

# Xiujie Li

Curriculum Vitae, Feb. 2025

Webpage <https://xiujieli.github.io>  
E-mail [xiujie.li@connect.polyu.hk](mailto:xiujie.li@connect.polyu.hk)  
Address ZS810, Department of Building Environment and Energy Engineering (BEEE),  
The Hong Kong Polytechnic University, Hong Kong

## RESEARCH POSITIONS

---

*Oct. 2023-Present* **Postdoctoral Fellow** **Hong Kong Polytechnic University**  
Advisor: Prof. Cheuk Ming MAK.

## EDUCATION

---

*Sep. 2020-Aug. 2023* **Hong Kong Polytechnic University, Hong Kong**  
Doctor of Philosophy (Built Environment)  
*Sep. 2016-Jun. 2019* **Peking University, Beijing, China**  
Master of Natural Science  
*Sep. 2012-Jun. 2016* **Chang'an University, Xi'an, China**  
Bachelor of Engineering

## RESEARCH PROJECTS

---

*Sep. 2023- Present* **Development of Particle Image Velocimetry-Fast Simulation (PIV-FS) Framework for Restoring Global Dental Service After Pandemic**  
*Team Leader* Advisors: Prof. Cheuk Ming MAK, and Prof. Hai Ming Wong.  
Funding: Hong Kong General Research Fund (GRF) & Postdoc Matching Fellowship

- Conducting on-site aerosolization measurements to assess airborne particle decay;
- Developing a fast and reliable approach for assessing the bio-aerosol distribution;
- Determining minimum required fallow time and the concerned disinfection areas.

*Sep. 2021- Jul. 2022* **Dynamics and Time Scales of Airborne Transmission in Short-term and Steady-state Exposure Events**  
*Team Leader* Supervisors: Prof. Zhengtao Ai.  
Funding: National Natural Science Foundation of China

- Focusing on dynamic changes of short-term events when steady state is not reached;
- Decoupling direct and indirect airborne transmission routes by numerical modeling;
- Numerically examining cross-infection risk (LES model) and developing measures.

*Apr. 2021- Aug.2023* **Atomization and Propagation of Dental Droplets, Emission and Exposure in Medical Surgery Environments**  
*Team Leader* Supervisors: Prof. Cheuk Ming MAK.  
Funding: Hong Kong Polytechnic University Foundation

- Visualizing the atomization mechanisms of emitted droplets in dental procedures;
- Quantitatively evaluating the performance of recommended mitigation measures;
- Assessing the spatial-temporal distribution of droplets and cross-infection risks.

*Apr. 2016- Jun. 2019* **Developing the Active Daylight Harvesting System for Balancing the Building Energy Consumption**  
*Team Leader* Supervisors: Prof. Peng Jin.  
Funding: Shenzhen Basic Research Foundation

- Optimizing the optic structure of daylighting tube and solar tracking system;
- Evaluating energy performance of the daylight system and human thermal comfort.

