

Geoff Boeing

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EDUCATION

- Ph.D. City and Regional Planning, University of California, Berkeley, 2017
Methods and Measures for Analyzing Complex Street Networks and Urban Form
Paul Waddell (chair), Robert Cervero, Elizabeth Macdonald, David O'Sullivan
- M.S. Information Management, Arizona State University, 2006
- B.S. Computer Information Systems *summa cum laude*, Arizona State University, 2004

ACADEMIC APPOINTMENTS

- 2017– Postdoctoral Researcher
Urban Analytics Lab, University of California, Berkeley

RESEARCH AND TEACHING INTERESTS

Urban planning and transportation-land use policy
Urban form, including history and theories of form, design, and street networks
Rental housing markets and affordability
Urban data science: statistics/machine learning, visualization, spatial analysis, big data, Python
Complex systems: complexity theories of cities, systems thinking, network analysis

PUBLICATIONS

Peer-Reviewed Journal Articles

- 2017 Boeing, G. "OSMnx: New Methods for Acquiring, Constructing, Analyzing, and Visualizing Complex Street Networks." *Computers, Environment and Urban Systems* 65, 126–139.
- 2017 Boeing, G. "OSMnx: A Python Package to Work with Graph-Theoretic OpenStreetMap Street Networks." *Journal of Open Source Software* 2(12).
- 2016 Boeing, G. and P. Waddell. "New Insights into Rental Housing Markets across the United States: Web Scraping and Analyzing Craigslist Rental Listings." *Journal of Planning Education and Research*, published online before print.

- 2016 Boeing, G. "Honolulu Rail Transit: International Lessons from Barcelona in Linking Urban Form, Design, and Transportation." *Planext* 2, 28–47.
- 2016 Boeing, G. "Visual Analysis of Nonlinear Dynamical Systems: Chaos, Fractals, Self-Similarity, and the Limits of Prediction." *Systems* 4(4), 37.
- 2014 Boeing, G., D. Church, H. Hubbard, J. Mickens, and L. Rudis. "LEED-ND and Livability Revisited." *Berkeley Planning Journal* 27(1), 31–55.

Journal Article Manuscripts Under Review

- 2017 Boeing, G. "The Effects of Inequality, Density, and Heterogeneous Residential Preferences on Urban Displacement and Metropolitan Structure: An Agent-Based Model." Revise and resubmit at *Journal of Artificial Societies and Social Simulation*.
- 2017 Boeing, G. "Methods for Measuring the Complexity of Urban Form and Design." Revise and resubmit at *Urban Design International*.
- 2017 Boeing, G. "A Multi-Scale Analysis of 27,000 Urban Street Networks." Under review at *Environment and Planning B*.
- 2017 Boeing, G. "The Relative Circuitry of Walkable and Drivable Urban Street Networks." Under review at *Transportation Research Record*.

Refereed Book Chapters and Other Articles

- 2017 Barajas, J. M., G. Boeing, and J. Wartell. "Neighborhood Change, One Pint at a Time: The Impact of Local Characteristics on Craft Breweries." In: *Untapped: Exploring the Cultural Dimensions of Craft Beer* (pp. 155–176), edited by N. G. Chapman, J. S. Lellock, and C. D. Lippard. Morgantown, WV: West Virginia University Press.
- 2016 Boeing, G. "How Our Neighborhoods Lost Food, and How They Can Get It Back." *Progressive Planning* 206(Winter), 35–37.

Reviews

- 2017 Boeing, G. "A Review of the Structure and Dynamics of Cities: Urban Data Analysis and Theoretical Modeling." *Journal of the American Planning Association*, published online before print.
- 2017 Boeing, G. "Understanding Cities through Networks and Flows." *Berkeley Planning Journal* 28(1), 118–123.

Patents

- 2014 Beck, A. E., G. Boeing, and D. Shannon. *Systems and Methods for Analyzing Requirements*. United States patent US8650186B2, European patent EP2413256, Australian patent AU2011204935, Canadian patent CA2747481, Chinese patent CN102346763.

Manuscripts in Preparation

- 2017 Boeing, G. "Sociodemographic and Spatial Representativeness in Online Rental Housing Listings: Evidence from Craigslist." Target: *Journal of Housing Economics*
- 2017 Boeing, G. "New Methods for Collecting and Analyzing Historical Rental Housing Listings." Target: *Computers, Environment and Urban Systems*
- 2017 Boeing, G. "Comparative Visualization of Urban Form and Street Networks: Planning and Communication Tools for Urban Designers." Target: *Journal of Urban Design*
- 2017 Boeing, G. "Pynamical: Model and Visualize Discrete Nonlinear Dynamical Systems, Chaos, and Fractals." Target: *Journal of Open Source Education*
- 2017 Nguyen, D. and G. Boeing. "Economic Trends in Craigslist's Online Market for Used Cars." Target: *Journal of Economic Geography*

INVITED TALKS

- 2017 "Street Network Analyses of Urban Form Resilience and Equity." Mansueto Institute for Urban Innovation, University of Chicago. Chicago, Illinois. Nov 2.
- 2017 "Measuring Urban Form Sustainability with Topological and Geometric Street Network Analysis." Sustainable Urban Systems Initiative, Stanford University. Stanford, California. Oct 26.
- 2017 "Graph-Theoretic Representation and Analysis of Urban Street Networks." Gianforte School of Computing, Montana State University. Bozeman, Montana. Oct 16.
- 2017 "Scalable Methods for Acquiring, Analyzing, and Visualizing Urban Street Networks." The Santa Fe Institute. Santa Fe, New Mexico. Feb 2.
- 2016 "Urban Data Science for Studying Housing Affordability and Urban Form." NYU Center for Urban Science and Progress. Brooklyn, New York. Dec 14.
- 2016 "Smart Cities, Technology, and Representation: Prospects and Challenges." Adobe Systems. San Jose, California. Jan 28.

