

Rui Bo

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[[Google Scholar](#)] | [[GitHub](#)]

INTRODUCTION

I am Rui Bo, a second-year PhD student at the University of Edinburgh, supervised by Dr Daniel Fosas, Prof Daniel Friedrich and Dr Athanasios Angeloudis.

My PhD project aims to explore the role of building energy modelling for improved building operation, ultimately creating a digital twin-based framework for real-world applications. Throughout the process, uncertainty quantification and statistical analysis are employed to investigate trade-offs between data requirements and model complexity for improved operational applications.

EDUCATION

University of Edinburgh <i>PhD Student, Institute for Infrastructure and Environment</i>	United Kingdom <i>Sep. 2023 – Present</i>
Harbin Institute of Technology <i>Master of Engineering, GPA: 87.14/100, Rank: 1/102</i>	China <i>Sep. 2021 – Jun. 2023</i>
Seoul National University <i>Exchange Program, GPA: 90.60/100</i>	South Korea <i>Aug. 2019 – Feb. 2020</i>
Harbin Institute of Technology <i>Bachelor of Architecture, GPA: 88.65/100, Rank: 9/69</i>	China <i>Sep. 2016 – Jun. 2021</i>

AWARDS

UKRI EPSRC Doctoral Training Partnerships <i>Awarded by School of Engineering, University of Edinburgh</i>	<i>Sep. 2023</i>
Excellent Representative of 3rd Solar Decathlon China <i>Awarded by Solar Decathlon China Committee</i>	<i>Aug. 2023</i>
Outstanding Graduate of Harbin Institute of Technology <i>Awarded by HIT</i>	<i>Jun. 2023</i>
National Scholarship of China <i>Awarded by Ministry of Education, PRC</i>	<i>Nov. 2022</i>

RESEARCH EXPERIENCE

Estates Seed Funding Project, Edinburgh University <i>Project Executive</i> <ul style="list-style-type: none">Funded by Estates Department, £5,000Proposed the project with the support of the PhD supervisorDeveloped a data collection framework for building energy auditing for university buildingsDeveloped a uncertainty quantification tool to assess the value of information	2024
National Key R&D Program of China <i>Project Assistant</i> <ul style="list-style-type: none">Funded by National Natural Science Foundation of China (grant no. 52078153, £69,200)Investigated indoor overheating impacts from climate changeProposed mitigation strategies for the target region	2021 – 2022
Solar Decathlon China <i>Main Participant</i> <ul style="list-style-type: none">Recognized as excellent representative and received Best Sustainability AwardConducted in-situ measurements on thermal properties of straw bale envelope	2021 – 2022

TEACHING/TUTORING EXPERIENCE

Tutor, University of Edinburgh

Jan. 2024 – Apr. 2024

Courses: Engineering Design Tools 2

- Advised students on the design and development of their projects
- Evaluated Python assignments and provided feedback

Teaching Assistant, Shenzhen International School of Design

Oct. 2022 – Jan. 2023

Courses: Data Literacy, Creative Methods

- Advised on machine learning methods (e.g., t-SNE) for data analysis
- Facilitated in-class discussions on creative methodologies

PUBLICATIONS

2024 — Energy

Liu, X., Yang, H., Wang, C., Shen, C., **Bo, R.**, Hinkle, L., Wang, J., 2023. Semi-experimental investigation on the energy performance of photovoltaic double skin façade with different façade materials. *Energy* 295, 131049. <https://doi.org/10.1016/j.energy.2024.131049>

2023 — Energy and Buildings

Bo, R., Zhang, H., Ma, Z., Yin, R., Li, A. and Yin, X., 2023. Straw bale construction towards nearly-zero energy building design with low carbon emission in northern China. *Energy and Buildings* 298, 113555. <https://doi.org/10.1016/j.enbuild.2023.113555>

2023 — Energy

Liu, X., Shen, C., **Bo, R.**, Wang, J. and Ardabili, N.G., 2023. Experimental investigation on the operation performance of photovoltaic double skin façade in winter. *Energy* 283, 129040. <https://doi.org/10.1016/j.energy.2023.129040>

2022 — Building and Environment

Bo, R., Chang, W.-S., Yu, Y., Xu, Y. and Guo, H., 2022. Overheating of residential buildings in the severe cold and cold regions of China: The gap between building policy and performance. *Building and Environment* 225, 109601. <https://doi.org/10.1016/j.buildenv.2022.109601>

2022 — Buildings

Bo, R., Shao, Y., Xu, Y., Yu, Y., Guo, H. and Chang, W.-S., 2022. Research on the Relationship between Thermal Insulation Thickness and Summer Overheating Risk: A Case Study in Severe Cold and Cold Regions of China. *Buildings* 12(7), 1032. <https://www.mdpi.com/2075-5309/12/7/1032>

2022 — Buildings

Xu, Y., **Bo, R.**, Chang, W.-S., Guo, H. and Shao, Y., 2022. The Use of Horizontal Shading Devices to Alleviate Overheating in Residential Buildings in the Severe Cold Region and Cold Region of China. *Buildings* 12(4), 408. <https://www.mdpi.com/2075-5309/12/4/408>

2020 — Sustainability

Dong, Y., Qin, T., Zhou, S., Huang, L., **Bo, R.**, Guo, H. and Yin, X., 2020. Comparative Whole Building Life Cycle Assessment of Energy Saving and Carbon Reduction Performance of Reinforced Concrete and Timber Stadiums—A Case Study in China. *Sustainability* 12(4), 1566. <https://www.mdpi.com/2071-1050/12/4/1566>

TECHNICAL SKILLS

Simulation Tools: EnergyPlus (Preferred), IES-VE

Programming language: Python (Preferred), Julia, R

Design Software: Rhino/Grasshopper, SketchUp, BIM/Revit, AutoCAD