

XINJIE HUANG

Email: xjhuang@princeton.edu | [Website](#) | [Google Scholar](#) | [ResearchGate](#) | [LinkedIn](#)

EDUCATION BACKGROUND

- Ph.D. in Civil and Environmental Engineering** 2022-expect 2027
Doctoral certificate in Science, Technology, and Environmental Policy (STEP)
Princeton University, NJ, USA
Supervisor: Prof. Elie Bou-Zeid and Prof. Denise L. Mauzerall
Research area: urban climate modeling, urban cooling strategies, heat-pollution interaction
- M.Phil. in Mechanical Engineering** 2020-2022
The University of Hong Kong, Hong Kong
Supervisor: Prof. Jiyun Song
Research areas: urban climate, urban green infrastructure, thermal comfort
Dissertation: unravelling the synergistic effect of urban heat and moisture islands towards healthy cities
- B.Eng. in Building Environment and Energy Engineering** 2016-2020
Southeast University, Nanjing, China
Supervisor: Prof. Cong Liu
Research areas: indoor air quality, indoor-outdoor air exchanges, ventilation

JOURNAL PUBLICATIONS (*: Corresponding author; †: Equal contribution)

1. **Huang, X.**, Bou-Zeid, E.*, Vanos, K.J., Middel, A., Ramamurthy, P. (2025). Urban heat mitigation through misting, and its role in broader blue infrastructure portfolios. *Landscape and Urban Planning*, 256, 105290. <https://doi.org/10.1016/j.landurbplan.2024.105290> (Media coverage: [Bloomberg](#))
2. **Huang, X.**, Chang, J. M.-H., Shi, D., Chan, P. W., & Song, J.* (2025). WRF-HEATS coupling: Incorporating human behaviors and city topography into urban heat stress evaluation. *Building and Environment*, 267, 112191. <https://doi.org/10.1016/j.buildenv.2024.112191>
3. Yang, Y., Cao, C., Bogoev, I., Deetman, C., Dietz, G., Hang, J., Howard, L., **Huang, X.**, Kendall, N., Lai, J., Lam, H., Tam, K., Yoo, C., Zhang, K., & Lee, X.* (2024). Regulation of humid heat by urban green space across a climate wetness gradient. *Nature Cities*, 1(12), 871–879. <https://doi.org/10.1038/s44284-024-00157-y> (Media coverage: [Yale Environment](#))
4. **Huang, X.**, Bou-Zeid, E.*, Pigliautile, I., Pisello, A. L., & Mandal, J. (2024). Optimizing retro-reflective surfaces to untrap radiation and cool cities. *Nature Cities*, 1(4), 275–285. <https://doi.org/10.1038/s44284-024-00047-3> (Media coverage: [CNN](#) | [Bloomberg](#) | [Princeton Engineering](#))
5. Chiatti, C., Fabiani, C., **Huang, X.**, Bou-Zeid, E., & Pisello, A. L.* (2024). Exploring the potential of phosphorescence for mitigating urban overheating: First time representation in an Urban Canopy Model. *Applied Energy*, 362, 122984. <https://doi.org/10.1016/j.apenergy.2024.122984>
6. **Huang, X.**, & Song, J.* (2023). Urban moisture and dry islands: Spatiotemporal variation patterns and mechanisms of urban air humidity changes across the globe. *Environmental Research Letters*, 18(10), 103003. <https://doi.org/10.1088/1748-9326/acf7d7>
7. **Huang, X.**, Song, J.*, Wang, C., & Chan, P. W. (2022). Realistic representation of city street-level human thermal stress via a new urban climate-human coupling system. *Renewable and Sustainable Energy Reviews*, 169, 112919. <https://doi.org/10.1016/j.rser.2022.112919>
8. Hu, H., **Huang, X.**, Zhao, Y., Qian, H., & Liu, C.* (2022). A new PM_{2.5}-based PM-up method to measure non-mechanical ventilation rate in buildings. *Journal of Building Engineering*, 104351. <https://doi.org/10.1016/j.jobbe.2022.104351>

9. **Huang, X.**, Song, J.*, Wang, C., Chui, T. F. M., & Chan, P. W. (2021). The synergistic effect of urban heat and moisture islands in a compact high-rise city. *Building and Environment*, 108274.
<https://doi.org/10.1016/j.buildenv.2021.108274>
10. Song, J.*, **Huang, X.**, Shi, D., Lin, W. E., Fan, S., & Linden, P. F. (2021). Natural ventilation in London: Towards energy-efficient and healthy buildings. *Building and Environment*, 195, 107722.
<https://doi.org/10.1016/j.buildenv.2021.107722>
11. Du, R., Song, J.*, **Huang, X.**, Wang, Q., Zhang, C., Brousse, O., & Chan, P. W. (2021). High-resolution regional modeling of urban moisture island: Mechanism and implications on thermal comfort. *Building and Environment*, 108542. <https://doi.org/10.1016/j.buildenv.2021.108542>
12. Liu, C.*†, **Huang, X.**†, & Li, J. (2020). Outdoor benzene highly impacts indoor concentrations globally. *Science of The Total Environment*, 137640. <https://doi.org/10.1016/j.scitotenv.2020.137640>