CONFERENCE ACTIVITY

Conference Panels Organized

- 2017 "Emerging Computational Methods in Urban Design." American Collegiate Schools of Planning Annual Conference (ACSP). Denver, Colorado. Oct 12–15.

Conference Presentations

- 2017 "New Methods for Acquiring and Analyzing Worldwide Street Network Data: A Multiscale Analysis of 27,000 Urban Street Networks." American Collegiate Schools of Planning Annual Conference (ACSP). Denver, Colorado. Oct 12–15.

- 2017 “Special Session on Public Communication Strategies for Planning Academics.” American Collegiate Schools of Planning Annual Conference (ACSP). Denver, Colorado. Oct 12–15.
- 2016 “Craigslist and U.S. Rental Housing Markets.” American Planning Association Annual Conference. Phoenix, Arizona (APA). Apr 2–5.
- 2016 “Understanding Informal Rental Housing Markets through Public Data.” Association of American Geographers Annual Meeting (AAG). San Francisco, California. Mar 29–Apr 2.
- 2015 “Methods for Measuring the Aggregate Complexity Outcomes of Urban Design.” International Conference on Complex Systems (CCS). Tempe, Arizona. Sep 28–Oct 2.
- 2015 “Pedagogy of Urban Informatics.” Environmental Design Circus. Berkeley, California. Mar 6.
- 2014 “Web Scraping Urban Data: Lessons from the Lab and the Classroom.” American Collegiate Schools of Planning Annual Conference (ACSP). Philadelphia, Pennsylvania. Oct 30–Nov 2.
- 2014 “LEED-ND and Perceptions of Livability.” Environmental Design Circus. Berkeley, California. Mar 13.

FELLOWSHIPS, GRANTS, AND AWARDS

- 2016–17 Doctoral Completion Fellowship, University of California (\$36,655)
- 2016 Travel Grant, UC Berkeley DCRP (\$500)
- 2016 Travel Grant, University of California Graduate Division (\$900)
- 2015 Travel Grant, UC Berkeley DCRP (\$500)
- 2014 Kaye Bock Award for Best Journal Article (\$250)
- 2012–16 Regents’ Fellowship, University of California (\$158,025)
- 2010 Accenture Inventor Innovation Award (\$2,500)

TEACHING EXPERIENCE

University of California, Berkeley

- 2013–16 Urban Informatics and Visualization (Co-Lead Instructor: Fall 2015; Graduate Student Instructor: Fall 2013, Fall 2014, Fall 2016)

Planetizen

- 2017 Python for Planners; Data Analysis and Visualization for Planners; Geospatial Data Analysis; Street Network Analysis (online video course series)

RESEARCH EXPERIENCE

- 2017 Researcher, Turner Center for Housing Innovation. Principal Investigator: Carolina Reid.
- 2017 Researcher, Center for Community Innovation at the Institute of Urban and Regional Development. Principal Investigator: Karen Chapple.
- 2013–16 Graduate Student Researcher, UC Berkeley Urban Analytics Lab. Principal Investigator: Paul Waddell.

SERVICE

Reviewer, *Journal of the American Planning Association*
Reviewer, *International Journal of Geographical Information Science*
Ph.D. program faculty representative, UC Berkeley DCRP, 2015–16
Book review editor, *Berkeley Planning Journal*, 2013–14

PROFESSIONAL AFFILIATIONS

American Planning Association (APA)
Association of American Geographers (AAG)
Complex Systems Society (CSS)
Python Software Foundation (PSF)
Association for Computing Machinery (ACM)
Project Management Institute (PMI)

CREDENTIALS

Project Management Professional (PMP)
U.S. Department of Defense secret clearance
U.S. Department of Homeland Security public trust

CONSULTING ENGAGEMENTS

- 2017– Calthorpe Associates
2016– UrbanSim Inc.
2013– Avalon Health Economics
2013 Raimi & Associates
2009–13 Accenture

PROFESSIONAL EXPERIENCE

- 2009–13 Accenture, Consultant/Project Manager. London, England; New York, New York; San Diego, California.
- 2007–09 Permission Data, Front-End Systems Product Manager. New York, New York.
- 2004–07 Acumen Inc., Web Systems Developer. Mesa, Arizona.

SKILLS AND METHODS

Statistical and Computational Methods

Multivariate statistics and machine learning, systems analysis, data mining, data wrangling, Python (including numpy, scipy, pandas, matplotlib, statsmodels, networkx, and scikit-learn), R, JavaScript, HTML, web scraping, MySQL, Postgres, and various other databases.

Geospatial Methods

Spatial analysis, network analysis, QGIS, ArcGIS, PostGIS, geopandas, Leaflet, CARTO, and agent-based spatial modeling and microsimulation (including UrbanSim, NetLogo, and Mesa). I created and maintain the popular OSMnx street network analysis package.

International Experience

I have previously worked professionally in the United States, the United Kingdom, Malawi, Mozambique, and Cambodia.

Updated September 2017