

# Junjun Yin, Ph.D

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## Contact information

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Supercomputing Applications  
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## Current position

*Postdoctoral Research Associate*

CyberGIS Center for Advanced Digital and Spatial Studies  
Department of Geography and Geographic Information Science  
National Center for Supercomputing Applications (NCSA)  
University of Illinois at Urbana-Champaign, IL, USA

## Research interests

Spatial Analysis; Location Based Social Media Big Data Analytics; (Geo) Visual-Analytics;  
Urban Complexity and Human Mobilities; Geo-Computing and Spatial Interaction (High  
performance, Web and Mobile GIS)

## Education

- 2009 - 2013 *Ph.D in Spatial Information Science, Dublin Institute of Technology, Ireland*  
*Dissertation: Mobile 2D and 3D Spatial Query Techniques for the Geospatial Web*  
*Advisors: Dr. James D. Carswell (Dublin Institute of Technology), Dr. Michela Bertolotto (University College Dublin)*
- 2006 - 2009 *MSc in Geomatics, University of Gävle, Sweden*  
*Dissertation: The topological patterns of urban street networks: Exploring the topological patterns of urban street networks from analytical and visual perspectives*  
*Advisor: Dr. Bin Jiang (University of Gävle)*
- 2002 - 2006 *BSc in Electronic Engineering, University of Electronic Science and Technology of China*

## Academic experience

- 2016-now Lecturer, University of Illinois at Urbana-Champaign, USA
- 2014-now Postdoctoral research associate, University of Illinois at Urbana-Champaign, USA

2013-2014 Senior demonstrator, Dublin Institute of Technology, Ireland  
 2007-2008 Research assistant, Hong Kong Polytechnic University, Hong Kong SAR, China

## Publications

### WORK IN PROGRESS

- 2016 **Yin, J.**, Soliman, A., Yin, D. and Wang, S. (2016). Delineate urban boundaries in Great Britain from the network of large scale Twitter user spatial interactions **submitted, in revision to International Journal of Geographical Information Science**
- 2016 **Yin, J.** and Du, Z. (2016). Exploring Multi-Scale Spatiotemporal Twitter User Mobility Patterns with a Visual-Analytics Approach **submitted to ISPRS International Journal of Geo-Information**

### JOURNALS

- 2016 Jiang, B., Ma, D., **Yin, J.** and Sandberg, M. (2016). Spatial Distribution of Tweet Numbers and Densities in Cities. *Geographical Analysis*, DOI: 10.1111/gean.12096
- 2015 Jiang, B., **Yin, J.** and Liu, Q. (2015). Zipf's Law for All the Natural Cities around the World. *International Journal of Geographical Information Science*, 29(3), pp. 498-522
- 2014 Jiang, B. and **Yin, J.** (2014). Ht-Index to Quantify the Fractal or Scaling Structure of Geographic Features. *Annals of the Association of American Geographers*, pp. 1-12
- 2013 **Yin, J.** and Carswell, J.D. (2013). Spatial Search Techniques for Mobile 3D Queries in Sensor Web Environments. *ISPRS International Journal of Geo-Information* 2(1): pp.135-154
- 2010 Carswell, J. D., **Yin, J.** and Gardiner, K. (2010). 3DQ: Threat Dome Visibility Querying on Mobile Devices *GIM International*, 24(8)
- 2010 Carswell, J.D., Gardiner, K. and **Yin, J.** (2010). Mobile Visibility Querying for LBS. *Transactions in GIS*, 14(6): pp. 791-809, Wiley online library
- 2009 Jiang, B., **Yin, J.** and Zhao, S. (2009). Characterizing the human mobility pattern in a large street network. *Physical Review E*, 80(2), 021136
- 2008 Jiang, B., Zhao, S. and **Yin, J.** (2008). Self-organized natural roads for predicting traffic flow: a sensitivity study. *Journal of statistical mechanics: Theory and experiment*, Po7008, IOP Publishing