CONFERENCE PAPERS & PRESENTATIONS

1. **Huang, X.**, Bou-Zeid, E., Vanos, K.J., Middel, A., Ramamurthy, P. Outdoor misting is an effective blue infrastructure solution for urban heat mitigation, [oral presentation](#), AMS 105th annual meeting, Jan. 12-16, 2025, New Orleans, LA, USA.
2. Cureau, R.J., Pigliautile, I., Kousis, I., **Huang, X.**, Bou-Zeid E., Pisello, A.L., Assessing human thermal stress models against observations, 19th SDEWES conference, Sept. 8-12, 2024, Rome, Italy.
3. **Huang, X.**, Bou-Zeid, E., Pigliautile, I., Pisello, A.L., Mandal, J., Retro-reflective surfaces for mitigating urban overheating: application, evaluation, and optimization, [oral presentation](#), AGU annual meeting, Dec. 11-15, 2023, San Fransisco, CA, USA.
4. Song, J., **Huang, X.**, Shi, D., Development of a street-level human thermal stress prediction and warning system in Hong Kong, [oral presentation](#), AMS 103rd Annual Meeting, Jan. 8-12, 2023, online.
5. **Huang, X.**, Song, J., The synergistic effect of urban heat and moisture islands in a compact high-rise city: mechanisms and mitigation strategies, [poster presentation](#) (**outstanding poster presentation award**), AMS 102nd Annual Meeting, Jan. 23-27, 2022, online.
6. Song, J., **Huang, X.**, Urban climate-human coupling system: model development and case study, [poster presentation](#), AMS 102nd Annual Meeting, Jan. 23-27, 2022, online.
7. Xia, F., **Huang, X.**, Tian, E., Mo, J., An electrostatically assisted air filter for removing indoor bioaerosols. Paper 609. The 11th International Symposium on Heating, Ventilation and Air Conditioning (ISHVAC 2019), July 12-15, 2019, Harbin, China. 2016YFE0102300-03, 51722807, 51521005.

INVITED TALK

1. “Understanding and mitigating urban heat stress: towards localized cooling solutions”, invited by [Yale-NUIST Center on Atmospheric Environment](#), webinar, Oct. 25, 2024

HONORS, AWARDS, AND FUND

High Meadows Environmental Institute-Science, Technology, and Environmental Policy Fellowship (HMEI-STEP) Fellowship , Princeton University, NJ, USA	2024-2026
Travel awards , Department of Civil and Environmental Engineering, Princeton University, NJ, USA	2024, 2025
First Year Fellowship in Science and Engineering , Princeton University, NJ, USA	2022-2023

Outstanding Poster Presentation Award , the AMS’s 13 th Conference on Environment and Health on 102 nd Annual Meeting, online	2022
Postgraduate Scholarship , the University of Hong Kong, Hong Kong	2020-2022
National First Prize in Energy Saving & Emission Reduction Competition, Ministry of Education, China (Top 2%, team leader, media coverage: <u>Southeast University</u>)	2019
Student Research Fund as the student PI in the National Research Training Program for University Students, Ministry of Education, China	2018
First Prize of Zhongnan Group Enterprise Scholarship (Top 10 out of ~16000 students), Southeast University, China	2018

TEACHING EXPERIENCE

Assistant in Instruction at Princeton University Courses: CEE305 Environmental Fluid Mechanics CEE474 Science and Solutions for Cities on a Changing Planet	2023-2024
Teaching Assistant at the University of Hong Kong Courses: MECH3408 Mechanics of fluids; MECH2414 Thermofluids; ENVM8013 Air and noise pollution control and management; MECH4429 Integrated capstone experience (research mentor for three final-year undergraduate students)	2020-2022

PROFESSIONAL SERVICE

Board member <ul style="list-style-type: none"> Board on the Urban Environment, American Meteorological Society (2024-2026) 	
Conference chair <ul style="list-style-type: none"> Co-chair, Sessions 13C and 14C, Cities and Climate Change I and II, AMS 105th annual meeting, Jan. 12-16, 2025, New Orleans, LA, USA. 	
Peer review <ul style="list-style-type: none"> Journals: <i>Building and Environment</i>, <i>Building Simulation</i>, <i>Geophysical Research Letters</i>, <i>Journal of Building Engineering</i>, <i>Geomatics</i>, <i>Natural Hazards and Risk</i> 	