

# RUIJI SUN

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Milwaukee, Wisconsin 53212

## EDUCATION

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| <b>PhD</b> | <b>University of California at Berkeley, Building Science and Technology</b>                            | <b>2025</b> |
|            | Thesis:<br>Advisor: Gail S. Brager, Stefano Schiavon  |             |
| <b>MS</b>  | <b>Carnegie Mellon University, Sustainable Design</b>   | <b>2020</b> |
|            | Thesis: "BIM and BEM Based Sustainable Architecture Design"<br>Advisor: Dana Cupkova, Omer T. Karaguzel |             |
| <b>BE</b>  | <b>Xi'an University of Arch &amp; Tech, Mechanical Engineering (HVAC)</b>                               | <b>2017</b> |
|            | Thesis: "Modeling Experiment of Air Environment in Metro Station"<br>Advisor: Augui Li, Ying Zhang      |             |
| <b>BA</b>  | <b>Xi'an University of Arch &amp; Tech, Architecture Design</b>   | <b>2017</b> |
|            | Design: "Art Museum Design"<br>Advisor: Chunli Ma   |             |
|            | <b>Peking University Summer School, Life Sciences</b>   | <b>2015</b> |
|            | Course: "Plant Development and Molecular Biology"<br>Advisor: Xingwang Deng                             |             |

## HONORS AND AWARDS

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| <b>Research Project Fellowship, NEMA</b>   | <b>2019</b> |
| Developed BIM content guidelines for electrical products                         |             |
| <b>Research Project Fellowship, ASHRAE</b>                                       | <b>2019</b> |
| Improved the interoperability of gbXML between BIM to BEM                        |             |
| <b>Merit Award, Solar Decathlon China</b>  | <b>2017</b> |
| Participated as Xi'an University of Arch & Tech team member                      |             |
| <b>Architecture Travel Grant, CAPOL</b>  | <b>2016</b> |
| Studied advanced pre-fabrication building technology                             |             |
| <b>1<sup>st</sup> Prize, China Refrigeration &amp; Air-Conditioning Industry</b> | <b>2016</b> |
| Designed innovative LNG bus cooling systems                                      |             |

<b>1<sup>st</sup> Prize, LianZhu Beijing Technology Inc.</b> Designed and reinvented the news stand architecture	2015
<b>3<sup>rd</sup> Prize, CIOB National tournament of green building innovation</b> Design green building utilizing recyclable materials and raining water	2015
<b>Innovation Scholarship, Xi'an University of Arch &amp; Tech</b> Performed excellently in science and technology	2015

## RESEARCH EXPERIENCE

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<b>NEMA, Pittsburgh, PA</b> <b>Data Scientist</b> , Advisor: Krishnan Gowri <ul style="list-style-type: none"> <li>Developed industry guidance to standardize electrical products data in BIM</li> <li>Researched different data structures to improve BIM models</li> </ul>	2019
<b>ASHRAE, Pittsburgh, PA</b> <b>Data Scientist</b> , Advisor: Weili Xu <ul style="list-style-type: none"> <li>Researched data mapping rules of IDF and gbXML schema</li> <li>Programmed in Revit-Dynamo environment to convert HVAC systems data</li> <li>Programmed in BuildSim API to streamline cloud building energy simulation</li> <li>Developed 10 building geometry test cases to improve BIM software</li> <li>Interviewed 20 BIM and BEM industry professionals to collect issues</li> </ul>	2019
<b>Center for Sustainable Landscape, Pittsburgh, PA</b> <b>Student</b> , Advisor: Omer Karaguzel <ul style="list-style-type: none"> <li>Co-simulated building energy consumption and control logics in MATLAB</li> <li>Developed and design an online dashboard with real-time data using Django</li> <li>Visualized environmental data both spatially and temporally using Matplotlib</li> <li>Measured environmental data using National Environmental Assessment Toolkit cart</li> <li>Evaluated occupants' thermal comfort by Post-Occupancy Evaluation (POE) survey</li> </ul>	2019
<b>Tongji University, Shanghai, China</b> <b>Student</b> , Advisor: Philip F. YUAN <ul style="list-style-type: none"> <li>Researched VR and AR technology for CFD visualization</li> <li>Researched different architecture formation by wind visualization</li> <li>Programmed a mechanical model in wind tunnel using C++</li> </ul>	2017
<b>Xi'an University of Arch &amp; Tech, Xi'an, China</b> <b>Student</b> , Advisor: Augui Li <ul style="list-style-type: none"> <li>Analyzed piston wind airflow patterns in metro station</li> <li>Designed an experiment platform to model air environment in metro station</li> <li>Measured airflow velocity in different metro station</li> </ul>	2017

## TEACHING EXPERIENCE

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**Carnegie Mellon University**, Pittsburgh, PA

2018

**Teaching Assistant**, School of Architecture

- Instructed students to analyze HVAC systems and calculate energy consumption based on data from the OSIssoft PI database.
- Assisted professor Volker Hartkopf contacting and communicating with building science industries in China.

## PUBLICATIONS

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Sun, R. J., Hu, Z. Z., Xu, W. L., & Gowri, K. 2020, "Improving the interoperability of gbXML through redefining data mapping rules of HVAC systems," *ASHRAE 2020 Annual Conference*.

Hu, Z. Z., Sun, R. J., Xu, W. L., & Gowri, K. 2020, "Obstacles that gbXML is facing: analysis on BIM software interoperability survey," *ASHRAE 2020 Annual Conference*.

## PROFESSIONAL TRAINING

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**LEED AP BD+C**

Leadership in Energy and Environmental Design Accredited Professional

## COMPUTER SKILLS

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**Programming:** Python, XML, Ruby, MATLAB, VB, C++

**Simulation:** EnergyPlus, OpenStudio, DesignBuilder, eQUEST, COMSOL, Fluent

**Modeling:** AutoCAD, Revit, Rhino, Grasshopper

**Design:** Photoshop, Illustrator, InDesign, Dreamweaver