Yu Zheng (郑宇) TR35

Senior Research Manager, Microsoft Research

Chair Professor, Shanghai Jiao Tong University

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Short Biography

Dr. **Zheng** is a senior research manager of Urban Computing Group at Microsoft Research, passionate about using big data to tackle urban challenges. His research interests include big data analytics, spatio-temporal data mining, artificial intelligence, applied machine learning, and ubiquitous computing. He has authored almost 100 referred publications at prestigious international conferences and journals (with over 12,000 citations and H-index 51), such as SIGMOD, *VLDB, KDD, AAAI, UbiComp*, *Artificial Intelligence* and *TKDE*. He has received **five best paper awards** from well-known conferences, such as ICDE'13, ACM SIGSPATIAL'10, and UbiComp'11. He has been featured multiple times by influential journals. He was named one of the **Top Innovators under 35** in 2013 by MIT Technology Review (**TR35**) and **featured by Time Magazine** as a modern inventor for his research on urban computing. In 2014, he was named one of the **Top 40 Business Elites under 40** in China by **Fortune,** for the business impact of urban computing he has been advocating since 2008.

Zheng serves as the **Editor-in-Chief of *ACM Transactions on Intelligent Systems and Technology*** and a member of the **Editorial Advisory Board of *IEEE Spectrum***. He is also a member of the Editorial Board of *IEEE Transactions on Big Data* and *GeoInformatica*. He has served as chair on over 10 prestigious international conferences – most recently, as the program chair of ICDE 2014 (industrial track), PC chair of UIC 2014, demo chair of SSTD 2013, and industrial chair of UbiComp2012, etc. He was invited to give keynote speeches at over 10 international conferences and forums, such as APEC smart city forum 2014 and IE 2014. He gives guest lectures frequently in universities like Massachusetts Institute of Technology (MIT), Carnegie Mellon University, and Cornell. So far, he has supervised over 50 visiting Ph.D. students from around the world. His book, titled "Computing with Spatial Trajectories", has been used in universities world-widely and awarded one of **the Top 10 Most Popular Computer Science Books** published by Chinese authors at Springer. Zheng is an *ACM Distinguished Scientist*, a Distinguished Member and a Distinguished Speaker of China Computer Federation. He is also a **Chair Professor at Shanghai Jiao Tong University**, an **Adjunct Professor of Hong Kong University of Science and Technology**, **Hong Kong Polytechnic University** and Tianjin University, a Chair Professor of XIDIAN University, and an Affiliate Professor of Southwest Jiaotong University.

Zheng has built a number of real big data systems, such as GeoLife, T-Drive, T-Share, CityNoise, and Urban Air, which drew widespread attention from academia, industries, and media. His technologies have been transferred into Microsoft products, such as Bing Search, Bing Maps, and CityNext. Particularly, the Urban Air system built by his team has been **deployed in Chinese Ministry of Environmental Protection to infer and forecast fine grained air quality for over 300 cities in China**. He received 3 technical transfer awards from Microsoft and 24 granted/filed patents. In 2008, he was recognized as the Microsoft Golden Star. He joined MSRA in July 2006 after received his Ph.D. degree in communication & information systems from Southwest Jiaotong University.