## PUBLICATION LIST

---

### Journal Papers

---

- 2025 **Xiujie Li**, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong. "Composition effect of the dental liquid mixture on droplet evaporation and deposition". *Indoor and Built Environment*, Accepted. (Impact factor: 3.2; JCR®Q2)
- 2024 **Xiujie Li**, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong. "Propagation and Evaporation of Contaminated Droplets, Emission and Exposure in Surgery Environments Revealed by Laser Visualization and Numerical Characterization". *Journal of Hazardous Materials*, 135338. (Impact factor: 12.2; JCR®Q1)
- 2023 **Xiujie Li**, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong. "Cross-infection risk assessment in dental clinic: Numerical investigation of emitted droplets during different atomization procedures". *Journal of Building Engineering*, 75 (2023): 106961. (Impact factor: 6.7; JCR®Q1).  
**Xiujie Li**, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong. "Numerical investigation of the impacts of environmental conditions and breathing rate on droplet transmission during dental service". *Physics of Fluids*, 35 (2023): 043332. (Impact factor: 4.1; JCR®Q1).
- 2022 **Xiujie Li**, Zhengtao Ai, Jinjun Ye, Cheuk Ming MAK, Hai Ming Wong. "Airborne transmission during short-term events: Direct route over indirect route". *Building Simulation*, 15 (2022): 2097-2110. (Impact factor: 5.5; JCR®Q1).  
**Xiujie Li**, Zhengtao Ai, Cheuk Ming MAK, Hai Ming Wong. "Airborne transmission of exhaled pollutants during short-term events: Quantitatively assessing inhalation monitor points", *Building and Environment*, 223 (2022): 109487. (Impact factor: 7.1; JCR®Q1).
- 2021 **Xiujie Li**, Cheuk Ming MAK, Kuen Wai Ma, Hai Ming Wong. "Restoration of dental services after COVID-19: The fallow time determination with laser light scattering". *Sustainable Cities and Society*, 74 (2021): 103134. (Impact factor: 10.5; JCR®Q1)  
**Xiujie Li**, Cheuk Ming MAK, Kuen Wai Ma, Hai Ming Wong. "How the high-volume evacuation alters the flow-field and particle removal characteristics in the mock-up dental clinic". *Building and Environment*, 205 (2021): 108225. (Impact factor: 7.1; JCR®Q1).  
**Xiujie Li**, Cheuk Ming MAK, Kuen Wai Ma, Hai Ming Wong. "Evaluating flow-field and expelled droplets in the mockup dental clinic during the COVID-19 pandemic". *Physics of Fluids*, 33 (2021): 047111. (Impact factor: 4.1; JCR®Q1). **Featured Article**  
Ning Zhang, Hui Zhang, Schiller Georg, Haibo Feng, Xiaofeng Gao, Enming Li, **Xiujie Li**. "Unraveling the Global Warming Mitigation Potential from Recycling Subway-Related Excavated Soil and Rock in China Via Life Cycle Assessment". *Integrated Environmental Assessment and Management*, 17 (2021): 639-650. (Impact factor: 3.0; JCR®Q2).
- 2019 **Xiujie Li**, Yeyan Wei, Junbin Zhang, Peng Jin. "Design and analysis of an active daylight harvesting system for building". *Renewable Energy*, 139 (2019): 670-678. (Impact factor: 9.0; JCR®Q1).
- 2017 Biao Chen, Yeyan Wei, **Xiujie Li**, Runze Cao, Peng Jin. "Numerical modeling of tubular daylighting devices". *Optik*, 145 (2017): 95-98. (Impact factor: 3.1; JCR®Q2).

## Conference Posters and Presentations

---

- 2024 **Xiujie Li**, Cheuk Ming MAK, Kuen Wai Ma, Hai Ming Wong, "Propagation and Evaporation of Dental Droplets, Emission and Exposure in Surgery Environments: Preparing for Next "Disease X", *Indoor Air 2024*, Hawaii, United States, July 7-11, 2024
- 2023 **Xiujie Li**, Cheuk Ming MAK, Hai Ming Wong, "Performance of mitigation measures on emitted droplets in dental atomization procedure", *11th International Conference on Indoor Air Quality, Ventilation & Energy Conservation in Buildings (IAQVEC2023)*, Tokyo, Japan, May 20-23, 2023
- Xiujie Li**, Cheuk Ming MAK, Hai Ming Wong, "Cross-Infection Risk Analysis in Dental Clinics: Atomization and Transmission Mechanisms of Emitted Droplet", *PolyU Research Student Conference (PRSC 2023)*, Hong Kong, May 8-10, 2023
- 2022 **Xiujie Li**, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong, "The Airborne Lifetime and Spatial-Temporal Distribution of Emitted Droplets in Dental Procedures", *5th International Conference on Building Energy and Environment (COBEE 2022)*, Montreal, Canada, July 25-29, 2022
- 2018 **Xiujie Li**, Yeyan Wei, Junbin Zhang, Peng Jin. "Assessing the energy performance of an active daylight harvesting system for building", *11th International Conference on Sustainable Energy and Environmental Protection (SEEP 2018)*, Paisley, United Kingdom, May 8-11, 2018
- 

