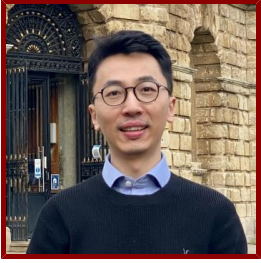


# Stanford

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## Maomao Hu

Postdoctoral Scholar, Energy Resources Engineering

### Bio

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#### BIO

Maomao Hu is a postdoctoral researcher in the Department of Energy Science and Engineering at Stanford University since November 2021. Prior to joining Stanford, he was a postdoc in the Department of Engineering Science at the University of Oxford for two years. He received his PhD degree in Building Environment and Energy Engineering from the Hong Kong Polytechnic University in 2019. In 2018, he studied as a guest PhD student in the Department of Applied Mathematics and Computer Science at the Technical University of Denmark.

His research interests include data analytics, data-driven modelling, numerical optimization, and model predictive control of the building and urban energy systems for GHG emission reduction, energy efficiency, energy flexibility, and energy resiliency. He has been actively contributing to international collaborations, including the ongoing IEA EBC Annex 81 (Data-Driven Smart Buildings) and Annex 82 (Energy Flexible Buildings Towards Resilient Low Carbon Energy Systems).

#### HONORS AND AWARDS

- Best Student Paper Award (1st place), 5th International High Performance Buildings Conference, Purdue University, IN, USA (July 2018)

#### PROFESSIONAL EDUCATION

- Ph.D., The Hong Kong Polytechnic University, Building Environment and Energy Engineering (2019)

#### STANFORD ADVISORS

- Adam Brandt, Postdoctoral Faculty Sponsor

#### LINKS

- Personal Website: <https://maomaohu.net/>
- Benson Lab: <https://bensonlab.stanford.edu/>
- EAO Group: <https://eao.stanford.edu/>
- LinkedIn: <https://www.linkedin.com/in/maomao-hu-3548ab1a6/>

### Publications

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#### PUBLICATIONS

- **Stochastic modelling of flexible load characteristics of split-type air conditioners using grey-box modelling and random forest method** *ENERGY AND BUILDINGS*  
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- **Probabilistic electrical load forecasting for buildings using Bayesian deep neural networks** *JOURNAL OF BUILDING ENGINEERING*  
Xu, L., Hu, M., Fan, C.  
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- **Neighborhood-level coordination and negotiation techniques for managing demand-side flexibility in residential microgrids** *RENEWABLE & SUSTAINABLE ENERGY REVIEWS*  
Hu, M., Xiao, F., Wang, S.  
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- **Classification and characterization of intra-day load curves of PV and non-PV households using interpretable feature extraction and feature-based clustering** *Sustainable Cities and Society*  
Hu, M., Ge, D., Telford, R., Stephen, B., Wallom, D. C.  
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- **Development of an ANN-based building energy model for information-poor buildings using transfer learning** *BUILDING SIMULATION*  
Li, A., Xiao, F., Fan, C., Hu, M.  
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- **Quantifying uncertainty in the aggregate energy flexibility of high-rise residential building clusters considering stochastic occupancy and occupant behavior** *ENERGY*  
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- **Identification of simplified energy performance models of variable-speed air conditioners using likelihood ratio test method** *SCIENCE AND TECHNOLOGY FOR THE BUILT ENVIRONMENT*  
Hu, M., Xiao, F., Cheung, H.  
2020; 26 (1): 75-88
- **Frequency control of air conditioners in response to real-time dynamic electricity prices in smart grids** *APPLIED ENERGY*  
Hu, M., Xiao, F., Jorgensen, J., Wang, S.  
2019; 242: 92-106
- **Price-responsive model predictive control of floor heating systems for demand response using building thermal mass** *APPLIED THERMAL ENGINEERING*  
Hu, M., Xiao, F., Jorgensen, J., Li, R.  
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- **A model-based control strategy to recover cooling energy from thermal mass in commercial buildings** *ENERGY*  
Shan, K., Wang, J., Hu, M., Gao, D.  
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- **Performance analysis of absorption thermal energy storage for distributed energy systems**  
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- **Price-responsive model-based optimal demand response control of inverter air conditioners using genetic algorithm** *APPLIED ENERGY*  
Hu, M., Xiao, F.  
2018; 219: 151-164
- **Model-based optimal load control of inverter-driven air conditioners responding to dynamic electricity pricing**  
Hu, M., Xiao, F., Yan, J., Wu, J., Li, H.  
ELSEVIER SCIENCE BV.2017: 1953-1959
- **Investigation of the Demand Response Potentials of Residential Air Conditioners Using Grey-box Room Thermal Model**  
Hu, M., Xiao, F., Yan, J., Sun, F., Chou, S. K., Desideri, U., Li, H., Campana, P., Xiong, R.  
ELSEVIER SCIENCE BV.2017: 2759-2765
- **Investigation of demand response potentials of residential air conditioners in smart grids using grey-box room thermal model** *Applied Energy*  
Hu, M., Xiao, F., Wang, L.  
2017; 207: 324-335