

Andrew Sonta

473 Via Ortega, 269B
Stanford, CA 94107
(312) 636-4441
asonta@stanford.edu

RESEARCH INTERESTS

Building energy efficiency, building occupant behavior modeling, network analysis, urban sustainability, walkability

EDUCATION

Stanford University, Stanford, CA
Ph.D., Department of Civil & Environmental Engineering, expected Spring 2020
Advisor: Rishee Jain
Committee: Michael Lepech, Martin Fischer
Thesis: *Co-optimizing human-built environments for energy efficiency and organizational productivity*

Stanford University, Stanford, CA
M.S., Civil Engineering, 2017

Northwestern University, Evanston, IL
B.S., Civil Engineering, *summa cum laude*, 2015
Minor: Economics
Certificates: Architectural Engineering & Design, Sustainability & Energy

JOURNAL ARTICLES

1. A. J. Sonta, P. E. Simmons, and R. K. Jain, "Understanding building occupant activities at scale: An integrated knowledge-based and data-driven approach," *Advanced Engineering Informatics*, vol. 37, pp. 1–13, 2018
2. A. J. Sonta, R. K. Jain, R. Gulbinas, J. M. F. Moura, and J. E. Taylor, "OE-SPG: Computational Framework for Multidimensional Analysis of Occupant Energy Use Data in Commercial Buildings," *Journal of Computing in Civil Engineering*, vol. 31, p. 04017017, jul 2017
3. S. Gao, Y. Y. D. Zhang, A. J. Sonta, and G. Buscarnera, "Evolution of the Water Retention Characteristics of Granular Materials Subjected to Grain Crushing," *Journal of Geotechnical and Geoenvironmental Engineering*, vol. 142, sep 2016

CONFERENCE PAPERS

1. A. J. Sonta and R. K. Jain, "Optimizing Neighborhood-Scale Walkability," in *International Conference on Computing in Civil Engineering*, (Atlanta, GA), American Society of Civil Engineers, forthcoming
2. A. J. Sonta and R. K. Jain, "Inferring occupant ties: Automated inference of occupant network structure in commercial buildings," in *Proceedings of the 5th Conference on Systems for Built Environments*, (Shenzhen, China), pp. 126–129, ACM, 2018
3. Y. D. Zhang, J. S. Park, S. Gao, A. J. Sonta, B. Horin, and G. Buscarnera, "Effect of Grain Crushing and Grain Size on the Evolution of Water Retention Curves," in *PanAm Unsaturated Soils 2017*, (Dallas, TX), pp. 268–278, American Society of Civil Engineers, nov 2018

4. A. J. Sonta, P. E. Simmons, and R. K. Jain, “Towards automated inference of occupant behavioral dynamics using plug-load energy data,” in *Congress on Computing in Civil Engineering, Proceedings*, (Seattle, WA), pp. 290–297, American Society of Civil Engineers, jun 2017

TEACHING

Hard Earth Speaker Series: Talks by Graduate Students Exploring Tough Environmental Dilemmas 2017–2018
Course Developer and Facilitator (6 terms)

Network Analysis for Urban Systems 2017–2018
Guest Lecturer (Spring 2018)
Teaching Assistant (Spring 2017)

Stanford Splash: Designing Cities of the Future 2017–2018
2-hour class for high school students focused on data-driven urban systems analysis
Course Developer and Instructor

INVITED TALKS

Stanford University Sustainable Urban Systems Seminar 2019
Stanford, CA

5th ACM International Conference on Systems for Built Environments (BuildSys) 2018
Shenzhen, China

The 4th International Symposium on Occupant Behaviour (OB-18) and 1st Expert’s Meeting of the IEA-EBC Annex 79 2018
Ottawa, Ontario, Canada

Global Climate and Energy Project and Precourt Institute for Energy Student Lecture Series 2018
Stanford, CA

International Workshop on Computing in Civil Engineering (IWCCE) 2017
Seattle, WA

San Francisco Department of the Environment 2017
San Francisco, CA

EXPERIENCE

Stanford Graduate Fellowship 2015–present
Stanford University, Urban Informatics Lab
Conducting research on modeling occupant behavior in buildings, understanding network structure of building occupants, and improving building energy efficiency.

Stanford Engineering Summer Service Learning Program 2018
Stanford University / Kathmandu & Dolakha, Nepal
Worked with an interdisciplinary team of 6 engineers on the design of sustainable and earthquake-resistant housing in Dolakha, Nepal.

National Science Foundation Research Experience for Undergraduates 2014
Northwestern University
Contributed to lab experiments and computational modeling of the mechanics of saturated soils.

	<p><i>Wanxiang Fellowship</i> 2013 Northwestern University; Peking University; Wanxiang Polytechnic Institute Fellowship focused on renewable energy technology and policy in China.</p>
LEADERSHIP	<p><i>Graduate Life Committee</i> 2016–2018 Stanford University Department of Civil & Environmental Engineering Student representative elected to discuss student issues with departmental leadership</p> <p><i>Sustainable Design & Construction Leadership Committee</i> 2015–2016 Stanford University Treasurer and Golf Tournament Chair</p> <p><i>Northwestern University Dance Marathon</i> 2014–2015 Northwestern University Executive Committee — Productions Chair (Raised \$1.2 million for beneficiary)</p>
ACADEMIC SERVICE	<p><i>Organizations</i></p> <ul style="list-style-type: none"> • American Society of Civil Engineers, Student Member • Energy Information Administration Annex 79 (Occupant-Centric Building Design and Operation), Member • Stanford Energy Club, Officer & Member <p><i>Peer Reviewer</i> Building Simulation</p>
GRANTS & FELLOWSHIPS	<ul style="list-style-type: none"> • Center for Integrated Facility Engineering (CIFE) Seed Grant (\$55,000) <i>Stanford University</i> 2016 Funding for one year of PhD study • Stanford Graduate Fellowship (\$243,000) <i>Stanford University</i> 2015 Three-year fellowship for incoming PhD students in engineering and science
HONORS & AWARDS	<ul style="list-style-type: none"> • Preparing Future Professors Program <i>Stanford University</i> 2018–2019 Competitive mentorship program with the University of San Francisco focused on training PhD students for careers in academia, with an emphasis on teaching • Woods Institute Rising Environmental Leaders Program <i>Stanford University</i> 2017–2018 Competitive leadership training program focused on environmental policy in Washington, DC and Sacramento, CA • Fellow — Digital X Workshop (U.S. Representative) <i>Norman Foster Foundation</i> 2018 One of ten fellows from around the world selected to participate in a week-long workshop hosted by Norman Foster focused on digital design • Civil Engineering Senior Award <i>Northwestern University</i> 2015 Award given to graduating senior with highest academic achievement • Tau Beta Pi (elected as junior) <i>Northwestern University</i> 2014 Engineering honor society • Gamma Sigma Alpha <i>Northwestern University</i> 2013 Greek honor society

- Hillier L Baker III Memorial Scholarship | *Northwestern University* 2013
Merit-based academic scholarship
- Northwestern Scholarship | *Northwestern University* 2011
Merit-based academic scholarship

TECHNOLOGY SKILLS *Programming Languages:* Python, R, MatLab, C++, Java
Architecture & Construction: Revit/Dynamo, Rhino/Grasshopper, AutoCad
Illustration & Design: Adobe Illustrator/InDesign/Photoshop