

CURRICULUM VITAE  
**WENWEN ZHANG**

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**ACADEMIC APPOINTMENT**

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**Virginia Polytechnic Institute and State University**

*Assistant Professor* of Urban Affairs and Planning

2017 - present

**EDUCATION**

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**Georgia Institute of Technology**

Ph.D. in City and Regional Planning

August 2017

Dissertation: The Interactions between Land Use and Transportation in the Era of Shared Autonomous Vehicle: A Discrete Simulation Model

Committee: Dr. Subhrajit Guhathakurta (Chair), Dr. Steven P. French, Dr. Ram Pendyala, Dr. Richard Fujimoto, Dr. Bistra Dilkina

Master in City & Regional Planning

May 2013

M.S. in Civil & Environmental Engineering

May 2013

M.S. in Computational Science & Engineering

May 2017

Thesis: The Effects of Compact Development on Travel Behavior, Energy Consumption and GHG Emissions: Lessons from Neighborhoods in Phoenix Metropolitan Area

Committee: Dr. Subhrajit Guhathakurta (Chair), Dr. Steven P. French, Dr. Yanzhi Xu

**Zhejiang University**

B.E. in City & Regional Planning

July 2011

Option Paper: Develop Urban Growth Boundary using Cellular Automata Model based on Green Infrastructure Analysis: A Case Study of Chun'An County, China

Advisor: Dr. Yonghua Li

**RESEARCH INTERESTS**

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Innovative Transportation and Land Use Interaction; Sustainable Transportation; Energy Consumption; Urban Simulations; Big & Open Data; Applied Machine Learning in Urban Studies.

## PUBLICATIONS

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### Refereed Journal Articles

Robinson C., Dilkina, B., Hubbs, J., **Zhang, W.**, Guhathakurta, S., Brown, M., Pendyala, R., (2017) Machine Learning Approaches to Estimating Commercial Building Energy Consumption. *Applied Energy*, 208, 889-904. [ IF:7.2 ]

**Zhang, W.**, Guhathakurta, G. (2017) Parking spaces in the age of shared autonomous vehicles: How much parking will we need and where? *Transportation Research Record: Journal of Transportation Research Board*, 2651, 80-91. [ IF:0.5 ]

Grikapati, V. M., You, D., **Zhang, W.**, Pendyala, R. M., Guhathakurta, S., Brown, M. A., Dilkina, B. (2017) Estimating household travel energy consumption in conjunction with a travel demand forecasting model. *Transportation Research Record: Journal of Transportation Research Board*, 2668, 1-10. [ IF:0.5 ]

Zhang, G., **Zhang, W.**, Guhathakurta, S., Botchwey, N. (2017) Development of a community planning support system based on open data: Flow-based Planning Tool in City of Atlanta. *Environment and Planning B: Urban Analytics and City Science*. [ IF:1.5 ]

**Zhang, W.**, Guhathakurta S., Ross, C. (2016) Trends in automobile energy use and GHG emissions in suburban and inner city neighborhoods: lessons from metropolitan Phoenix, USA, *Energy Procedia*, 88, 82-85.

**Zhang, W.**, Guhathakurta, S., Fang, J., Zhang, G.(2015) Exploring the impact of shared autonomous vehicles on urban parking demand: An agent-based simulation approach, *Sustainable Cities and Society*, 19, 34-45. [ IF:1.8 ]

### Refereed Journal Articles Under Review

**Zhang, W.**, Wang, F., Barchers, C., Lee, Y., The impact of TOD on housing value resilience: evidence from the City of Atlanta. Submitted to *Journal of Planning Education and Research* (Resubmitted).

**Zhang, W.**, Guhathakurta, S., Residential Location Choices for Workers in the Era of Shared Autonomous Vehicles. Submitted to *Journal of Planning Education and Research* (Resubmitted).

**Zhang, W.**, Robinson C., Guhathakurta, S., Grikapati, V. M., Dilkina, B., Brown, M., Pendyala, R., Estimating the Spatial Distribution of Residential Energy Consumption in U.S. Metropolitan Areas. Submitted to *Energy* (Under Review).

**Zhang, W.**, Guhathakurta, S., Khalil, E., The Impact of Private Autonomous Vehicles on Vehicle Ownership and Unoccupied VMT Generation. Submitted to *Transportation Research Part C: Emerging Technologies* (Revise and Resubmit).

### Manuscripts Under Preparation

**Zhang, W.**, Guhathakurta, S. Shared Autonomous Vehicles and Employment Agglomeration: An Agent-based Simulation Model.

**Zhang, W.**, Hong, A. The Impact of Shared Autonomous Vehicles on Active Travel.

**Zhang, W.**, Xie, W. Optimizing Parking Spaces in the Era of Autonomous Vehicles.

**Zhang, W.**, Swarup, S., Mortveit, H. Estimating Shared Autonomous Vehicle Fleet Size to Meet Urban Daily Travel Demand.