Focused Research Themes

1) Urban Computing

2) Location-Based Social Networks

3) Trajectory Data Mining & **Computing with Spatial Trajectories**

Honors

1. 2016 **ACM Distinguished Scientist**
2. One of the Top 10 Most Popular Computer Science Books published by Chinese Authors at Springer
3. Distinguished Member of China Computer Federation, July 2015
4. 2014 Top 40 Business Elites under 40 in China by **Fortune** Magazine
5. 2014 Modern Innovator featured by **Time** Magazine
6. 2013 Top Innovators under 35 by MIT Technology Review ([TR35](TR35))
7. ACM Senior member, since Jan. 2012
8. IEEE Senior member, since Oct. 2011
9. Distinguished Speaker of China Computer Federation
10. Microsoft Golden Star, 2008
11. Best paper runner-up award at 29th IEEE International Conference on Data Engineering (ICDE 2013)
12. Best paper award at 7th International Conf. on Advanced Data Mining and Applications (ADMA 2011)
13. Best paper nominee award at 13th International Conf. on Ubiquitous Computing (UbiComp 2011)
14. Best paper runner-up award at ACM SIGSPATIAL GIS 2010
15. Best paper award at the 8th International Conf. on Ubiquitous Intelligence and Computing (UIC 2010)
16. The most cited paper in ACM SIGSPATIAL GIS 2008 and 2010
17. The most cited paper in UbiComp 2008
18. The most cited paper in IEEE Data Engineering Bulletin. 2010
19. Outstanding Ph.D. thesis award from Southwest Jiaotong University 2007

Professional Experiences

2006.7 – Present: Associate Researcher, Researcher, and Lead Researcher, Microsoft Research
- Lead the research on urban computing and location-based social networks.
- Developed and deployed real systems, such as GeoLife, T-Drive, T-Share, T-Finder, and Urban Air.
- Transferred technologies into Microsoft Products, such as Bing Maps and CityNext.
- Collaborate with Center of Urban Science and Progress in New York City.
- Received 3 technical transfer awards and 24 patent awards from Microsoft.
- Published over 50 referred papers as a leading author at prestigious conferences and journals, such as SIGMOD, VLDB, ICDE, SIGKDD, AAAI, WWW, UbiComp, and IEEE TKDE.
- Supervised over 50 visiting students from around the world.
- Gave tutorials in WWW 2012 and ACM SIGSPATIAL 2011
- Delivered over 10 keynote speeches at international conferences
- Gave over 60 guest lectures in universities like MIT, CMU, UIUC and Cornell.

2013.4 – Present: Chair Professor, Zhiyuan College, Shanghai Jiao Tong University
- Teaching subjects: Spatio-Temporal Data Analytics (2 points per semester).
- Supervise Ph.D. Students and work with other faculties

2014.8 – Present: Affiliate Professor, School of Info. Science and Tech., Southwest Jiaotong University
- Supervise Ph.D. students (as a Ph.D. advisor) and collaborate with faculties
- Give lectures and talks on spatio-temporal data mining and urban computing
- Consultant big data strategy for the university

2015.1 – Present: Adjunct Professor, Computing Department, Hong Kong Polytechnic University

- Involving in the collaboration on urban big data and urban computing
- Give talks and lectures to students and faculties at HK Poly U

2015.6 – Present: Editor-in-Chief of ACM Transactions on Intelligent Systems and Technology (IF: 2.41)

2015.7-Present: Affiliate Chair Professor, School of Computer Science, XIDIAN University.
- Supervise Ph.D. students
- Teach a course for graduate students: Urban Computing

2015.7- Present: Adjunct Professor, School of Computer Science and Technology, Tianjin University
- Collaborate on urban computing for public safety

2016.1- Present: Adjunct Professor, Department of Computer Science and Engineering, Hong Kong University of Science and Technology
- Teaching a course on urban computing
- Co-supervise Ph.D. students with faculties

Education

2003.9-2006.6 Ph.D. in Communication and Information Systems, Southwest Jiaotong University, China
2001.9-2003.6 Master in mechatronics & computer science, Southwest Jiaotong University, China
1997.9-2001.7 Bachelor in mechatronics, Southwest Jiaotong University, China
1994.9-1997.7 No. 8 high school of Hengyang city

Selected Professional Activities

Keynotes (20+ at ACM and IEEE Conferences and Forums)