### INTERNATIONAL CONFERENCES AND LECTURE NOTES

- 2016 **Yin, J.**, Lu, B., Yin, D. and Wang, S. (2016). A scalable visual-analytics approach for studying mobility networks: Revealing hierarchical structures in taxi mobility flows of New York, *The Third International Conference on CyberGIS and Geospatial Data Science*, July 26-28, 2016, Urbana, Illinois (Accepted)
- 2016 Jeong, M., **Yin, J.**, Sullivan, C. and Wang, S. (2016). Robust statistical approaches to enhance spatial autocorrelation, *The Ninth International Conference on Geographic Information Science (GIScience 16)*, Montreal, Canada. (Accepted)
- 2016 **Yin, J.**, Gao, Y. and Wang, S. (2016). Urban Sensing from Volunteered Citizen Participation

using Mobile Devices. In *Seeing Cities through Big Data: Research, Methods and Applications in Urban Informatics*, Springer (forthcoming)

- 2015 Soliman, A., **Yin, J.**, Soltani, K., Padmanabhan, A., and Wang, S. (2015). Where Chicagoans tweet the most: Semantic analysis of preferential return locations of Twitter users, *1st International Workshop on Smart Cities and Urban Analytics 2015, 23rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*
- 2014 **Yin, J.** and Wang, S. (2014). Understanding the Evolvments of Natural Cities from Night-time Light Images: A CyberGIS-Enhanced Approach to Large Scale Geospatial Data Analysis, *The Second International Conference on CyberGIS and Geodesign*, August 19-21, 2014, Redlands, California
- 2014 **Yin, J.**, Gao, Y. and Wang, S. (2014). CyberGIS Enabled Urban Sensing from Volunteered Citizen Participation using Mobile Devices. *Workshop on Big Data and Urban Informatics 2014*
- 2013 Truong-Hong, L., Thi, T.T.P, **Yin, J.** and Carswell, J.D. (2013). Detailed 3D building models for Google Earth integration. In *Proceedings of the 13th International Conference on Computational Science and Its Applications (ICCSA 2013)*, Ho Chi Minh City, Vietnam: Springer(\*Best paper award)
- 2013 Thi, T.T.P, Truong-Hong, L., **Yin, J.** and Carswell, J.D. (2013). Exploring Spatial Business Data: A ROA based eCampus application. In *Proceedings of the 11th International conference on Web and Wireless Geographical Information Systems*, Banff, AB: Springer Berlin Heidelberg, pp. 164-179
- 2012 **Yin, J.** and Carswell, J.D. (2012). Effects of Variations in 3D Spatial Search Techniques on Mobile Query Speed vs Accuracy. *Web and Wireless Geographical Information Systems*, Naples, Italy. (\*Best paper award)
- 2012 Carswell, J.D. and **Yin, J.** (2012). Mobile Spatial Interaction in the Future Internet of Things. In *Proceedings of the 20th International Conference on Geoinformatics (GEOINFORMATICS)*, 2012, pp. 1-6
- 2012 **Yin, J.** and Carswell, J.D. (2012). MobiSpatial: Open-source for Mobile Spatial Interaction. *SAC, 12 Proceedings of the 27th Annual ACM Symposium on Applied Computing*, pp. 572-573
- 2012 **Yin, J.** and Carswell, J.D. (2011). Touch2Query enabled mobile devices: A case study using OpenStreetMap and iPhone. *Web and Wireless Geographical Information Systems*, pp. 203-218, Springer
- 2009 Gardiner, K., **Yin, J.** and Carswell, J.D. (2009). EgoViz: A mobile based spatial interaction system. *Web and Wireless Geographical Information Systems*, pp. 135-152, Springer

#### BOOKS

- 2009 **Yin, J.** (2009), *The Topological Patterns of Urban Street Networks: Exploring the topological patterns of urban street networks from analytical and visual perspectives*, VDM: Germany, ISBN: 3639161734

#### TALKS AND PRESENTATIONS

- 2016 **Yin, J.** and Wang, S. (2016). Mining Mobility Patterns From Semantic Twitter User Trajectories. The Association of American Geographers Annual Meeting, March 29 – April 2,

