

**1 JUNE 2016**

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Assistant Professor of Architecture  
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**EDUCATION**

- 2013 HARVARD GRADUATE SCHOOL OF DESIGN DOCTOR OF DESIGN  
Dissertation Topic: *Toward Buildings That Work: Reusing Design-Phase Energy Simulation for Operations-Phase Improvements*. Advisor: Dr. Christoph Reinhart, Associate Professor MIT School of Architecture, Building Technology Program (formerly of Harvard GSD). Committee: Dr. Martin Bechthold, Professor Harvard GSD, John Macomber, Senior Lecturer Harvard Business School, Dr. Leslie Norford, Professor MIT School of Architecture, Building Technology Program.
- 2009 HARVARD GRADUATE SCHOOL OF DESIGN MASTER OF DESIGN  
Advanced placement. Graduated with distinction and highest grade point average of over 200 graduates. Thesis Topic: *The Effect of Customized versus Default Load Profiles in Simulated Building Energy Use*.
- 2000 CARNEGIE MELLON UNIVERSITY BACHELOR OF ARCHITECTURE  
Tied highest grade point average in history of School of Architecture. University and department honors.
- 1999 DENMARK INTERNATIONAL STUDY PROGRAM  
Semester study abroad in Copenhagen, Denmark
- 1998 CARNEGIE MELLON UNIVERSITY STUDY ABROAD PROGRAM  
Summer study abroad in Rome, Italy
- 1994-1995 ALLEGHENY COLLEGE  
Biology and Chemistry Major

**ACADEMIC POSITIONS**

- 2013-Present ASSISTANT PROFESSOR HARVARD GRADUATE SCHOOL OF DESIGN
- 2012-2013 LECTURER HARVARD GRADUATE SCHOOL OF DESIGN

## PROFESSIONAL POSITIONS

### Full-Time Positions

- 2007-2008     **SUSTAINABLE BUILDING CONSULTANT GREEN ROUNDTABLE**  
Boston, MA. Technical consultant to architects, owners, and engineers on commercial building projects. Selected projects listed below. Managed five staff members.
- 2001-2007     **REGISTERED ARCHITECT ADD INC**  
Cambridge, MA. Designer for multiple commercial, retail, and multi-family residential projects. Selected projects listed below. Environmental task force committee chair and in-house sustainable design consultant.
- 2000-2001     **GRADUATE ARCHITECT CELENTOHENN ARCHITECTURE**  
Pittsburgh, PA. Boutique firm lead by two Harvard Graduate School of Design alumni/Carnegie Mellon Faculty.

### Part-Time Positions

- 2011-2012     **WORKSHOP INSTRUCTOR GREEN CE**  
Ridgefield, WA. Part-time during graduate school. Taught LEED (Leadership in Energy and Environmental Design) workshops nationally. Audience: design and construction professionals.
- 2007-2011     **WORKSHOP INSTRUCTOR SUSTAINABLE PERFORMANCE INSTITUTE**  
(formerly Green Roundtable), Boston, MA. Part-time during graduate school. Developed and taught professional workshops nationally and internationally on sustainable design, LEED, and daylighting buildings. Audience: design and construction professionals.
- 1999           **INTERN THE DESIGN ALLIANCE**  
Pittsburgh, PA
- 1997           **INTERN WASILOWSKI ARCHITECTS**  
Natrona Heights, PA

## SELECTED PROFESSIONAL PROJECTS

### Selected Consulting Projects

- 2007-2008     **Isabella Stewart Gardner Museum Expansion, Boston, MA**  
Role: Sustainability consultant to owner (with Green Roundtable). Performed design review of Renzo Piano Building Workshop and BuroHappold 50% Design Documents. (Later left project to enter graduate school.)
- 2007-2008     **Suffolk University Residence Hall, Boston, MA**  
**Staples and TJX Prototype Stores, Design standards for multiple stores**  
(with Green Roundtable). Led project teams in healthy building design, energy and water conservation strategies, lighting, daylighting, material

selection, envelope design and LEED certification.

