

# Arthur Huang, PhD, LEED AP

Rosen College of Hospitality Management  
College of Engineering and Computer Science  
University of Central Florida  
Orlando, Florida 32819

Office: (407) 903 8212  
Email: arthur.huang@ucf.edu

## Academic Positions

- 2018-now Assistant Professor of Smart Cities, University of Central Florida
- 2014-2018 Assistant Professor of Civil Engineering, Texas A&M University-Stepenville
- 2013-2014 Research Associate, Dept. of Civil Engineering, University of Minnesota, Duluth
- 2007-2013 Research Assistant, Dept. of Civil Engineering, University of Minnesota, Twin Cities

## Research Interests

- Big data applications in cyber physical systems
- Integrated transportation-land use models
- Human-environment relationship and sustainability
- Smart travel and tourism

## Education

Ph.D. in Civil Engineering (Transportation), University of Minnesota, Twin Cities, 2014

*Dissertation:* Accessibility, Network Structure, and Consumers' Destination Choice: A Microscopic Analysis of GPS Travel Data

*Award:* ITS MN Best Paper Award and NCITE Best Paper Award

M.A. in Urban and Regional Planning, University of Minnesota, 2011

*Concentration:* Transportation Planning and Policy

Graduate Complex Systems Summer School (Santa Fe Institute, NM), 2006

M.S. in Software Engineering, Tsinghua University, China, 2007

B.S. in Mechanics and automation, Beihang University, China, 2004

## Licensure and skills

LEED Accredited Professional in Building Design and Construction

10+ years experience in using Sketchup, Revit, Civil3D, R, SAS, advanced GIS, Microsoft Project, and data mining techniques with applications in travel analytics

## Research Projects

The geography of emotions: Social media data and urban travel analytics, NSF CMMI \$250,000, PI (Under review).

How business clusters shape consumers' destination choice: Spatial analysis of online check-in data. Texas A&M University Organizational Research Grant (2016), \$8000, PI.

Travel analytics based on social media data, Texas A&M University-Stephenville New Faculty Development Grant (2015), \$5,500, PI.

## Publications

### *Big data applications in transportation systems*

**Huang A.**, Ebert D., Rider P. (2017) You Are What You Tweet: A New Hybrid Model for Sentiment Analysis. In: Perner P. (eds) Machine Learning and Data Mining in Pattern Recognition. MLDM 2017. Lecture Notes in Computer Science, vol 10358. Springer, Cham.

**Huang, A.** and Levinson, D. (2016) A model of two-destination choice in trip chains with GPS data. *Journal of Choice Modeling*: 24:51-62.

**Huang, A.** and Levinson, D. (2016) Axis of Travel: Modeling non-work destination choice with GPS Data. *Transportation Research Part C* 58: 208-233.

**Huang, A.** and Levinson, D. (2012) STREET: Where Simulation Meets Reality. In A.H. Duin, E. Nater, and F. Ankersaria (Eds.). *Cultivating Change in the Academy: 50+ Stories from the Digital Frontlines at the University of Minnesota in 2012*. University of Minnesota.

### *Social media data analytics for travel and tourism*

**Huang, A.**, Gallegos, L., and Lerman, K. (2017) Travel analytics: Understanding how destination choice and business clusters are connected based on social media data. *Transportation Research Part C: Emerging Technologies* 77: 245-256.

Gallegos, L., Lerman, K., **Huang, A.**, and Garcia, D. (2016) Geography of Emotion: Where in a City are People Happier? *Proceedings of the ACM International World Wide Web Conference (IW3C2)*: 569-574.

### *Integrated transportation-land use models*

**Huang, A.** and Levinson, D. (2016) Vehicle trip generation modeling based on multi-week GPS data. *Travel Behaviour and Society* (under final review).

**Huang, A.** and Levinson, D. (2012) Accessibility, Network Structure, and Consumers' Destination Choice: A GIS Analysis of GPS Travel Data and the CLLUSTER Simulation Module for Retail Location Choice. *MNDOT/CTS TechPlan Project Report*, St. Paul, MN: MN/DOT.

**Huang, A.** and Levinson, D. (2010) Why Retailers Cluster: An Agent Model of Location Choice on Supply Chains. *Environment & Planning B* 38 (1): 82-94.

**Huang, A.** and Levinson, D. (2009) Retail Location Choice with Complementary Goods: An Agent-based Model. *Complex Sciences: Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*, 4:175-187.