- Keynote Speech at the 2016 IEEE International Conference on Smart Data (SmartData 2016), Chengdu, China, 2016.12.16
- Keynote Speech at the 7th ACM SIGSPATIAL International Workshop on GeoStreaming (IWGS 2016), San Francisco, USA, 2016.10.31.
- Keynote Speech at the 24th IEEE International Requirements Engineering Conference (RE 2016), Beijing China, 2016.9.15
- Keynote Speech at the 10the IEEE International Conference on Big Data Science and Engineering (IEEE BIGDataSE 2016), Tianjin, China, 2016.8.24
- Keynote Speech at the 2nd International Conference of Young Computer Scientists, Engineers and Educators (ICYCSEE 2016), Harbin, China, 2016.8.20
- Keynote Speech at the 5th ACM SIGKDD International Workshop on Urban Computing (UrbComp 2016), San Francisco, USA, 2016.8.14
- Keynote Speech at the 2016 International Conference on Smart X (Smart X 2016), Dalian, China, 2016.7.30
- Keynote Speech at 15th China Conference on Machine Learning (CCML 2015), Chengdu, 2015.10.17.
- Keynote Speech at the 4th ACM SIGKDD International Workshop on Urban Computing (UrbComp 2015), Sydney, Australia, 2015.8.10
- Keynote Speech at the 2nd International Conference on Sustainable Urbanization (ICSU 2015), Hong Kong, 2015.1.
- Keynote speech at the 10th IEEE International conference on Intelligent Environment (IE 2014), Shanghai, China, July 2014.

- Keynote speech at the 9th International Workshop on Geographical Science (IWGS 2014), Beijing, China, June 2014.
- Keynote speech at the CCF forum on Urban Sensing and Computing, Hangzhou, China, 2014.6
- Keynote speech at the World Geospatial Developers Conference (WGDC 2014), Beijing, China, June 2014.
- Keynote speech at the MIT Sloan Technology Innovation and Entrepreneurship Forum, 2014.5.17
- Keynote speech at the Big Data and Internet Economy forum, 2014.4. Peking University.
- keynote speech at APEC smart city innovation & technology cooperation forum. Changzhou, China, April 10, 2014. (Link)
- Keynote speech at the International Symposium on Grids and Clouds (ISGC), Taipei, 2014.3
- Keynote speech at the 8th International Conference on Intelligent Systems and Knowledge Engineering (ISKE2013). Shenzhen, China, Nov. 21, 2013.
- Keynote speech at 2013 Chinese Conference of Complex Networks, Hangzhou, China, Sept. 15, 2013.
- Keynote speech at the World Geospatial Developers Conference (WGDC 2013), 2013.5.15, Beijing, China (over 2,500 audiences)
- Keynote speech at the China Annual Conference of GIS Theory and Methodology. 2012. Sept. Chengdu China.

Editorial Boards and Editors

- **Editor-in-Chief of ACM Transactions on Intelligent Systems and Technology**
- **Editorial Advisory Board of IEEE Spectrum** (one of the 25 members)
- **Editorial Board of IEEE Transaction on Big Data**.
- Associate editor of **GeoInformatica**. Springer.
- Editorial board of Journal of Location-Based Services.
- Guest editor of the special issue on Urban Computing at ACM Transaction on Intelligent Systems and Technology (**ACM TIST**) 2012-2013
- Guest editor of the special issue on location-based social networks for the International Journal on Distributed and Parallel Databases
- Editor of the book "Computing with Spatial Trajectories", Springer.

Chairs

- **PC co-Chair** (Industrial Track) of the International Conference on Information and Knowledge Management (**CIKM 2017**)
- Sponsorship Co-Chair of the 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining **(KDD 2016)**
- Co-Organizer of Data Science of China Forum at the 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD 2016)**
- Program Chair of the ACM SIGKDD China Forum: from Big data to AI, 2016.12.17
- Program Co-Chair of the 5th ACM SIGKDD International Workshop on Urban Computing (UrbComp 2016)
- Program Chair of the first ACM SIGKDD China Annual Conference (KDD China 2016)
- Program Chair of the Global Artificial Intelligence and Robots Summit (GAIR 2016)
- Area Chair of the IEEE International Conference on Data Mining (**ICDM 2015**)
- Program Chair of the 4th ACM SIGKDD International Workshop on Urban Computing (UrbComp 2015)
- **Program chair** of the 11th IEEE International Conference on Ubiquitous Intelligence and Computing (UIC 2014)
- **Program chair** of the 30th IEEE International Conference on Data Engineering (Industrial Track) (**ICDE 2014**)

