

# Guowen Li

Mobile: (+1) 979-703-9205

E-mail: [guowenli@tamu.edu](mailto:guowenli@tamu.edu)

[Google Scholar](#)

[LinkedIn](#)

## EDUCATION

---

### Texas A&M University

Ph.D. in Mechanical Engineering

GPA: 3.82/4.0

College Station, TX, USA

Jan. 2021 – Present

### Tongji University

BEng in Built Environment and Energy Engineering (Graduation with honors)

GPA: 4.37/5.0 (88.71/100)

Shanghai, China

Sep. 2016 – Jul. 2020

## INTERESTS & EXPERTISE

---

Building Energy and HVAC Systems Design, Analysis, Modeling, Simulation, and Optimization; Grid-interactive Efficient Buildings; Cyber-physical Systems; District Heating and Cooling Systems; Thermal Energy Storage; Modelica Modeling; Model Predictive Control; Energy Resilience; Building-to-Grid Integration.

## JOURNALS

---

- **Guowen Li**, Yangyang Fu, Zheng O'Neill, Zhiyao Yang, Veronica Adetola, Jin Wen, Lingyu Ren, Teresa Wu, Qi Zhu, K. Selcuk Candan, Chirag Parikh. (2025) "A cyber-resilient control framework with adaptive model predictive control (AMPC) for securing energy systems in smart buildings." *Science and Technology for the Built Environment*. (Under Revision)
- **Guowen Li**, Lingyu Ren, Ojas Pradhan, Zheng O'Neill, Jin Wen, Zhiyao Yang, Yangyang Fu, Mengyuan Chu, Jiajing Huang, Teresa Wu, K Selcuk Candan, Veronica Adetola, Qi Zhu. (2024) "Emulation and detection of physical faults and cyber-attacks on building energy systems through real-time hardware-in-the-loop experiments." *Energy and Buildings*. DOI: <https://doi.org/10.1016/j.enbuild.2024.114596> (Impact Factor: 6.6; Citations: 3)
- **Guowen Li**, Zhiyao Yang, Yangyang Fu, Zheng O'Neill, Lingyu Ren, Ojas Pradhan, Jin Wen. (2024) "A Hardware-in-the-loop (HIL) testbed for cyber-physical energy systems in smart commercial buildings." *Science and Technology for the Built Environment*. DOI: <https://doi.org/10.1080/23744731.2024.2336839> (Impact Factor 1.9) (Citations 6: **top 10% most cited articles published in 2024 in Engineering**)
- **Guowen Li**, Lingyu Ren, Yangyang Fu, Zhiyao Yang, Veronica Adetola, Jin Wen, Qi Zhu, Teresa Wu, K Selcuk Candan, Zheng O'Neill. (2023) "A critical review of cyber-physical security for building automation systems." *Annual Reviews in Control*. DOI: <https://doi.org/10.1016/j.arcontrol.2023.02.004> (Impact Factor: 7.3) (Citations 42: **top 1% most cited articles published in 2023 in Engineering**)
- Yongbao Chen, Zhe Chen, Peng Xu, Weilin Li, Huajing Sha, Zhiwei Yang, **Guowen Li**, Chonghe Hu. (2019) "Quantification of electricity flexibility in demand response: Office building case study." *Energy*, 188, 116054. DOI: <https://doi.org/10.1016/j.energy.2019.116054> (Impact Factor 9.0) (Citations 129: **top 10% most cited articles published in 2019 in Engineering**)

## CONFERENCES

---

- **Guowen Li**, Yuhang Zhang, Mingzhe Liu, Zheng O'Neill, Li Song, Gang Wang, Jie Cai, Xingru Wu. (2025) "Modeling and integration of photovoltaic thermal hybrid solar collectors in a fifth-generation district heating and cooling network." In *The 2025 Building Simulation Conference in Brisbane, Australia*. (Under Review)
- Jiajing Huang, Zhiyao Yang, **Guowen Li**, Teresa Wu, Zheng O'Neill, Jin Wen, K Selcuk Candan. (2024) "A Data-driven AFDD Approach Using Acoustic Emission in Building HVAC Systems." *2024 International High Performance Buildings Conference*, West Lafayette, Indiana, USA.
- **Guowen Li**, Zheng O'Neill, Jin Wen, Ojas Pradhan, Lingyu Ren, Teresa Wu, Veronica Adetola, K Selcuk Candan, Qi Zhu. (2023) "CYDRES: CYber Defense and REsilient System for securing grid-interactive efficient buildings." In

