

# Bing Wang

## Doctor in Design Studies, Building Performance Informed Design

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### EDUCATION

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<b>Harvard University Graduate School of Design</b>	Boston, U.S.A	11/2017
- Doctor in Design Studies, focus on building performance informed design		
<b>Harvard University Graduate School of Design</b>	Boston, U.S.A	05/2014
- Master in Design Studies, Energy and Environment concentration		
<b>Tsinghua University School of Architecture</b>	Beijing, China	07/2011
- Bachelor of Mechanical Engineering, major in Building Environment and Equipment Engineering		

### TEACHING AND RESEARCH EXPERIENCE

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- Research Fellow	Harvard Center for Green Buildings and Cities	from 09/2014
Design decision-making support system development for early design stage		
Harvard House Zero monitoring and visualization – Real-time CFD and VR\AR visualization		
- Teaching Fellow	Harvard University Graduate School of Design	09/2015 - 9/2016
GSD 6121 Construction Lab (M.Arch I core course)		
GSD 6122 Energy in Architecture (M.Arch I core course)		
GSD 6125 Environmental Systems in Architecture (M.Arch I core course)		
- Research Assistant	Harvard University Graduate School of Design	12/2011 - 06/2012
Building energy modeling for life cycle assessment of recycling material		
- Teaching Assistant	Harvard University Graduate School of Design	09/2011 - 06/2012
Energy, Technology and Building (Graduate course)		
Thermodynamic Somatisms (Graduate option studio)		
- Teaching Assistant	Tsinghua University School of Architecture	03/2011 - 07/2011
Architecture studio - Green building (Undergraduate core studio)		
Simulation Tools in Design (Graduate course)		
- Research Assistant	Tsinghua University School of Architecture	07/2009 - 07/2011
Outdoor wind and thermal environment simulation and application in design		
Urban heat island effect control by ventilation for urban planning guideline		

### RESEARCH FOCUSES

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<b>Building performance informed design research</b>	Harvard University and Tsinghua University	from 07/2008
- Integration of building performance evaluation and design		
- Development and application of design decision-making support system		
- Developed computational fluid dynamics (CFD) plugin in Rhino and Grasshopper		
<b>Indoor natural ventilation evaluation research</b>	Harvard University	from 01/2015
- Development of a simplified calculation method for indoor natural ventilation evaluation		
- Explore relationship of morphology and natural ventilation with numerical experiments by CFD		
<b>Outdoor wind and thermal environment research</b>	Harvard University and Tsinghua University	03/2008 - 07/2012
- Field measurement of outdoor wind and thermal environment, including data analysis and equipment calibration		
- Sensitivity study of different turbulence models of CFD for outdoor wind environment simulation		
- Effect of vegetation on micro-climate in aspects of wind, daylighting and thermal comfort		
- Outdoor thermal environment and thermal comfort study by measurement and simulation		

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### RESEARCH PUBLICATIONS

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#### Journal papers

- Bo Hong, Borong Lin, Bing Wang and Shuhua Li. Optimal design of vegetation in residential district with numerical simulation and field experiment. *Journal of Central South University (SCI)*, 2012(19): 688-695.
- Bing Wang, Bin Zhao and Chun Chen. A simplified methodology for the prediction of mean air velocity and particle concentration in isolation rooms with downward ventilation systems. *Building and Environment (SCI)*, 2010, 45(8), 1847-1853.
- Bin Zhao, Bing Wang and Xi Chen. Identification method for indoor contaminants source based on simplifying zonal model. *Building Science*, 2008, 10-24, in Chinese.

#### Conference papers

- Bing Wang and Ali Malkawi. Genetic algorithm based building form optimization study for natural ventilation potential. *Proceeding of Building Simulation 2015*, Hyderabad, India, Dec. 2015.
- Bing Wang, Timur Dogan, Debashree Pal and Christoph Reinhart. Simulation naturally ventilated buildings with detailed CFD-based wind pressure database. *Proceeding of SimBuild 2012*, Wisconsin, U.S.A., Aug. 2012
- Bing Wang and Borong Lin. Comparison of turbulence models In simulating key elements of outdoor wind environment around building complexes. *Proceeding of Building Simulation 2011*, Sydney, Australia, Oct. 2011.
- Bing Wang, Borong Lin, Cheng Li and Xiaofeng Li. Experiment and simulation research of the thermal environment around buildings. *Proceeding of Computational Wind Engineering 2010*, North Carolina, U.S.A., May 2010.
- Bing Wang and Borong Lin. The research of the measurement and simulation of the wind environment of buildings in campus. *Proceeding of Building Simulation 2009*, Glasgow, U.K., July 2009.

### PROFESSIONAL EXPERIENCE

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#### Work Experience

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|---|--|-------------------|
| - Intern (Computational fluid dynamics specialist)  | Transsolar Stuttgart                     | 07/2012 - 12/2012 |
| Natural ventilation and thermal environment evaluation, including both indoor and outdoor environment |  |                   |
| Collaborate with architects including Steven Holl, Frank Gehry and others                             |  |                   |
| - Intern (Natural ventilation specialist)   | Beijing Institute of Architecture Design | 01/2010 - 03/2010 |
| Compiled wind driven and buoyancy driven natural ventilation calculation study                        |  |                   |

#### Project Experience

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|---|------|
| - Single family house design in Santa Monica, U.S. (Architect: Gehry Partners)                      | 2012 |
| Natural ventilation potential and indoor thermal comfort simulation                                 |      |
| - Tianjin Ecocity Ecology and Planning Museums, Tianjin, China. (Architect: Steven Holl Architects) | 2012 |
| Outdoor wind environment and natural ventilation strategy analysis                                  |      |
| - Shan-Shui Hangzhou master plan, Hangzhou, China. (Architect: Steven Holl Architects)              | 2010 |
| Outdoor thermal environment and daylighting analysis  |      |
| - Urban planning guideline, Changsha, China. (Client: Changsha Bureau of Urban Planning)            | 2010 |
| Study of urban heat island effect control by ventilation  |      |
| - Metro Valley, New Dehli, India. (Architect: OPEN Architects)                                      | 2008 |
| Outdoor wind environment and natural ventilation potential evaluation                               |      |

### SOCIAL ACTIVITIES

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|---|----------------|-------------------|
| - Chinese Student and Scholars Association (ChinaGSD) | President      | 05/2014 - 05/2015 |
| at Harvard University Graduate School of Design       | Academic Chair | 09/2013 - 05/2014 |

### SKILLS

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**Software**      Fluent, Phoenics, DIVA, Ecotect, Matlab, Rhino, Grasshopper, Python