

Mingchen Li

Phone: +86 13059077720 | Email: limingchen@tju.edu.cn | Address: Tianjin



EDUCATION

Tianjin University (985)

Sep 2020 - Jun 2023

Smart Building I Master I School of future technology

Tianjin, China

GPA: 86/100 (Comprehensive ranking 1st in 2022)

Achievements: First scholarship; Second scholarship; Merit Student; 2021 BIM Technology Application Innovation Labor Competition Domestic Software Group, First Prize (Leader); The best work of the first domestic BIM application 100 universities invitations, First Prize (Leader); 2021pkpm-BIM Application Excellent Case BIM Teaching Group, Third Prize (Leader); 2021 Active Sustainable Award, Second Prize

Related Courses: Machine Learning Algorithms and Applications (96); Introduction to Intelligent Buildings (92); Parametric modeling in design (advanced) (92)

China University of Mining & Technology, Beijing (211)

Sep 2016 - Jun 2020

Urban underground space engineering I Bachelor I school of mechanics and civil engineering

Beijing, China

GPA: 84/100 (Comprehensive ranking within the top 5)

Achievements: Second scholarships (twice); Third scholarship; New Media Competition on the campus, Second Prize; Back to the school's alma mater, First Prize; Undergraduate graduation design "Beijing Metro Line 12 Heping West Bridge Station Design", First Prize

PUBLICATION

[1] Optimized Design of Floor Plan and Components of Prefabricated Building with Energy-Cost Effect

Journal : Applied Sciences

Corresponding author\First author in students | SCI | JCI: Q2

[2] Uncertainty quantification and sensitivity analysis of energy consumption in substation buildings at the planning stage

Journal: Journal of Building Performance Simulation

Corresponding author | SCI | JCI: Q2

[3] Study on the Indoor Habitat Physical Environment of Existing Village Houses in Central Jiangxi Area

Journal: Building Science

First author in students | CSCD

[4] Based on ANN and high-dimensional multi-objective optimization to improve the performance and economy of village houses in Chinese cold regions

Journal: Journal of Building Performance Simulation (Major revision)

Corresponding author

[5] Architectural preference design strategies based on optimal multitask deep learning and genetic algorithm

Journal: Applied Energy (Under review)

First author

[6] Thermal performance study of assembled structural energy-saving integrated grid wall panels

Journal: Journal of Chongqing University (Under review)

Fourth Author

[7] Transfer learning-based passive optimization design of ultra-low energy housing in Hebei Province

Manuscript

Corresponding author

RESEARCH EXPERIENCE

Project: Tianjin high-rise architecture optimization design research

Oct 2020 - Mar 2022

(based on Tianjin Natural Science Foundation)

Duties and Achievements:

- Organized the common house types of high-rises in Tianjin and summarized the functional space rules. Obtained the representative house types and completed the parametric modeling;
- Proposed a floor plan generation method and a component selection method. Based on these methods, the optimization of energy consumption and cost of high-rise buildings in Tianjin is achieved;
- Analyzed the key factors affecting energy consumption in buildings;
- Completed the publication of the paper [1];

Project: Substation green building influencing factors extraction

Nov 2021 - Sep 2022

(accompanied with State Grid Shandong Electric Power Company)

Duties and Achievements:

- Completed the creation of an energy model of the substation based on the BIM model;
- Simulated winter energy consumption and summer energy consumption of the substation;
- Completed sensitivity analysis between variables and targets using R language;
- Submitted the paper [2];

Project: Survey on the physical environment of village houses in Central Jiangxi region

Mar 2022 - Sep 2022

(based on National Natural Science Foundation of China)

Duties and Achievements:

- Collated data on thermal environment, light environment, and indoor air quality of village buildings;
- Analysis and evaluation of the village buildings' indoor environment in a combination of subjective and objective ways;
- Completed the publication of the paper [3];

Project: Extraction of passive design strategies for rural houses in cold regions of China

Sep 2020 - Sep 2022

(based on National Key R&D Program of China)

Duties and Achievements:

- Surveyed some of the rural houses in the Hebei area;
- Collated 100 sets of the plans of rural houses published by the Hebei Department of Housing and Construction;
- Completed a batch simulation using Python calls to Energy Plus;
- Simulated the daylight of the farmhouse using Ladybug;
- Implemented multitasking learning and developed software using Python;
- Applied for software copyright and submitted papers [4] and [5];

Project: Research on thermal performance of energy-saving wall panels

Dec 2021 - Sep 2022

(accompanied with Hebei Shunan Yuanda Environmental Protection Technology Co., Ltd.)

Duties and Achievements:

- Plotting and paper layout;
- Submitted the paper [6];

PROFESSIONAL EXPERIENCE

Beijing Glory PKPM Technology Co.,Ltd. (PKPM)

Dec 2020 - Sep 2022

Python development engineer | BIMBase Platform R&D Department | Parameterization and Framing Group

Tianjin (online)

- Independent development of "pyp3d_tunnel" Python library for the project;
- The secondary development of interactable tools based on Bimbase and PYP3D libraries;
- Followed multiple tasks to complete complex parametric modeling work;
- Held the position of answering teacher (technical support) in several competitions;

Tianjin University Research Institute of Architectural Design and Urban Planning Co.,Ltd. (AATU)

Jun 2021 - Sep 2021

BIM Designer | Lu Dali Studio

Tianjin

- Led the three-person student team to follow the project to complete the creation of architecture, structure, and

comprehensive pipeline model in the BIM model;

- Won the first prize in the domestic software group of the 2021 BIM Technology Application Innovation Labor Competition based on the project.

BIM University Student Union

Sep 2021 - Sep 2022

Vice chairman | Academic Department

Tianjin (online)

- Wrote some previews and reviews of small academic lectures (including Professor Xu Zhen of the University of Science and Technology Beijing, Associate Professor Zhang Jinyue of Tianjin University, etc.).
- Hosted a number of small academic lectures (Assistant Professor Li Xiao, Hong Kong Polytechnic University, etc.).

Shenzhen Hao Nuo Si Technology Co.

Oct 2022 - Oct 2022

Data and algorithm engineer

Tianjin (online)

Energy Star certification of the company's thermostat products

KEY SKILLS

Professional skills

- Professional software: **Revit** (Modeling); **CAD** (Architectural drawing); **BIMBase** (Parametric Modeling); **Grasshopper** (Parametric modeling and building performance analysis); **Origin** (Plotting figure);
- Building performance simulation software (plug-in): **Ladybug** (Daylight simulation); **Honeybee** (Energy consumption & thermal simulation); **Phoenics** (Wind environment simulation);
- Programming language: **Python** (Python library development, machine learning, sensitivity analysis, multi-objective optimization, plotting, and data analysis); **R** (Sensitivity analysis, plotting, and data analysis); **Latex** (Thesis layout)

Office skills

- Office Software: **Word** (Project and thesis layout); **Excel**; **Powerpoint** (Reporting and Template Creation);

Other skills

- Primary use of **Photoshop**, **After Effect**, **Premiere Pro**, and other software for image processing and video post-production;

MISCELLANEOUS

- **Certifications:** Software copyright "Deep learning and user weighting based architectural design decision system"; national computer rank examination certificate grade 2 (MS Office)
- **Languages:** Chinese (Native); English (CET-6)