### **Selected Architecture Projects**

- 2007            **321 North**, Plantation, FL  
33 acres, urban planning and architectural design, 550,000sf retail, 610,000sf office, 590 residential units, 5000 structured parking spaces  
Managed design team through approvals phase for retail and parking portion of project (with ADD Inc). Led LEED for Neighborhood Development pilot project coordination. (Unbuilt)
- 2003-2005      **Carmax Home Office**, Richmond, VA  
Co-project architect and sustainable design coordinator for 270,000sf Fortune 500 corporate headquarters (with ADD Inc). Project received LEEDv2.1 Silver certification and multiple sustainable design awards.
- 2002            **Art Interactive**, Cambridge, MA  
Personal project (with some coaching from ADD Inc). A 2,500sf exhibition space for interactive art in a historic Jose Luis Sert building in Cambridge, MA. Role: Lead designer, project manager, and construction sub-contractor. Published Boston Globe October 2002.
- 2001            **100 Acres Master Plan**, Boston, MA  
Designer (with ADD Inc). Established urban planning and architectural guidelines for 1,600,000sf residential and 2,600,000sf office space in the Fort Point Channel district of Boston

### **TEACHING EXPERIENCE**

**Environmental Systems in Architecture/6125**                      Spring 2013, 2014, 2015, 2016  
Role: Solo Instructor. This required course for first-year Master of Architecture students provides an introduction to energy and environmental considerations in architecture.

**Environment, Economics, & Enterprise/5370**                      Spring 2014, 2015, 2016  
Role: Co-Instructor. This cross-disciplinary course challenges students to create projects in the built environment that are both economically effective and environmentally/socially impactful.

**Energy Simulation for Design/6470**                                      Fall 2012, 2013, 2014  
Role: Solo Instructor. This course provides an in-depth introduction to the use of energy simulation in the architectural design process.

**Daylighting/06479[M2]**    Fall 2013, 2014  
Role: Solo Instructor. This course investigates daylight as a form-generator in architecture.

**3rd Semester Core Architecture Studio/1201**                      Fall 2011, 2012, 2013  
Role: Consultant for six design studios. Provided lectures, desk critiques, and design reviews to ~70 students regarding thermodynamics, building systems, and general design issues.

### **Theses Supervised**

*Huishan He*                      *Master of Design Thesis Supervisor*                      *2016*

<i>Rufei Wang</i>	<i>Master of Design Thesis Supervisor</i>	<i>2016</i>
<i>Karno Widjaja</i>	<i>Master of Design Thesis Supervisor</i>	<i>2016</i>
<i>Blanca Dasi-Espuig</i>	<i>Master of Design Thesis Supervisor</i>	<i>2015</i>
<i>Ankit Rauniyar</i>	<i>Master of Design Thesis Supervisor</i>	<i>2015</i>
<i>Toon Virochpoka</i>	<i>Master of Design Thesis Supervisor</i>	<i>2015</i>
<i>Ching-Wen Xiao</i>	<i>Master of Design Thesis Supervisor</i>	<i>2015</i>
<i>Liuwei Zhao</i>	<i>Master of Design Thesis Supervisor</i>	<i>2015</i>
<i>Baha Sadreddin</i>	<i>Master of Design Thesis Supervisor</i>	<i>2015</i>
<i>Yujiao Chen</i>	<i>Master of Design Thesis Supervisor</i>	<i>2014</i>
<i>Amaia Puras</i>	<i>Master of Design Thesis Supervisor</i>	<i>2013</i>
<i>Larissa Oaks</i>	<i>Master of Design Thesis Supervisor</i>	<i>2013</i>

### **Doctoral and PhD committees**

<i>Arta Yazdanseta</i>	<i>Doctor of Design, Secondary Dissertation Advisor</i>	<i>2017</i>
<i>Bing Wang</i>	<i>Doctor of Design, Secondary Dissertation Advisor</i>	<i>2017</i>

