ANDREW SONTA

473 Via Ortega, 269B
Stanford, CA 94305
(312) 636-4441 | asonta@stanford.edu
andrewsonta.com

EDUCATION

PhD, Civil & Environmental Engineering exp. 2020
Stanford University
Advisor: Rishee Jain
Committee: Michael Lepech, Martin Fischer
Thesis: *Co-optimizing human-built environments for energy efficiency and organizational productivity*

MS, Civil Engineering 2017
Stanford University

BS, Civil Engineering, *summa cum laude* 2015
Northwestern University
Minor: Economics
Certificates: Architectural Engineering & Design, Sustainability & Energy

RESEARCH EXPERIENCE

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

NSF Research Experience for Undergraduates (REU) 2014
Northwestern University
Contributed to lab experiments and computational modeling of the mechanics of saturated soils, including authorship of a peer-reviewed journal publication

Wanxiang Fellow 2013
Northwestern University, Peking University, Wanxiang Polytechnic Institute
Fellowship focused on renewable energy technology and policy in China

TEACHING EXPERIENCE

Adjunct Professor fall 2019
University of San Francisco
- Teaching *Environmental Controls Systems (ARCD 312)* in the Architecture and Community Design Program; ECS introduces students to energy and environmental issues in buildings and the built environment

Guest Lecturer 2017–2019

Stanford University and University of San Francisco

- Engineering Design and Testing, USF: Lecture on life-cycle assessment (2019)
- Network Analysis for Urban Systems, Stanford: Lecture on network inference (2017, 2018)

Graduate Mentor 2017–2019

Stanford University, Urban Informatics Lab

- Mentored a master's student during academic year 2017–2018 who led the effort on a validation study and data analysis; resulted in co-authorship on a peer-reviewed article in *Advanced Engineering Informatics*
- Mentoring two undergraduate students during summer 2019 on data collection, building energy simulation analysis, and data analysis

Course Developer & Instructor 2017–2018

Stanford University

- Developed and taught 6 terms of a 1-unit seminar series: *Hard Earth: Graduate Student Talks Exploring Tough Environmental Dilemmas*
- Planned quarterly themes and worked with graduate students on their talks
- Led discussion sessions

Teaching Assistant spring 2017

Stanford University

- Teaching assistant for the first-ever offering of *Network Analysis for Urban Systems*
- Helped design course structure and final project
- Graded homework, held office hours

Course Developer & Instructor 2017–pres.

Stanford University Splash

- Developed 2-hour class—*Designing Cities of the Future*—taught quarterly with lab-mates for high school students
- Focused content on data-driven urban systems analysis

JOURNAL ARTICLES

1. **A. J. Sonta** and R. K. Jain. (2019). "Building Relationships: Using Embedded Plug Load Sensors for Occupant Network Inference," *IEEE Embedded Systems Letters*, (submitted) **[Invited Paper]**
2. **A. J. Sonta**, P. E. Simmons, and R. K. Jain. (2018). "Understanding building occupant activities at scale: An integrated knowledge-based and data-driven approach," *Advanced Engineering Informatics, 37*, 1–13.
3. **A. J. Sonta**, R. K. Jain, R. Gulbinas, J. M. F. Moura, and J. E. Taylor. (2017) "OESP_{G}: Computational Framework for Multidimensional Analysis of Occupant Energy Use Data in Commercial Buildings," *Journal of Computing in Civil Engineering, 31*, 04017017.
4. S. Gao, Y. D. Zhang, **A. J. Sonta**, and G. Buscarnera. (2016). "Evolution of the Water Retention Characteristics of Granular Materials Subjected to Grain Crushing," *Journal of Geotechnical and Geoenvironmental Engineering, 142*.

PEER-REVIEWED CONFERENCE PAPERS

1. **A. J. Sonta** and R. K. Jain. (in press). "Data-driven building layout optimization for energy efficiency," in *Energy Procedia*, (Västerås, Sweden), Elsevier.
2. **A. J. Sonta** and R. K. Jain. (2019). "Optimizing neighborhood-scale walkability," in *International Conference on Computing in Civil Engineering*, (Atlanta, GA), pp. 454-461, American Society of Civil Engineers.
3. **A. J. Sonta** and R. K. Jain. (2018). "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.
4. Y. D. Zhang, J. S. Park, S. Gao, **A. J. Sonta**, B. Horin, and G. Buscarnera. (2018). "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.
5. **A. J. Sonta**, P. E. Simmons, and R. K. Jain. (2017). "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.

CONFERENCE POSTER PRESENTATIONS

1. **A. J. Sonta** and R. K. Jain. (2019). "Inferring Occupant Ties in Dynamic Office Environments," *International Conference on Computing in Civil Engineering*, (Atlanta, GA).

INVITED TALKS

The 5th International Symposium on Occupant Behaviour (OB-19) and 2nd Expert's Meeting of the IEA-EBC Annex 79 2019
San Antonio, TX

Stanford University Sustainable Urban Systems Seminar 2019
Stanford, CA

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

Precourt Institute for Energy Student Lecture Series 2018
Stanford, CA

San Francisco Department of the Environment 2017
San Francisco, CA

GRANTS AND FELLOWSHIPS

Center for Integrated Facility Engineering (CIFE) Seed Grant ($39,113) 2019
Stanford University

"Building for the Occupant: Optimizing Building Layouts for Energy Efficiency and Organizational Performance"

Center for Integrated Facility Engineering (CIFE) Seed Grant ($55,000) 2016
Stanford University
"Beyond the Building: Urban Information Modeling (UIM)"

Stanford Graduate Fellowship ($243,000) 2015
Stanford University

LEADERSHIP AND ACTIVITIES

Stanford Engineering Summer Service Learning Program 2018
Stanford University and Today's Youth Asia, Kathmandu, Nepal
Worked with an interdisciplinary team of 6 engineers on the design of sustainable and earthquake-resistant housing in Dolakha, Nepal

Graduate Life Committee 2016–2018
Stanford University Department of Civil & Environmental Engineering
Student representative elected to discuss student issues with departmental leadership

Sustainable Design & Construction Leadership Committee 2015–2016
Stanford University
Treasurer and Golf Tournament Chair

Northwestern University Dance Marathon 2014–2015
Northwestern University
Executive Committee — Productions Chair (Raised $1.2 million for beneficiary)

ACADEMIC SERVICE

Organizations	American Society of Civil Engineers, Student Member Energy Information Administration EBC Annex 79, Member Stanford Energy Club, Officer & Member
Reviewer	Building Simulation Journal of Computing in Civil Engineering

HONORS AND AWARDS

Preparing Future Professors Program 2018–2019
Stanford University
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 2017–2018
Stanford University
Competitive leadership training program focused on environmental policy in Washington, DC and Sacramento, CA

Fellow — Digital X Workshop (U.S. Representative) 2018
Norman Foster Foundation

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 2015
Northwestern University

Award given to graduating senior with highest academic achievement

Tau Beta Pi Engineering Honor Society (elected as junior) 2014
American Institute of Steel Construction Scholarship 2014
Associated Steel Erectors Scholarship 2014
Gamma Sigma Alpha Greek Honor Society 2013
Hillier L Baker III Memorial Scholarship 2013
Northwestern Scholarship 2011

SKILLS

Programming	Python, R, MatLab, C++, Java
Engineering	Revit/Dynamo, Rhino/Grasshopper, AutoCad
Design	Adobe Illustrator/InDesign/Photoshop