Curriculum Vitae of Kai CHEN

PERSONAL INFORMATION

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EDUCATIONAL BACKGROUND

National University of Singapore 01/2022-Present

- Ph. D candidate

University College London, UK 09/2020-09/2021

- MSc Smart Buildings and Digital Engineering

University of Nottingham, China & UK 09/2016-06/2020

- BEng (Hons) Architectural Environment Engineering (Accredited by CIBSE)

PROJECT AND RESEARCH EXPERIENCE

Personal thermal comfort models based on physiological measurements – A review study 07/2022-09/2022

- Provide a systematic, comprehensive and DOE-framework-based review of the physiological sensing methods.
- Frame the experimental procedures in this field and help future researchers cover all the essential factors during experimental designs.
- Serve as a reliable and thorough guideline for researchers to do further investigation and exploration in this field.

Publication:

Kai Chen, Qian Xu, Berlynette Leow, Ali Ghahramani. Personal thermal comfort models based on physiological measurements – A design of experiments-based review. Building and Environment.

DOI: https://doi.org/10.1016/j.buildenv.2022.109919

Long-term thermal comfort modelling with a high accuracy in a way to account for personal differences with minimal user interactions to prevent survey fatigue at scale 11/2022-Present

- We are developing a pertained personalized adaptive model that allows predicting preferred setpoints at an outdoor temperature where the users have not provided data for each occupant. We show this significantly improves prediction accuracy and can be used widely.

Analysis of the Influence of Physical Properties 09/2020-01/2021

- Used Python to analyse the building performance of lightweight and heavyweight models.
- Identified the key factors affecting the building performance including material properties, surface absorption, ventilation strategies, building orientation and outdoor environment.
- Performed sensitivity analysis to assess the correlation between key factors and the building's heating and cooling load.

Building Energy Performance Simulation Tool 09/2020-01/2021

- Applied the same input to evaluate and compare the building performance between Energy plus and DesignBuilder.
- Determined the impact of simulation parameters, boundary conditions and design parameters on building performance.
- Optimized building performance and thermal comfort through different design parameters.

Design for Children's Activity Centre in London 09/2020-01/2021

- Conducted the analysis of the noise, air quality and climate of the site, and proposed design goals for the target building.
- Simulated the thermal and comfort performance of the benchmark model building based on pure passive design strategies.
- Used a hybrid system to solve the challenges of passive design in terms of overheating, zone air temperature and humidity.

Performance Analysis of Building Systems Components 09/2020-01/2021

- Analysed the energy performance of the vapour comparison systems with different refrigerants and system structure.
- Optimized the air conditioning system to improve the control of the supply air temperature.
- Designed the photovoltaic system to offset the electricity demand of the air conditioning system.

Biomass Heating for Domestic and Commercial Buildings in the UK (Research Project) 09/2019-06/2020

- Analyzed the feasibility, benefits, and limitations of the biomass technology.
- Discussed the environmental impacts between fossil fuels and biomass using RETscreen and mathematical model.
- Quantified the economic effects of the biomass system including the installation, fuel price, O&M cost and payback year.

INTERNSHIP EXPERIENCE

Guangzhou Urban Planning Survey and Design Institute | Intern 07/2018-09/2018

- Joined the green building design and planning department and assisted the modelling process of wing buildings
- Self-studied Assessment Standard for Green Building and checked how the buildings we designed conform with the standard in terms of carbon dioxide emissions, electricity consumption, etc.
- Participated in the design of exhaust system and power supply system, applied Revit and other software to design the details of building, and mastered new design techniques

EXTRACURRICULARS ACTIVITIES

Science and Engineering Student Association | Head of HR Department 09/2016-06/2018

- Took part in planning and organising internal and external activities, including teambuilding activities, annual performance assessment, Christmas party and annual meeting
- Led a group of members to communicate with all people in this association, listen to their voice about life, study and work, pay attention to people's personal thoughts and the development of the whole association

Volunteer teaching in Fuping County, Shaanxi | Volunteer 06/2018

- Taught local primary school students paper cutting, music for half a month which they had never experienced before
- Collaborated with local tutors to prepare teaching material for students

RESEARCH INTERESTS

Building Energy efficiency. Thermal comfort. Smart building

SKILLS

Programming skills: MATLAB, Python, R studio

Software: Revit, CAD, Sketch Up, IESVE, Energy plus, DesignBuilder, Rhino 6.