### **RESEARCH**

- 2016-2018 **"New Benchmarking and Performance Simulation Methods for Buildings Based on Energy Use, Comfort, and Health"**  
Multi-year funding provided by Harvard University Climate Change Solutions Fund.  
Role: P.I.  
Research Team: Jose Guillermo Cedeno Laurent, T.H. Chan School of Public Health, Joel McKellar and Douglas Livingston, Harvard Green Building Services, To Be Determined, Harvard Graduate School of Design
- 2014-2016 **"Parametric Energy Simulation in Early Design: High-Rise Residential Buildings in Urban Contexts"**  
Funding provided by Harvard GSD Dean's Junior Faculty Research Grant  
Funding also provided by Harvard Joint Center for Housing Studies  
Role: P.I.  
Research Team: Sebastian Claussnitzer, BIG, Apoorv Goyal, Yujiao Chen, and Alejandra Romo-Castillo, Harvard GSD
- 2014-2015 **"House Zero"**  
Funding provided by Harvard Center for Green Buildings and Cities  
Role: Managed team of summer researchers. Led pre-design simulation and research for an energy-positive, building retrofit, demonstration project.  
Research Team: Ali Malkawi Center Director, Yujiao Chen, Blanca Dasi Espuig, Ching Wen Hsiao, Karol Malik, Matan Mayer, Erica Rioux Gees, Alejandra Romo Castillo, Holly Samuelson, Bin Yan, Arta Yazdanseta, Liuwei Zhao
- 2015 **"Residential Fan Temperature Destratification"**  
Led research on the efficacy of ceiling fans to provide temperature destratification while minimizing draft potential during heating mode.

Debunked national energy-efficiency regulations.  
Funding provided by B.A.F.  
Role: Technical Research Consultant

2010-2014 **"Toward Buildings that Work: Reusing Design-Phase Energy Models for Operations-Phase Improvements"**  
Funding provided by American Society of Heating Refrigerating and Air-Conditioning Engineers  
International Facility Management Association, and  
Harvard Real Estate Academic Initiative  
Role: P.I.: Dissertation Research

## HONORS / AWARDS

2014 **Outstanding Young Contributor Award: International Building Performance Simulation Association USA**, biennial national recognition for significant contributions to the field of building performance simulation. Atlanta, GA

2013 **First Place: International Building Performance Simulation Association Student Modeling Competition**, faculty advisor, biennial international competition. Chambéry, France

2011 **Travel Award: International Building Performance Simulation Association conference**, for meritorious papers by student authors. Travel expenses to Sydney, Australia

2009 **Gerald M. McCue Medal: Harvard Graduate School of Design**, for the highest academic achievement of graduating students. Cambridge, MA

2009 **Best Paper Prize: ARUP Engineering**, for the best paper on the application of building performance simulation in the design process at the biennial International Building Performance Simulation Association Conference. Glasgow, Scotland

2009 **Travel Award: International Building Performance Simulation Association conference**, for the six best student papers of the conference. Glasgow, Scotland

2007 **Honor Award for Design Excellence: Boston Society of Architects**, Carmax Headquarters project. Project role: co-project architect and sustainable design coordinator. Boston, MA

2007 **Award of Distinction for Sustainable Design: American Institute of Architects New England**, Carmax Headquarters project. Project role: co-project architect and sustainable design coordinator. Boston, MA

2000 **Henry Adams Medal: American Institute of Architects**, for the top-ranking architecture graduate at Carnegie Mellon University. Pittsburgh, PA

## PROFESSIONAL ACCREDITATION

2006 **Architecture Registration**, Massachusetts

- 2005 **Architecture Registration**, National Council of Architecture Registration Boards
- 2005 **Architecture Registration**, Texas
- 2002 **Leadership in Energy and Environmental Design (LEED) Accreditation**, (now LEED Building Design + Construction accreditation)

