

Zichen Liang

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EDUCATION

- **Beijing Jiaotong University, China**

Sep. 2020 – Jan. 2024

M.Arch., Architecture in Built Environment

Thesis Topic: *A Study on Wind Environment of Effect Factors and Renewal Optimization of Traditional Residential Buildings in Dongsu Area of Beijing*

GPA: 3.7/5.0

- **Beijing University of Civil Engineering and Architecture, China**

Sep. 2016 – Jul. 2020

B.Eng., Electricity Engineering in Building Electricity and Intelligence

Relevant courses include Building Electrical CAD(85); Intelligent Building Application Software Development(79);

Course Design for Building Automation System(75); with other courses showing solid academic performance.

Awards: Second Prize Scholarship for Autumn Semester 2019-2020

PROFESSIONAL EXPERIENCE

i. Project Manager at China Architecture Design & Research Group, Beijing, China

Aug. 2020 – Apr. 2024

- Designed comprehensive building electrical and control systems for large-scale office, public, and underground spaces (over 1 million ft² combined).

- Obtained BIM certification, emphasizing interdisciplinary coordination and digital design practices.

- Applied BIM and spatial analysis and numerical environmental modeling to optimize building electrical distribution systems and energy efficiency.

ii. Building Physics Simulation Engineer at China Essence Studio, Beijing Jiaotong University, China

Jan. 2023 – Present

- Performed CFD-based modeling for urban design, focusing on pedestrian wind comfort. This work contributed to winning a competition bid.

- Simulated ventilation for a U.S. modular housing project to support LEED environmental assessment.

- Analyzed wind environment and proposed architectural retrofitting strategies for a hospital building.

- Applied **AI algorithms** (e.g., XGBoost) to predict building energy performance and enhance occupant comfort.

RESEARCH EXPERIENCE

i. Research Assistant at Prof. Zhongzhong Zeng's Group – Key Contributions

Sep. 2021 – Dec. 2023

- Foundational Research Engagement: Attended academic seminars and engaged in literature critique under close mentorship, laying a solid foundation in computational modeling, critical thinking, and scientific writing.

- Technical Application and Project Involvement: Applied CFD and AI-based techniques in urban microclimate and indoor ventilation studies, contributing to journal paper revisions and conducting simulations for multiple research projects.

- Independent Contribution and Leadership: Led ANSYS Fluent training for 8 junior researchers, bridged traditional architecture with CFD methodology, and delivered data-driven design recommendations for climate-adaptive planning.

ii. Project Manager at Beijing Courtyards Natural Ventilation Research Project

Jun. 2022 – Dec. 2023

- Field-to-Simulation Pipeline: Built a comprehensive workflow from on-site data collection to CFD simulation and comfort-oriented design feedback.

- Human-Centered Design Focus: Prioritized real occupant feedback in developing ventilation strategies, aligning thermal performance with lived experience.

- Heritage-Informed Innovation: Provided scalable, climate-sensitive retrofit solutions for traditional buildings, balancing conservation with environmental performance.

PUBLICATIONS[[Google Scholar](#)]

Zhongzhong Zeng and **Zichen Liang**, *The Effect of the Front Porch and Loft on Natural Ventilation of the Main House in Beijing Courtyard*. 2023. Published. doi.org/10.1007/978-3-031-36316-0_10 (UIA 2023 CPH World Congress)

Zhongzhong Zeng, **Zichen Liang** and Zhang bo, *Natural Ventilation in Beijing Courtyard Primary Room: A Comparison of Isolated and Non-Isolated Buildings*. 2023. Published. doi.org/10.52202/074123-0022 (EDRA54 Mexico City)

LANGUAGES & PROGRAMMING SKILLS

Languages: Mandarin (native), English (C1 Academic Communication Profession).

Data Analysis: Python for basic machine learning applications, big data analysis for comfort prediction

Programming language:

Fluent Scripting: Automation using Journal files and TUI commands for CFD simulations

Data Analysis Software: SPSS, Excel, **Python**

CFD Simulation: Fluent, Meshing, **Ansys R21**, CFD-based airflow and urban microclimate assessment

Environmental Simulation: **EnergyPlus**, OpenStudio

Spatial Analysis: Rhino, Grasshopper

Field Research: On-site environmental data collection, occupant comfort surveys

INTERPERSONAL

Team Leadership: Led research and technical training teams

Cross-disciplinary Collaboration: Architects, engineers, consultants, industry panteries

Academic Communication: Seminar presentations, interdisciplinary coordination

Teaching and Mentoring: Fluent software training, research guidance

REFERENCES

i. Prof. Zhongzhong Zeng

Associate Professor, Deputy Head of the Architecture Department, Beijing Jiaotong University

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Shangyuan Village 3, Haidian District, Beijing

ii. Yunfei Tao

Senior Engineer, China Architecture Design & Research

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