Jianbin Chen

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RESEARCH INTERESTS:

- Renewable Energy, Wireless Power Transmission, Building Energy Efficiency, HVAC

EDUCATION:

Donghua University, China *Sept 2021 - Jun 2023*

- *GPA*: 3.89/5.00 (Ranking: top 5%)
- *Major*: Master of Architecture and Civil Engineering (HVAC field)
- *Core Modules:* Advanced Fluid Mechanics, Advanced Heat Transfer, Computational Fluid Dynamics, Numerical Heat Transfer, etc.
- *Thesis:* Research on Polychromatic Laser Power Transmission Using Multi-junction Solar Cell

Nanjing Tech University, China *Sept 2017 - Jun 2021*

- *GPA*: 85/100 (Ranking: top 15%)
- *Major*: Bachelor of Building Environment and Energy Application Engineering
- *Core Modules:* Engineering Thermodynamics, Heat Transfer, Fluid Mechanics, Ventilation and Air Conditioning Engineering, etc.
- *Graduation Design:* HVAC Engineering Design for Office Building of China Construction Eighth Engineering Division

RESEARCH PROJECTS:

Master Thesis: Research on Polychromatic Laser Power Transmission Using Multi-junction Solar Cell
Supervisor: Dr Yong Li *Jun 2022 - Present*

- Aim: To investigate the output characteristics of multi-junction photovoltaic cells under polychromatic laser irradiation
- Content: For satellite energy supply, it will not be able to harvest energy from the sun when located on the shadow side. To address this problem, this study uses multiple color lasers to irradiate the most common triple-junction solar cells on satellites and derives their best laser ratios through PV cell theory. For the non-uniformity of the laser beam, we investigated the power generation characteristics and thermal properties of the multi-junction cell. This study will provide some theoretical guidance for space energy supply.

Graduation Design: Office Building HVAC Engineering Design *Dec 2020 - Jun 2021*
***National First Prize for the 2021 CAR-ASHRAE Student Design Competition**
Supervisor: Dr Yanfeng Gong, Dr Jianjie Cheng, Dr Guangli Zhang, Dr Huifang Liu

- Aim: To design cooling and heating source and air conditioning solutions for office buildings according to the different functional requirements of the buildings and the local energy conditions
- Content: After finishing the annual load calculation of the building, CFD simulation was used to select suitable air conditioning terminals for different functional zones. The coupled solar-ground source heat pump was selected as the cooling and heating source, and a set of operation strategies was designed for this cooling and heating source scheme. Finally, TRNSYS software was used to analyze its annual operation efficiency.

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Thermal analysis modeling based on Fluent to optimize heat dissipation in campus data centers
Supervisor: Dr Liping Chen *Dec 2018 - Sept 2019*

- Aim: Used Fluent to conduct numerical simulation of the campus data center and proposed the corresponding optimization plan based on the numerical simulation results
- Method: Physical modeling and numerical simulation are adopted.
- Conclusion: The results of the study show that among the two forms of airflow organization applied to the data room, the under-floor air supply solution is better than the column air conditioning solution, and the under-floor air supply solution achieves hot and cold aisle separation, which has better cooling and energy saving effects.

OTHER EXPERIENCE:

Jiangsu Province Overseas Study Governmental Scholarship Project *Jul 2019 - Aug 2019*
National Taiwan University (Summer School Program)

- Under the auspices of the governmental scholarship, I went to Taiwan for a summer school programme in civil engineering and finished with A. I won the best presentation design award in the final presentation.
- I grasped the building system and green building management of Taiwan and had an in-depth understanding of the application of BIM technology in engineering.

SKILLS:

Software: MATLAB, TRNSYS, Fluent, Revit, AutoCAD, etc.

Languages: English (proficient), Mandarin (native), Cantonese (native)

SELECTED HONORS:

AWARDS:

- National First Prize for the CAR-ASHRAE Student Design Competition *Nov 2021*
- National Excellent Design Award for the 19th MDV Central Air Conditioning Design and Application Competition *Dec 2021*
- School Excellent Graduate Student Award *Jun 2021*
- National Excellent Design for the 4th University Green Building Design Skills Competition *Mar 2020*

SCHOLARSHIPS:

- Jiangsu Province Overseas Study Governmental Scholarship for University and College Students *Sept 2019*
- School First-class Scholarship for Comprehensive Academic Performance *Jun 2018*