香 港 大 學
THE UNIVERSITY OF HONG KONG

Job Title: Post-doctoral Fellow
Monthly Salary Range: HKD 30000-40000 per month
Closing Date: Open until filled

Job Description

This position focuses on advancing scalable and traceable building energy retrofit through the integration of LLM and automated energy modeling pipelines. Buildings represent a significant opportunity for energy conservation, yet current energy audit processes remain fragmented, labor-intensive, and hard to scale due to inconsistent data quality, lack of generalizable frameworks, and limited buy-in. This project aims to develop a data-centric, AI-enabled energy audit and retrofit tool that automates the transformation from raw building data into decision-ready energy models, and further into accountable retrofit strategies.

By leveraging LLMs for learning-based data retrieval, combined with automated model generation and calibration, the project will enable rapid, reproducible, and explainable retrofit analysis across large building portfolios. The successful candidate will take a leading role in designing and implementing this integrated pipeline, bridging building physics, generative AI, and software systems, and demonstrating its effectiveness through real-world case studies and large-scale datasets.

Key responsibilities

- Develop automated LLM-driven workflows to translate heterogeneous building data into decision-ready models
- Build integrated pipelines for energy model generation and calibration
- Implement streamlined M&V workflow using developed model
- Conduct large-scale scenario analysis for retrofit strategies across building portfolios
- Publish high-quality research papers in AI-driven sustainability solutions
- Collaborate with academic and industry partners on data integration and deployment

Qualifications and Skills

- PhD in Built Environment, Energy Systems, Mechanical Engineering, or a related field
- Strong knowledge of building energy systems, retrofit, and energy auditing
- Experience with data-driven and physics-based building energy modeling
- Experience with generative AI and LLM-related applications
- Knowledge in model calibration, inverse modeling, or uncertainty analysis
- Strong communication skills for academic and industry collaboration

Application instructions

Submit the following to Dr. Zhan at szhan@mit.edu:

- CV
- Cover letter describing relevant expertise in building retrofit, energy modeling, and AI/ML