Gupta, K., **Zhang, W.**, Hall, R. Exploring Risks in the Implementation of Smart City Projects in India.

### **Book Chapters**

French, S., Barchers, C., **Zhang, W.** (2015) How should planners be trained to handle big data, In *Seeing Cities Through Big Data - Research, Methods and Applications in Urban Informatics*. Thakuria, P., Tilahun, N., Zellner, M. (Eds.) Springer International Publishing.

### **Peer-Reviewed Conference Proceedings**

**Zhang, W.**, Guhathakurta, S., Khalil, E., *The Impact of Private Autonomous Vehicles on Vehicle Ownership and Unoccupied VMT Generation*. Transportation Research Board Meeting, January 11-15, Washington D.C., 2018.

Grikapati, V. M., You, D., **Zhang, W.**, Pendyala, R. M., Guhathakurta, S., Brown, M. A., Dilkina, B. *Estimating household travel energy consumption in conjunction with a travel demand forecasting model*. Transportation Research Board Meeting, January 11-15, Washington D.C., 2017.

**Zhang, W.**, Wang, F., Barchers, C., Lee, Y., *The impact of TOD on housing value resilience: evidence from the City of Atlanta*. Transportation Research Board Meeting, January 11-15, Washington D.C., 2017.

Madaio, M., Chen, S., Haimson, O. L., **Zhang, W.**, Cheng, X., Hinds-Aldrich, M., Chau, D., Dilkina, B., *Firebird: Predicting Fire Risk and Prioritizing Fire Inspections in Atlanta*, ACM SIGKDD on Knowledge Discovery and Data Mining Conference, August 13-17, San Francisco, CA, 2016.

Zhang, G., **Zhang, W.**, Guhathakurta, S., *Development and Application of Guideline for open source data based community planning support system development: Neighborhood quality of life and health in City of Atlanta*, Computers in Urban Planning and Urban Management Conference, July 7-10, Boston, MA, 2015.

French, S., Barchers, C., **Zhang, W.**, *Moving beyond Operations: Leveraging Big Data for Urban Planning Decisions*, Computers in Urban Planning and Urban Management Conference, July 7-10, Boston, MA, 2015.

**Zhang, W.**, Guhathakurta, S., Fang, J., Zhang, G., *The Performance and Benefits of a Shared Autonomous Vehicles Based Dynamic Ridesharing System: An Agent-Based Simulation Approach*. Transportation Research Board Meeting, January 11-17, Washington D.C., 2015.

**Zhang, W.**, Carragher, M., Jacobs, A. *Spider Maps: Summary of Best Practices and Guide to Design*, Transportation Research Board Meeting, January 11-17, Washington D.C., 2014.

**Zhang, W.**, Guhathakurta, S., Xu, Y., *The Effects of Compact Development on Travel Behavior, Energy Consumption and GHG Emissions: Lessons from Neighborhoods in Phoenix Metropolitan Area*, Joint Association of European Schools of Planning/Association of Collegiate Schools of Planning Congress, July 15-19, Dublin, Ireland, 2013.

French, S., **Zhang, W.**, *The Role of Modeling and Simulation in Creating Resilient Cities*,

Joint Association of European Schools of Planning/Association of Collegiate Schools of Planning Congress, July 15-19, Dublin, Ireland, 2013

## AWARDS, HONORS, AND FELLOWSHIPS

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Knowledge Discovery and Data Mining (KDD) Conference Best Student Paper Award Runner Up (Applied Data Science Track)	2016
Georgia Planning Association (GPA) Annual Outstanding Student	2013
Best Research Poster in GIS Day Mapping Competition	2013
Second Prize in Chinese Undergraduate Mathematical Modeling Competition	2011
China Nandu Innovation Scholarship(\$1,200)	2008, 2010
Zhejiang University First Grade Scholarship (\$1,000)	2007, 2009, 2011
China's National Scholarship (\$1,500 Granted by China's Department of Education)	2007

## INVITED TALKS

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*Predicting Fire Risk in Atlanta* at Atlanta Fire and Rescue Department. Invitation received from Chief Baker to present to Atlanta Chief Operating Officer Mike Geisler, Commissioner of the Department of Planning and Community Development, Tim Keane. July, 2015

*The Implementation of GIS Technology in Urban Transportation Planning* at School of Urban Planning and Design (SUPD). Peking University, Shenzhen Campus. June, 2013

*Using GIS model builder and Google API to Empower Transit Paper Maps Generation* at Metropolitan Atlanta Rapid Transit Authority, Atlanta, GA. May, 2013

## CONFERENCE PARTICIPATION

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### Papers Presented

**Zhang, W.**, Guhathakurta, S. *Parking spaces in the age of shared autonomous vehicles: How much parking will we need and where?* Annual Transportation Research Board Meeting, January 7-11, Washington D.C. 2017

Grikapati, V. M., You, D., **Zhang, W.**, Pendyala, R. M., Guhathakurta, S., Brown, M. A., Dilkina, B. *Estimating household travel energy consumption in conjunction with a travel demand forecasting model.* Annual Transportation Research Board Meeting, January 7-11, Washington D.C. 2017