### ***Urban design for sustainability***

**Huang, A.** and Levinson, D. (2013) The Structure and Evolution of a Skyway Network. *The European Physical Journal: Special Topics on Complex Networks* 251(1): 123-134.

Levinson, D. and **Huang, A.** (2012) A Positive Theory of Network Connectivity. *Environment & Planning B* 39 (2): 308-325.

### ***Transportation policy analysis***

Cao, X., Xu, Z., and **Huang, A.** (2012) Safety Benefits of Converting HOV lanes to HOT lanes: Case Study of the I-394 MnPass. *The ITE Journal*, 82(2): 32-37.

**Huang, A.** and Levinson, D. (2010) The Effects of Daylight Saving Time on Vehicle Crashes in Minnesota. *Journal of Safety Research* 41(6): 513-520.

Fan, Y. and **Huang, A.** (2010) How Affordable is Transportation? A Context-Sensitive Framework. *MN-DOT/CTS TechPlan Project Report*, St. Paul, MN: MN/DOT.

### ***Book Reviews***

1. **Huang, A.** (2009) Book review of the Code and the City. *Journal of Transport and Land Use* 2(2): 79-81.

## **Teaching Experience**

Transportation Engineering and Policy

Sustainable Transportation

Computer-Aided System Design

Introduction to Geographic Information System

## **Industry Experience**

### ***Research Analyst Intern at Center for Clean Air Policy, Washington, DC (2010)***

Performed statistical analysis on the relationship between national GDP and VMT. Wrote memos on smart growth principles and managing urban sprawl. Prepared a proposal on a workshop on land use and accessibility to the Ford Foundation. Contributed to the Center's VMT and climate policy dialogue and low-carbon development plans for China.

### ***Lead Consultant hired by Bryn Mawr Neighborhood Association, Minnesota (2011)***

Completed an urban design project "The South Gateway: Designing the Penn Station on the Southwest LRT corridor in MN" to increase the viability of the Penn Station along the LRT corridor in Minneapolis. Designed and conducted surveys in the neighborhood. Performed land use analysis and urban design as initial results for this project.

## Invited Talks

1. The Geography of Emotions: Social Media Data and Urban Environment. Department of Civil and Environmental Engineering, University of Missouri-Columbia, MO, April 18, 2017.
2. How Business Clusters Shape Destination choice: A Model Based on Social Media Data. The 6th Transportation Research Board Conference on Innovations in Travel Demand Modeling Conference, May 1, 2016
3. Connected: Retail destination choice and shopping behavior. School of Landscape Architecture and Planning, University of Arizona, February 15, 2014
4. Connected: Retail destination choice and shopping behavior. Department of Civil Engineering, City College of New York, March 22, 2014
5. To Game or Not to Game: Teaching Transportation Planning with Board Games. AHB45 Committee on Traffic Flow Theory and Characteristics Webinar, March 18, 2013
6. Accessibility, Network Structure, and Consumers' Destination Choice: A GIS analysis of GPS Travel Data in the Twin Cities. Department of Civil and Environmental Engineering, Michigan Technological University, February 1, 2013
7. The Structure and Evolution of a Skyway Network. The MIT Senseable City Lab, June 12, 2012
8. Accessibility and Shopping Destination Choice. Department of Civil and Environmental Engineering, New Jersey Institute of Technology, March 28, 2012

## Selected Conference Presentations

1. You Are What You Tweet: A New Hybrid Model for Sentiment Analysis. Presented at 13th International Conference on Machine Learning and Data Mining, New York City, NY, July, 2017.
2. Axis of Travel: Modeling non-work destination choice with GPS Data. Presented at International Choice Modelling Conference, Austin, TX, May 2015
3. Survival-analysis based choice set formation approach for destination choice using GPS travel data. Presented at the 93rd Transportation Research Board Conference, Washington, DC, January 2014
4. Gasoline Price Effects on Traffic Safety in Urban and Rural Area: Evidence from Minnesota, 1998-2007. Presented at the 92nd Transportation Research Board Conference, Washington, DC, January 2013
5. Accessibility, Network Structure, and Consumers' Destination Choice: A GIS analysis of GPS Travel Data in the Twin Cities. Presented at the 91st Transportation Research Board Conference, Washington, DC, January 2012
6. To Game or Not to Game: Teaching Transportation Planning with Board Games. Presented at the 91st Transportation Research Board Conference, Washington, DC, January 2012
7. Accessibility, Network Structure, and Consumers' Destination Choice: A GIS analysis of GPS Travel Data in the Twin Cities, SLPP Techplan Roundtable, Humphrey School of Public Affairs, University of Minnesota, August 2011
8. Modeling the Minneapolis Skyway System (2010). Presented at the 90th Transportation Research Board Conference, Washington, DC, January 2011
9. Safety Benefits of Converting HOV lanes to HOT lanes: Case Study of the I-394 (2010). Presented at the 90th Transportation Research Board Conference, Washington, DC, January 2011