- 2016, San Francisco, California, USA
- 2015 **Yin, J.** and Wang, S. (2015). Finding community structures of UK cities based on large-scale Twitter user mobility patterns, *Association of American Geographers Annual Meeting, Chicago, 2015*, April 21-25, 2015, Chicago, Illinois, USA
- 2011 **Yin, J.** (2011), Web-service based Mobile Geospatial Application Development using Python, *PyCon 2011*, Dublin, Oct 8-9

## Teaching experience as instructor

- 2016 - GEOG 479: Advanced Topics in GIS – CyberGIS, Spring, 2016, *course*, Department of Geography and Geographic Information Science, UIUC
- 2015 - Parallel Databases, *workshop/short course*, CyberGIS Center, UIUC
- 2015 - Interactive Visualization of Large-scale Movement Data using Apache Spark, *Summer school series*, CyberGIS Center, UIUC
- 2015 - Introducing the CyberGIS Toolkit in high performance computing environment, *workshop/short course*, CyberGIS Center, UIUC
- 2015 - Taming with geospatial Big Data with Hadoop, *workshop/short course*, CyberGIS Center, UIUC
- 2014 - Getting to know CyberGIS, *workshop/short course*, CyberGIS Center, UIUC
- 2014 - now Education and outreach at the CyberGIS Commons, *secretary*, University of Illinois at Urbana-Champaign, 2014 - now
- 2013 Programming in C, *senior demonstrator/assistant lecture*, Dublin Institute of Technology, 2013 - 2014
- 2013 Object oriented programming for game development, *senior demonstrator/assistant lecture*, Dublin Institute of Technology, 2013 - 2014
- 2013 User interface design and GUI programming with Java, *senior demonstrator/assistant lecture*, Dublin Institute of Technology, 2013 - 2014

## Skills

Programing languages: Java, Python, Objective-C, Matlab, R, JavaScript  
 High performance computing: Apache Hadoop, Apache Spark, MongoDB  
 Mobile and Web development: iOS and Android, Cesium 3D Globe, D3.js  
 Spatial databases: PostGIS, Oracle Spatial, SpatiaLite

## Service to the profession

### PROGRAM COMMITTEES

Session Chair for Understanding Urban Dynamics Based on Movement Big Data, 2016 AAG Annual Meeting, San Francisco, California, March 29 - April 2, 2016  
 Program committee member for International Conference on Location-based Social Media Data, Athens, Georgia, USA, March 5-7, 2015

#### REVIEWER FOR JOURNALS

Reviewer for *International Journal of Geographical Information Science (IJGIS)* (2010, 2014, 2015, 2016)

Reviewer for *Geographical Analysis*(2016)

Reviewer for *Journal of Geographical Systems*(2016)

Reviewer for *Science China* (2015)

Reviewer for *PLOS One* (2013, 2015)

Reviewer for *Computers, Environment and Urban Systems (CEUS)* (2009, 2010, 2013, 2014, 2015, 2016)

Reviewer for *Cities* (2014)

Reviewer for *ISPRS International Journal of Geo-Information*(2013, 2014, 2015)

Reviewer for *Journal of Location Based Services* (2013)

#### REVIEWER FOR CONFERENCES

Reviewer for GIScience 14 2014

### Honors and awards

*Fiosraigh Head of School Research Award*: for excellence in research, Dublin Institute of Technology

*EU Future Internet Award*: for excellence in Future Internet research

*PhD scholarship from Science Foundation Ireland (SFI)*: StratAG PhD scholarship

*Outstanding Graduate Student Award*: University of Electronic Science and Technology of China

*Best Undergraduate Dissertation Award*: Department of Electronic Engineering, University of Electronic Science and Technology of China

*National Undergraduate Electronic Design Contest: Second prize*: Embedded system for Multi-channel and frequency wave generating, (Team: Yu Chen, Junjun Yin and Xia Yu)

### Referees

#### **Dr. Shaowen Wang**

Professor and Centennial Scholar

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#### **Dr. James D. Carswell**

Principal Investigator

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