## SELECTED PUBLICATIONS

### Peer-Reviewed Journal Articles

- 2016 "Integrated Design Workflow and a New Tool for Urban Rainwater Management," Chen, Y., **Samuelson, H.W.**, Tong, Z., *Journal of Environmental Management*, April 2016
- 2016 "Parametric Energy Simulation in Early Design: High-Rise Residential Buildings in Urban Contexts," **Samuelson, H.W.**, Claussnitzer, S., Goyal, A., Chen, Y., Romo-Castillo, A., *Building and Environment*, May 2016
- 2015 "Analysis of a Simplified Building Energy Model Calibration Procedure for 18 Real-World Case Studies," **Samuelson, H.W.**, Ghorayshi, A., Reinhart, C., *Journal of Building Performance Simulation*, January 2015
- 2012 "Non-Technical Barriers to Energy Model Sharing and Reuse," **Samuelson, H.W.**, Lantz, A., Reinhart, C., *Building and Environment*, July 2012
- 2011 "Learning by Playing – Teaching Energy Simulation as a Game," Reinhart, C., Dogan, T., Ibarra, D., **Samuelson, H.W.**, *Journal of Building Performance Simulation*, October 2011

### Invited (and Peer-Reviewed) Conference Paper

- 2015 "Parametric Energy Simulation of High-Rise Multi-Family Housing," **Samuelson, H.W.**, Goyal, A., Romo-Castillo, A., Claussnitzer, S., Chen, Y., Bakshi, A., *Proceedings of Simulation for Architecture and Urban Design (SimAUD)*, Washington, DC, April 2015

### Selected Peer-Reviewed Conference Papers

- 2015 "Integrated Workflow and a New Tool for Urban Rainwater Management," Chen, Y., **Samuelson, H.W.**, *Proceedings of (Building Simulation) the International Building Performance Simulation Association International Conference*, Hyderabad, India, December 2015
- 2014 "Post-Occupancy Evaluation and Partial-Calibration of 18 Design-Phase Energy Models," **Samuelson, H.W.**, Ghorayshi, A., Reinhart, C., *Proceedings of (SimBuild) the International Building Performance Simulation Association and American Society of Heating Refrigerating and Air-Conditioning Engineers Conference*, Atlanta, Georgia, September 2014
- 2011 "Identifying Non-Technical Barriers to Energy Model Sharing and Reuse," **Samuelson, H.W.**, Lantz, A., Reinhart, C., *Proceedings of (Building Simulation) the International Building Performance Simulation Association International Conference*, Sydney, Australia, November 2011

- 2011 "Learning by Playing – Teaching Energy Simulation as a Game," Reinhart, C., Dogan, T., Ibarra, D., **Samuelson, H.W.**, *Proceedings of (Building Simulation) the International Building Performance Simulation Association International Conference*, Sydney, Australia, November 2011
- 2009 "Modeling an Existing Building in DesignBuilder/EnergyPlus: Custom vs. Default Inputs," **Wasilowski, H. [maiden name]**, Reinhart, C., *Proceedings of (Building Simulation) the International Building Performance Simulation Association International Conference*, Glasgow, Scotland, July 2009. Awarded Arup Engineering Best-Paper Prize

### Book Chapter

- 2010 "Investigating the Importance of Customized Energy Model Inputs," **Samuelson, H.W.**, & Reinhart, C., in *Ecological Urbanism*, Eds. Mohsen Mostafavi & Gareth Doherty, Baden Switzerland, Lars Muller Publishers, pp. 472-475, 2010

### Other

- 2015 "House Zero: Summer 2014 Research Report," Harvard Center for Buildings and Cities, 2015. 60-page executive report and 200+ page extended report. Ed. H. W. Samuelson, with twenty contributors listed under "House Zero" above.
- 2015 Research Report: "Comparing Modes of Operation for Residential Ceiling Fans to Achieve Thermal De-stratification," Samuelson, H.W., 2015.