10. A Positive Theory of Network Connectivity (2010). Presented at the 90th Transportation Research Board Conference, Washington, DC, January 2011
11. How retailers affect shopping (2010). Presented at the 51st ACSP Annual Conference, Minneapolis, MN, October 2010
12. The Effects of Daylight Saving Time on Vehicle Crashes in Minnesota. Presented at the 89th Transportation Research Board Conference, Washington, DC, January 2010
13. Why Retailers Cluster: An Agent Model of Location Choice on Supply Chains. Presented at the International Conference on Transportation Economics, Minneapolis, MN, June 2009
14. An Agent-based Model of Retail Location Choice with Complementary Goods. Presented at the First International Conference on Complex Sciences: Theory and Applications, Shanghai, China, February 2009
15. An Agent-based Model of Retail Location Choice. Presented at the 55th Annual North American Meetings of the Regional Science Association International, NYC, November 2008

## Education Exhibitions

**Huang, A.** and D. Levinson. STREET: Simulating Transportation for Realistic Engineering Education and Training. Academic Technology Showcase: Innovation in Teaching, Learning, and Research, University of Minnesota, Minneapolis, April 4, 2012

**Huang, A.,** D. Levinson, H. Liu, and C.F. Liao. STREET: Where Simulation Meets Reality. 23rd Annual Transportation Research Conference of Minnesota, St. Paul, Minnesota, May 23, 2012

## Published Software

**Huang, A.** and D. Levinson (2010) ANGIE: Agent-based Network Growth model with Incremental Evolution. Available from <http://street.umn.edu/ANGIE/NetworkGrowth.html>

**Huang, A.** and D. Levinson (2010) CLUSTER (Clustered Locations of Urban Services, Transportation, and Economic Resources): An agent-based simulation module for retail location choice. Available from <http://www.street.umn.edu/CLUSTER.html>

## Media Coverage of My Work

Can daylight saving time save lives? John Hines Show on WCCO Radio, Nov. 5, 2010.

[Games in the classroom: teaching transportation planning with board games.](#) Catalyst, University of Minnesota, 2013.

[Daylight saving time: the first sign of spring.](#) StarTribune, March 9, 2014.

## Advised students

*Texas A&M University-Stephenville (2014-now)*

David Ebert (M.S.) Project: How urban systems shape emotions: Sentiment and spatial analysis of social media data.

Parker Rider (M.S.) Project: Using social media as a tool for disaster planning and evacuation.

### *University of Minnesota (2013-2014)*

Travis Jensen (M.S.) Project: Minnesota roundabout safety: A review and analysis of intersection safety

Seongah Hong (M.S.) Project: Existing studies on traffic flow during inclement weather and identification of issues with the approaches

## **Fellowships & Awards**

ITS MN Best Paper Award, 2012

North-Central Section Institute of Transportation Engineers Best Paper Award, 2012

Babak Armajani Prize for Excellent Graduate Students, University of Minnesota, 2010

Midwestern District ITE Best Graduate Student Paper Award, 2010

Best Graduate Student Paper Finalist Award, North American Regional Science Council, 2009

NCITE Graduate Student Fellowship, 2008

Graduate Fellowship for Tsinghua-Technical University of Munich Summer School on Transportation Planning and Traffic Control, Beijing, 2007

Graduate Fellowship for Santa Fe Institute Complex Systems Summer School, 2006.

Tsinghua Friend-GE Graduate Scholarship, Tsinghua University, 2005

## **Journal and Conference Paper Reviewing**

### *Editorial Board Member*

Journal of Computations and Materials in Civil Engineering (CMCE)

### *Technical Committee Member*

International Conference on Complex Systems: Theory and Applications

### *Reviewer*

Transportation Research: Part C

Transportation Research: Part F

Operations Research

Journal of Transport and Land Use

Journal of Safety Research

Journal of Transport Geography

Urban Rail Transit

Central European Journal of Operations Research

Intelligent Systems in Accounting, Finance and Management

Transportation Research Record

ASCE Journal of Professional Issues in Engineering Education and Practice

Sustainable Cities and Society