin Yang, Jiheng Xu, **Mingrui Jiang**, Fei Li, Xianting Li, Chenchu Yan, An experimental and numerical study on a multi-robot source localization method independent of airflow information in dynamic indoor environments, *Sustainable Cities and Society*, Volume 53, 2020, 101897. [JCR Q2]

[3] Yibin Yang, Boyuan Zhang, Qilin Feng, Hao Cai*, **Mingrui Jiang**, Kang Zhou, Fei Li, Shichao Liu, Xianting Li, Towards locating time-varying indoor particle sources: Development of two multi-robot olfaction methods based on whale optimization algorithm, *Building and Environment*, Volume 166, 2019, 106413. [JCR Q1]

[4] Qilin Feng, Yibin Yan, Ye Deng, Hao Cai*, **Mingrui Jiang**, Jingyu Lu, Canxin Zhang, Boyuan Zhang, Experimental and numerical validation on a multi-robot source localization method for dynamic indoor environment, *Environmental Engineering*, Volume 39(02), 2021, 73 – 81. [CSDN]

[5] **Mingrui Jiang**, Yu Liao, Wenging Jiang, Zhou Yang, Hao Cai*, Qilin Feng, Qiang Wang, Yibin Yang,

Experimental study on locating periodic indoor contaminant source by using multiple robots, Building Science, Volume 36(04), 2020, 46 – 52+85.

Patents

- [1] A mobile robot for indoor 3D multi-environmental parameter field reconstruction
Dechang Li, Hao Cai, Suwan Zhou, **Mingrui Jiang**, Gaogui Bao, Yu Wang, Biao Zhang;
China Invention Patent; Publication Patent Number: CN113295214A.
- [2] A distribution map construction method based on improved two-dimensional steady-state kernel DM+V/W
Hao Cai, Suwan Zhou, Dechang Li, Gaogui Bao, **Mingrui Jiang**, Yu Wang, Biao Zhang;
China Invention Patent; Publication Patent Number: CN113240804A.
- [3] A mobile robot detection system and method for a clean room
Xun Guo, **Mingrui Jiang**; Hao Cai, Axiang Chen, Yu Liao, Biao Zhang, Yu Wang;
China Invention Patent; Publication Patent Number: CN113190016A.
- [4] A traceability robot that collects gas concentration and integrates airflow information for optimization
Zongxin Li, Qilin Feng, Zheli Xing, **Mingrui Jiang**, Yangbo Long, Fei Liu, Zhou Yang, Hao Cai;
China Utility Model Patent; Publication Patent Number: CN213674139U.
- [5] A steady-state environment parameter field reconstruction optimization algorithm based on the two-dimensional kernel DM+V algorithm
Hao Cai, Dechang Li, Suwan Zhou, Gaogui Bao, Yu Wang, **Mingrui Jiang**, Biao Zhang;
China Invention Patent; Publication Patent Number: CN112989636A.
- [6] A device for simulating human breathing gas source
Wenqing Jiang, **Mingrui Jiang**, Yu Liao, Zhou Yang, Yibin Yang, Hao Cai, Yu Wang;
China Utility Model Patent; Publication Patent Number: CN211124654U.
- [7] A generation device for simulating the leakage of a container for storing dangerous gases
Zhou Yang, Yu Liao, **Mingrui Jiang**, Wenqing Jiang, Qilin Feng, Hao Cai, Yu Wang;
China Utility Model Patent; Publication Patent Number: CN210719534U.
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Research Projects

- [1] Research on robot source localization in indoor environment with natural ventilation based on particulate matter source feature
Project Leader; the Postgraduate Research & Practice Innovation Program of Jiangsu Province.
- [2] A multi-robot localization method for time-varying sources in indoor environment with mechanical ventilation
Project Leader; the National Students' platform for innovation and entrepreneurship training program, No.201910291029.
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Awards

- [1] **Third Prize**, China-US Young Maker Competition, 2021 (The National Competition)
Mingrui Jiang, Xun Guo, Yu Liao, Axiang Chen, Biao Zhang
- [2] **Third Prize**, International Contest of Innovation (iCAN), 2021 (The National Competition)

Mingrui Jiang, Xun Guo, Yu Liao, Biao Zhang, Axiang Chen

[3] **Third Prize**, The 7th Jiangsu "Internet +" College Student Innovation & Entrepreneurship Competition (Main Track), 2021

Xun Guo, **Mingrui Jiang**, Yu Liao, Axiang Chen, Biao Zhang, Dingyou Hu, Xiaoyu Feng, Xiaoqian Gao

[4] **First Prize**, The 4th Jiangsu Association of Refrigeration Youth Member Innovation & Entrepreneurship Competition

Xun Guo, **Mingrui Jiang**, Yu Liao, Axiang Chen, Biao Zhang, Xiaoqian Gao, Dingyou Hu, Xiaoyu Feng

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