**Zhang, W.**, Guhathakurta, S. *Residential Location Choices in the Era of Shared Autonomous Vehicles.* Association of College Schools of Planning (ACSP) 56<sup>th</sup> Annual Conference, November 3-6, Portland, OR 2016

French, S., Barchers, C., **Zhang, W.** *Moving beyond Operations: Using Urban Big Data for Long Range Planning.* Association of College Schools of Planning (ACSP) 56<sup>th</sup> Annual Conference, November 3-6, Portland, OR 2016

Madaio, M., Haimson, O.L., **Zhang, W.**, Cheng, X., Hinds-Aldrich, M., Dilkina, B., Chau, D., *Identifying and Prioritizing Fire Inspections: A Case Study of Predicting Fire Risk in Atlanta*. Bloomberg Data for Good Exchange, September 28, New York. 2015

**Zhang, W.**, Guhathakurta, S., Fang, J., Zhang, G., *Exploring the Impact of Shared Autonomous Vehicles on Urban Parking Demand*. Association of College Schools of Planning (ACSP) 54<sup>th</sup> Annual Conference, October 30- November 2, Philadelphia, PA. 2014

French, S., Barchers, C., **Zhang, W.**, How Should Urban Planners Be Trained to Handle Big Data? NSF Workshop on Big Data and Urban Informatics. August 11-12, Chicago, IL. 2014

**Zhang, W.**, Guhathakurta, S., Xu, Y. *The Impact of Compact Development on Travel Behavior, Energy Consumption and GHG Emissions: Lessons Learned from Phoenix Metropolitan Area*. NARSC/RSIAI Conference, November 13-16, Atlanta, GA. 2013

**Zhang, W.**, Carragher, M., *Spider Maps: Summary of Best Practices and Guide to Design*, GIS in Transit 2013, October 16-17, Washington D.C. 2013

French, S., **Zhang, W.**, *From Component to Metro Region: Modeling the Benefits of Non-structural Seismic Improvement*. NEES Nonstructural Project Meeting. October 26- 27, Reno, NV. 2012

#### **Discussant**

Formal Paper Session Transportation IX: Transport Environmental Impacts, North American Regional Science Council/Regional Science Association International Conference, November 13-16, Atlanta, GA. 2013

#### **Moderator**

Safety and Technology Session, Association of College Schools of Planning (ACSP) 54<sup>th</sup> Annual Conference, October 31 - November 2, Philadelphia, PA. 2014

### **CAMPUS TALKS**

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#### **Georgia Institute of Technology**

*Geocoding Using Python and Google API* at College of Design. 2016

*Practitioner's guide for Data Visualization and Analytics* at College of Computing. 2015

### **TEACHING EXPERIENCE**

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#### **Instructor of Record**

Introduction to GIS (3 Credits, Graduate Course) Georgia Tech, Spring 2017

Introduction to GIS (3 Credits, Graduate Course) Georgia Tech, Fall 2016

### **RESEARCH EXPERIENCE**

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#### **Graduate Research Assistant**

Strategic Energy Institute, Atlanta Energy Consumption Estimation Modeling, PI: Subhrajit Guhathakurta, Ram Pendyala, Marilyn Brown, Bistra Dilkina 2015-2016

Machine Learning the Impact of Built Environment on Pediatric Asthma Inpatients, PI: Jiemeng Sun, Bistra Dilkina 2015-2016

Spatial Structure of Road Network for City of Madina, PI: John Peponis 2014

Economic Impact of Atlanta Street Car, PI: Subhrajit Guhathakurta 2014

Urban Form and Energy Use Explored Through Dynamic Networked Infrastructure Model (NSF, CMMI#1031690) PI: Subhrajit Guhathakurta 2012-2013

Simulation of the Seismic Performance of Nonstructural Systems (NSF, CMMI#0721399) PI: Steven French 2011-2013

## SERVICE TO PROFESSION

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**Ad hoc reviewer** for various Journals, including J. of Planning Education and Research, J. of Cleaner Production, J. of Traffic and Transportation Engineering, Advances in Civil Engineering, Transportation Research Record.

## MEDIA COVERAGE

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*Embracing Analytics: How communities around the country are utilizing data analytics to predict a host of risk factors and reduce fires*, Jesse Roman, May 2, National Fire Protection Association (NFPA). 2016

*When Computing Equals Social Good*, Georgia Tech College of Computing, 2015

## RELATED PROFESSIONAL SKILLS

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<b>Urban Modeling</b>	GIS, TransCAD, CUBE, UrbanSim
<b>Statistics</b>	R, SPSS, STATA, NLOGIT, Matlab, Mathematica
<b>Computer Languages</b>	Python, JavaScript, CSS, HTML
<b>Databases</b>	SQLite, Microsoft Access
<b>Design</b>	Photoshop, Rhino, 3D Max, AutoCAD