

# MINGYUE GUO

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## EDUCATION

**Tongji University, Shanghai, China**

September 2019 - March 2022

*M.S. in HVAC & gas engineering*

*overall GPA 4.37/5*

- Thesis: Hybrid energy consumption prediction model for office buildings based on multi-source heterogeneous data
- Advisor: Peng Xu

**Chongqing University, Chongqing, China**

September 2015 - June 2019

*B.E. in Built Environment; minor in Business Administration*

*overall GPA 3.69/4*

- Thesis: Preliminary Study on the automatic design of HVAC system based on BIM
- Advisor: Nan Li, Peng Xu

## PROFESSIONAL EXPERIENCE

**Assistant Designer CMCU Engineering Co. Ltd. Chongqing, China** *July-August 2017*

Participated in the design of smoke prevention and exhaust system of a residential building in Guizhou, China.

## HONORS AND AWARDS

<b>2020</b>	Yada Scholarship, Tongji University	5%
<b>2019</b>	Outstanding Graduate of Chongqing Municipality	1%
<b>2018</b>	"Strive for Excellence" excellent individual, Chongqing University	5%
<b>2018</b>	National Encouragement Scholarship, Chongqing University	5%
<b>2017</b>	National Encouragement Scholarship, Chongqing University	5%
<b>2017</b>	Outstanding Student, Chongqing University	5%

## PUBLICATIONS

**M. Guo, P. Xu, T. Xiao, R. He, M. Dai, S.L. Miller**, Review and comparison of HVAC operation guidelines in different countries during the COVID-19 pandemic, *Build. Environ.* 187 (2021) 107368. <https://doi.org/10.1016/j.buildenv.2020.107368>.

**M. Guo, P. Xu, H. Wang**, Building energy modelling based on building information modelling: the remaining problems and a more robust method (accepted by the 17th International IBPSA conference but withdrew because of COVID-19)

## RESEARCH EXPERIENCE

**Hybrid energy consumption prediction model for office buildings based on multi-source heterogeneous data** October 2020 - Present

*Thesis for master's degree*

- Extract key variables that affect the energy consumption of office buildings using sensitivity analysis methods.
- Integrate multi-source heterogeneous data of energy consumption including hourly data from metering systems, monthly data from electricity bills, and simulation data.

- Build a hybrid energy consumption prediction model using statistical and machine learning methods.

**The 13th Five-Year Project of China – Research and development of key technologies for operation optimization of the green building based on BIM** 2019-2020

*Participator, engaged in BIM to BEM part independently*

- Check and modify the original BIM and the intermediate file (gbXML) to ensure the success of the BIM to BEM (Building Energy Modelling) transmission.
- Convert BIM to BEM automatically based on gbXML.
- Enrich the BEM converted from BIM by using an external database.

**Undergraduate students' innovation and entrepreneurship training program of Chongqing University – Stove Flue Gas Waste Heat Recovery Device** 2017-2018

*Teamwork, as team leader*

- Design a gas to water heat exchanger and a collector that can collect flue gas of stove without impairing combustion.
- Measure and evaluate the performance of the heat exchanger through experiments.

## ENGINEERING EXPERIENCE

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**DiditalFutures workshop – optimization of environmentally adaptive BIPV modular building form** June 2021

*Teamwork, as team leader*

- Simulate the PV power generation, building energy consumption, and the outdoor environmental indexes (wind speed and UTCI) of the parametrically generated BIPV building.
- Train data-driving model (datasets: simulation data) with machine learning methods (light GBM, SVR and ANN) to quickly obtain building performance indexes.
- Carry out the multi-objective optimization of building form by using the genetic algorithm.

**A VAV control system for virtual terminals with Johnson control** 2019

*Teamwork*

- Simulate VAV system (including VAV boxes, coils, fans, mixing boxes, duct system) of two rooms by MATLAB.
- Formulate control logic of VAV system using NCE controller offered by Jonson Control.
- Connect NCE controller (hardware) and VAV system (virtual terminal) by Raspberry Pi and python.

## COMPUTER SKILLS

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<b>Programming</b>	Python, C#, C
<b>Protocols &amp; APIs</b>	gbXML, Revit SDK
<b>Simulation</b>	EnergyPlus, Fluent, Dymola
<b>Modeling</b>	AutoCAD, Revit, Sketchup, Grasshopper, Navisworks

## SELF-ASSESSMENT

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Innovative      Cooperative      Optimistic      Industrious & Committed