*The 10th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys '23)*, November 15, 16, 2023, Istanbul, Turkey.

- **Guowen Li**, Zhiyao Yang, Yangyang Fu, Lingyu Ren, Zheng O'Neill, Chirag Parikh. (2023) "Development of A Hardware-In-the-Loop (HIL) Testbed for Cyber-Physical Security in Smart Buildings." *2023 ASHRAE Winter Conference*, Atlanta, Georgia, USA.
- **Guowen Li**, Yangyang Fu, Amanda Pertzborn, Zheng O'Neill, Jin Wen. (2022) "Demand flexibility evaluation for building energy systems with active thermal storage using model predictive control." *2022 ASHRAE Annual Conference*, Toronto, Canada.
- **Guowen Li**, Yangyang Fu, Amanda Pertzborn, Jin Wen, Zheng O'Neill. (2021) "An Ice Storage Tank Modelica Model: Implementation and Validation." In *Modelica Conferences*, pp. 177-185. 2021. DOI: <https://doi.org/10.3384/ecp21181177>

## **TECHNICAL REPORT**

---

- Zheng O'Neill, Jin Wen, Teresa Wu, K Selcuk Candan, Lingyu Ren, Qi Zhu, **Guowen Li**, Jiajing Huang, Ojas Pradhan. (2024). Securing Grid-interactive Efficient Buildings (GEB) through Cyber Defense and Resilient System (CYDRES). Texas A & M Univ., College Station, TX (United States). DOI: <https://doi.org/10.2172/2331215>

## **RESEARCH EXPERIENCES**

---

**Graduate Research Assistant at TAMU: DOD (U.S. Department of Defense) Project titled Demonstration of Building Decarbonization through Thermal Microgrids – Phase I Feasibility Study**

**Advisor:** Dr. Zheng O'Neill, Professor, Texas A&M University

01/2025-Present

- Developing a Modelica virtual testbed to model district and building energy system dynamics
- Conducting Life Cycle Cost Analysis (LCCA) to evaluate monetary benefits of proposed thermal microgrid systems

**PhD Intern at Pacific Northwest National Laboratory (PNNL) of U.S. Department of Energy (DOE)**

**Manager:** Dr. Yan Chen, Mechanical Engineer

06/2024-08/2024

- Developed a commercial prototype building model for enhancing energy flexibility, resilience and efficiency
- Conducted a literature review of rule-extraction for advanced control of building energy systems
- Developed a training dataset generation framework using the developed commercial building model

**Graduate Research Assistant at TAMU: DOE (U.S. Department of Energy) Project titled Demonstration of a Solar-Geothermal District Heating and Cooling System with a Single Pipe Loop in Citizen Potawatomi Nation**

**Advisor:** Dr. Zheng O'Neill, Professor, Texas A&M University

01/2024-09/2024

- Developed a photovoltaic thermal hybrid solar collectors for integrating renewable energy resources
- Developed a double-pipe-loop bidirectional district energy system model using Modelica language
- Improved the energy efficiency, resilience and flexibility of grid-interactive district energy supply systems

**Graduate Research Assistant at TAMU: DOE Project titled Securing Grid-interactive Efficient Buildings through Cyber Defense and Resilient System**

**Advisor:** Dr. Zheng O'Neill, Associate Professor, Texas A&M University

01/2021-12/2023

- Developed a Hardware-In-the-Loop (HIL) testbed for cyber-physical security research on smart buildings
- Developed and deployed an adaptive model predictive control framework for building automation systems
- Validated the proposed cyber-secure resilient control framework in a real-time HIL environment