## Invited Talks

---

- 2024 **Xiujie Li** (Jun. 17<sup>th</sup> 2024). "Nosocomial Infections in medical healthcare centres", invited by Chong Qing University, China.
- Xiujie Li** (Sep. 21<sup>st</sup> 2024). "Atomization and propagation of contaminated droplets through the particle image velocimetry measurement", *2th International Symposium for Young Scholars in Fluids*, University of Oxford, United Kingdom.
- Xiujie Li** (Nov. 3<sup>rd</sup> 2024). "Revealing the dynamics of airborne transmission in short-term exposure events", invited by Dalian University of Technology, China.

## AWARDS & HONORS

---

- Feb. 2025 Buildings International Journal 2025 Travel Award (Only two junior scientists).
- Apr. 2023 Occupational Safety and Health Best Project Award, Hong Kong.
- Jan. 2023 Outgoing Hong Kong Polytechnic University Scholarship.
- Oct. 2018 Award for Academic Excellence in Peking University.
- Jun. 2018 Peking University Conference and Exchange Award.
- Sep. 2016 Postgraduate Student Academic Scholarship in Peking University.
- Dec. 2014 Second Prize in China Mathematical Contest in Modeling.

## PROFESSIONAL SOCIETIES

---

- Jun. 2024-Present The International Society of Indoor Air Quality and Climate (ISIAQ), Member
- May. 2023-Present The Indoor Air Quality, Ventilation & Energy Conservation Association (IAQVEC), Member
- Jul. 2023-Present Hong Kong Institution of Science (HKIS), Member

## JOURNAL REVIEWER

---

- Peer Reviewer *Building and Environment* (ISSN: 0360-1323), *Environmental International* (ISSN: 0160-4120), *Buildings* (ISSN: 2075-5309)

## TECHNICAL SKILLS

---

<i>CAD/CAE</i>	Catia, AutoCAD, SketchUp
<i>Meshing</i>	ICEM, Fluent Meshing
<i>CFD</i>	ANSYS-Fluent, and postprocessing in Tecplot, CFD-post
<i>Data analysis</i>	Origin, Excel-VBA
<i>Experiments</i>	Particle Image Velocimetry (PIV), Thermal Breathing Manikin, Tracer Gas, Particle Generation and Particulate Sampling, Aerosol Sampling, Thermal Camera, Sub-scaled Experiment Design, Field Measurement of Air Quality and Thermal Environment, Low-cost Sensors, Sensor Calibration.
<i>Programming</i>	MATLAB, C/C++
<i>Language</i>	English, Chinese

## TEACHING EXPERIENCE

---

<i>Feb. 2024–Sep. 2024</i>	<b>Thesis Teaching Fellow</b>	<b>BSE 3713 Research Methods</b>
	Department of Building Environment and Energy Engineering, HK PolyU	
	<ul style="list-style-type: none"><li>• Clarify the scientific research methods and examine the application.</li><li>• Offer extensive feedback on collecting, presenting, and analyzing data.</li></ul>	
<i>Feb. 2022–Jun. 2022</i>	<b>Heat Research Experience Instructor</b>	<b>BSE2217 Heat and Mass Transfer</b>
	Department of Building Environment and Energy Engineering, HK PolyU	
	<ul style="list-style-type: none"><li>• Designed and led eight laboratory sessions on convection heat transfer.</li><li>• Answer questions, grade assignments &amp; exams, and guide student projects.</li></ul>	
<i>Sep. 2021–Jan. 2022</i>	<b>Undergraduate Teaching Assistant</b>	<b>BRE 349 Building Services I</b>
	Department of Building and Real Estate, HK PolyU	
	<ul style="list-style-type: none"><li>• Tutorials on human thermal sensation and thermal comfort.</li><li>• Answer questions, grade assignments &amp; exams, and guide student projects.</li></ul>	