

# Shikang Wen

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Shanghai

## Research Interests

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- Deep learning in building/city
- Generative design
- Building performance optimization

## EDUCATION EXPERIENCE

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Bachelor of Architecture, Shanghai Jiao Tong University  
Overall GPA: 85.7 / 100

2018.09 – 2023.06

## ACADEMIC PUBLICATIONS

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1. **S. Wen**, X. Hu, G. Hua, P. Xue, and D. Lai, Comparing the Performance of Four Shading Strategies Based on a Multi-Objective Genetic Algorithm: A Case Study in a University Library, Journal of Building Engineering (2022, Accepted, **IF: 6.4**)
2. **S. Wen**, J. Xue, and D. Lai, Reconstructing Fisheye Luminance Maps with a Two-step Network from a Single LDR image, 2023. (Major revision, Automation in construction, **IF: 10.3**)
3. **S. Wen** and H. Sun, Temporal Prediction of Building Energy Consumption in Urban Areas based on Spatio-Temporal Graph Convolutional Networks: A Case Study of a Waterfront High-Density TOD City, 2023. (Manuscript in preparation)

## RESEARCH EXPERIENCE

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### 1. Optimization of Building daylight space

Mar 2021 - Jun 2022

Under the guidance of Prof. Dr. Dayi Lai, I contributed to an academic project aimed at optimizing daylight building spaces. We developed a framework to compare various shading strategies, incorporating a performance curve generated from a multi-objective genetic algorithm. This experience sharpened my research, simulation, optimization, and academic writing skills.

**Contribution:** Conceptualization, Data curation, Methodology, Software, Visualization, Writing – original draft.

### 2. Real-time glare detection

Jul 2022 - Mar 2023

An academic project, supervised by Prof. Dr. Lai and Prof. Dr. Xue, I developed a machine learning approach to reconstruct luminance maps from single-exposure images, honing my skills in generative adversarial networks (GANs) and high dynamic range (HDR) photo analysis.

**Contribution:** Conceptualization, Data curation, Methodology, Software, Visualization, Writing – original draft.

### 3. Forecasting building energy consumption in high-density urban region

Feb 2023 - Jun 2023

Under Prof. Dr. Sun's supervision in my undergraduate project, I mastered utilizing graph neural networks for quick and accurate predictions of urban building energy consumption, accounting for complex interactions like shading and airflow, alongside gaining proficiency in energy simulation tools.

**Contribution:** Conceptualization, Data curation, Methodology, Software, Visualization, Writing – original draft.

## WORK EXPERIENCE

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My previous experience in architectural design can help me determine whether the optimization of the built environment has the potential to be applied to future architectural design.

### 1. Shanghai Liben Architectural Design Office

Dec 2020 - Feb 2021

Intern

As an assistant architect, I supported the lead designer in shaping the school's design and independently handled the interior design of the cafeteria and dormitory during my internship.

### 2. East China Architectural Design And Research Institute

Dec 2020 - Feb 2021

Intern

I actively participated in two major projects: the design of the Urumqi Airport Terminal Building and the Huhehaote Airport Terminal. Under the guidance of my lead instructor, I successfully designed the corridor bridge connecting the terminal building to the parking lot.

CROSS-DISCIPLINARY EXPERIENCE

I have engaged in a diverse array of courses and projects spanning various disciplines. Highlighted below are an illustrative example:

1. In the machine learning-focused course, particularly in deep learning practices based on the Huawei AI platform, I acquired an understanding of deep learning algorithms applicable to computer vision and natural language processing. My performance was exemplary, earning a final course grade of 89, placing me in the top 15% of my cohort.

HONORS & AWARDS

National Inspirational Scholarship	2022/12
Shanghai Jiao Tong University Scholarship	2022/12
National Inspirational Scholarship	2021/12
Shanghai Jiao Tong University Scholarship	2021/12
Third Prize in Shanghai Jiao Tong University Structure Competition	2020/12
Second Prize in the 2020 Li Zhengdao Science and Art Competition	2020/11
Third Prize in Shanghai Jiao Tong University Structure Competition	2019/11
First Prize in the 2019 Li Zhengdao Science and Art Competition	2019/11
Second Prize in Tongji University Wooden Structure Competition	2019/05

PROFESSIONAL SERVICE

External reviewer	Journal of Building Engineering (since 2022)
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PROGRAM LANGUAGES

- Python (TensorFlow / Pytorch)
- Linux/shell (shallow)
- Grasshopper

LANGUAGES

- English
- Chinese