## **ACADEMIC REVIEWERS**

---

- **Journals:** Developments in the Built Environment; Journal of Building Engineering
- **Conferences:** ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers); IBPSA (International Building Performance Simulation Association)

## **LEADERSHIPS**

---

## Texas A&M Student Branch of the ASHRAE

*“ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) TAMU Student Branch aims to advance heating, refrigerating, and air-conditioning engineering sciences among students through educational lectures, career guidance, scientific research, technical tours, and conference meetings.”*

### **President (2023-2024):**

- Organized monthly lecture series 2 to 3 times per semester, distribute the flyers to 200+ undergraduate and graduate students, and communicated with the invited speakers from industry or academia
- Organize weekly/monthly meetings with active officers and the advisor for events and activities planning
- Applied and received the \$4,000 travel funding in total for the ASHRAE TAMU student branch; Mailed the thank-you letters to the donors
- Led a team of 8 active student members to participate the national event of 2024 ASHRAE conference meeting in Chicago
- Coordinated a technical tour to the TAMU Central Power Plant, enriching 19 students' understanding of practical energy systems
- Published two conference papers and gave two oral presentations representing TAMU in 2022 ASHRAE Annual Meeting in Toronto and 2023 ASHRAE Winter Conference in Atlanta.
- Published a journal paper in the ASHRAE journal (Science and Technology for the Built Environment) in 2024

## **Graduate Ambassador of the MEEN Department**

*“The objective of the MEEN (Mechanical Engineering) Ambassadors is to provide a peer-to-peer perspective to prospective students, freshmen, and current mechanical engineering students.”*

### **One of 10 selected Graduate Ambassadors (2022-2023):**

- Engaged with prospective and newly admitted students, offering guidance throughout the application process and beyond, and led informative campus tours.
- Co-organized the graduation ceremony, celebrating the achievements of MEEN graduate students alongside their families.

## **MEMBERSHIPS**

---

- |   |                 |
|---|-----------------|
| • <b>Professional Membership</b> , ACM (Association for Computing Machinery)                            | 01/2024-Present |
| • <b>Student Membership</b> , IBPSA (International Building Performance Simulation Association)         | 10/2022-Present |
| • <b>Student Membership</b> , American Society of Heating, Refrigerating and Air-Conditioning Engineers | 04/2021-Present |

## **SELECTED HONORS&AWARDS**

---

- |   |           |
|---|-----------|
| • 2024 James J. Cain '51 Award from MEEN Department of TAMU ( <i>Only one male and one female graduate student in the MEEN department were awarded annually</i> ) | 10/2024   |
| • Texas A&M Graduate Continuing Student Fellowship for the 2024-2025 academic year  | 06/2024   |
| • Texas A&M Energy Institute Graduate Fellowships for the 2023-2024 academic year   | 07/2023   |
| • Texas A&M Graduate Continuing Student Fellowship for the 2023-2024 academic year  | 06/2023   |
| • ASHRAE Graduate Student Grant-In-Aid Award  | 05/2023   |
| • Graduate Student Travel Award for 2023 ASHRAE Winter Conference   | 12/2022   |
| • TAMU MEEN Graduate Summer Research Grant for Summer 2022  | 05/2022   |
| • Graduate Student Travel Award for 2022 ASHRAE Annual Conference   | 04/2022   |
| • Graduation with Honors - Tongji University 2020 Outstanding Undergraduate Award   | 07/2020   |
| • First Prize of Tongji Scholarship of Excellence   | 2019&2018 |
| • RoboMaster National College Student Robot Competition – 1st Prize   | 2019&2018 |
| • COMAP's Mathematical Contest in Modeling (MCM) – Honorable Mention  | 04/2019   |
| • Shanghai Undergraduate Computer Application Ability Contest – 1st Prize   | 05/2018   |

## **HOBBIES**

---

Swimming, Basketball, Hiking, Bouldering & Climbing, Golf