### INVITED LECTURES, PRESENTATIONS, SYMPOSIA

- 2015 "In and Out of Sync: How Does Light Impact Health?" One of three lectures sponsored by: Harvard Brain Science Initiative, Harvard Art Museums, Harvard Museums of Science and Culture, Location: Harvard University Science Center, Approx. 200 attendees, November 2015
- 2013-present "The Energy Optimization Game", Harvard Business School and Graduate School of Design *Advanced Management Development Program (AMDP)*, Annual Presenter in the Executive Education Program
- 2013-present "The Energy Optimization Game", Harvard Business School and Graduate School of Design *Real Estate Management (REM)*, Annual Presenter in the Executive Education Program
- 2014 "Energy Vernacular: A Simulation-Based Framework for Climate-Responsive Design", Syracuse Center of Excellence *Symposium on Advanced Building Systems*, Syracuse, NY, September 2014
- 2014 "The Energy Optimization Challenge: Teaching Climate-Responsive Design as a Game," the *Society for Building Science Educators Symposium*, Tucson, Arizona, June 2014
- 2013 Panelist, *Resilience, Adaptability + Sustainability in the Built Environment*, Real Estate Academic Initiative Harvard University, April 2013.
- 2013 "Save Shaheen! An Academic Daylight Retrofit Project." *DIVA (Design Iterate*

- Validate Adapt) Day*, New York 2013.
- 2011 "New Life for Existing Energy Models." U.S. Green Building Council's *GreenBuild Conference*, Toronto Canada, 2011. One of 130 sessions accepted out of 1,200+ submissions.
- 2008 "Daylight Simulation," U.S. Green Building Council's *GreenBuild Conference*, 2008. Off-site education session taught with four other students. Drew 400+ attendees, the largest audience of the conference.
- 2008-present Various Guest Lectures: Harvard Business School, MIT Building Technology Program, Harvard Graduate School of Education, MIT Center for Real Estate
- 2008-present Various Architectural Studio Reviews: Harvard Graduate School of Design, Roger Williams, Northeastern, Wentworth, and Boston Architectural College

## **PROFESSIONAL SERVICE**

### **Leadership Positions**

- 2015 Co-Chair: *Simulation in Architecture and Urban Design Conference (SimAUD)*, Washington, DC
- 2014 Chair: Scientific Advisory Sub-Committee ASHRAE/IBPSA USA *Building Simulation Conference*
- 2011-2013 President: International Building Performance Simulation Association (IBPSA) USA, Boston Chapter. Founding member and first elected president. Set a precedent for all local chapters. Led team in organizing chapter. Hosted technical symposia on energy modeling, attended locally and by virtual participants on five continents
- 2007-2008 Director: GreenBuild Conference Sub-Committee, Organized 13 events for a conference of 30,000+ attendees. Led approximately 50 volunteers

### **Juries/Committees/Peer-Reviews**

- 2016 Faculty Advisor: Harvard GSD Executive Education Program
- 2016 Selection Committee: Plimpton-Poorvu Design Prize, Harvard GSD
- 2016 Peer-Reviewer: Passive and Low Energy Architecture (PLEA) International Conference, Los Angeles, CA
- 2013-present Technical Advisory Committee: International Building Performance Simulation Association (IBPSA) USA, Boston Chapter
- 2014-2015 Committee Member: Harvard Climate Change Solutions Fund Grant
- 2015 Selection Committee: Harvard Energy Feedback Sculpture Competition
- 2015 Selection Committee: Julia Amory Appleton Traveling Fellowship, Harvard GSD
- 2015 Peer Reviewer: Architectural Engineering Institute Conference
- 2014 Peer-Reviewer: Building and Environment Journal
- 2014 Peer-Reviewer: ASHRAE Journal
- 2014 Peer-Reviewer: GreenBuild Conference Educational Sessions



2014 Peer-Reviewer: ASHRAE/IBPSA USA Building Simulation Conference  
2014 Peer-Reviewer: Routledge Architecture book submissions  
2013 Juror: US Green Building Council MA Green Building Awards  
2012 Peer-Reviewer: SimBuild Conference  
2013 Board of Advisors: New Generation Energy, Not-for-profit organization  
achieving energy efficiency and energy generation projects for other not-  
for-profit organizations  
2006, 2008 Committee Member: NCARB Pre-Test Committee, Provided quality control  
for architecture registration exams  
2006 Committee Member: Green Roofs for Healthy Cities Conference, Boston, MA