- Industrial PC chair of Asia-Pacific Web Conference (APWeb 2014)
- Program Chair of the 3th ACM SIGKDD International Workshop on Urban Computing (UrbComp 2014)
- Demo chair of Spatial and Spatio-Temporal Databases (SSTD 2013)
- Publicity Chair of PAKDD 2014
- **Program Chair** of the 2nd ACM SIGKDD International Workshop on Urban Computing (UrbComp 2013)
- Chair of CCF Advanced Disciplines Lectures (ADL) on Urban Computing (Details)
- Session Chair of ACM SIGKDD conference onKnowledge Discovery and Data Mining (**KDD 2012**)(**KDD 2016**).
- Industrial Chair of the 14th ACM International Conference on Ubiquitous Computing (Ubicomp 2012)
- **Program Chair** of the 4th ACM International Workshop on Location-Based Social Networks (LBSN 2012)
- **Program Chair** of the ACM SIGKDD International Workshop on Urban Computing (UrbComp 2012)
- Session Chair of the ACM International Conference on **Ubiquitous Computing** (Ubicomp 2011)
- **Program Chair** of the Third ACM SIGSPATIAL International Workshop on Location-Based Social Networks (LBSN 2011)
- Local Chair of the ACM International Conference on **Ubiquitous Computing** (Ubicomp 2011)
- Session Chair of the IEEE International Conference on Ubiquitous Intelligences and Computing (UIC 2010)
- Session Chair of the second ACM SIGSPATIAL Workshop on Location-Based Social Networks (LBSN 2010)
- **Program Chair** of International Conference on Advances in Multimedia (MMEDIA 2009)

Program Committee

- ACM SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2012/2013/2014/2015/2016**)
- **Senior PC** of ACM SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2016**)
- PC of American Association of Artificial Intelligence conference (**AAAI 2014/2015/2016)**
- **Senior PC** of American Association of Artificial Intelligence conference **(AAAI 2017**)
- **Senior PCs** and PC of SIAM International Conference on Data Mining (**SDM 2013/2014/2016/2017**)
- IEEE International Conference on Data Mining (**ICDM 2013/2014/2016**)
- ACM International Conference on Web Search and Data Mining (**WSDM 2013/2014**)
- International Joint Conference on Artificial Intelligence (**IJCAI 2011**)
- The International Conference on Ubiquitous Computing (**UbiComp 2011**)
- **Senior PCs** of PAKDD 2017/2016/2015/2014/2013/2012
- **Best paper awarding committee** PAKDD 2017
- The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ICML-PKDD 2015)
- ACM SIGSPATIAL International Conference on Geographic Information Systems (**ACM SIGSPATIAL** 2016/2015/2014/2013/2011/2010)
- International Symposium on Spatial and Temporal Database (SSTD 2011/2013/2015)
- IEEE International Conference on Mobile Data Management (MDM 2016/2015/2014/2013/2012/2010)
- The Extending Database Technology (**EDBT 2013**)
- International Conference on Database Systems for Advanced Applications (DASFAA 2011)
- Australasian Database Conference (ADC 2012/2011/2010)
- International Conference on Database and Expert Systems Applications (DEXA 2013/12/11/10/09)
- Senior PC of the International Conference on Multimodal Interaction (ICMI 2014)
- International Conference on Ubiquitous Intelligences and Computing (UIC 2011/2010)
- ACM International Conference on Mobile and Ubiquitous Multimedia (MUM 2010/2009/2008)
- International conference on Mobile Computing, Applications, and Services (MobiCASE 2011/2010)

- International Conference on Web Information Systems Engineering (WISE 2009/2008)
- International Conference on Wireless Information Networks and Systems 2009 (Winsys 2009)
- ACM Multimedia: Location-based and mobile multimedia Track (ACM MM 2011)
- International Conference on Advance of Computer Human Interaction (ACHI 2011/2009)
- International conference on Intelligent User Interface (IUI 2009)
- International Conference on Human Computer Interaction 2008 (HCI 2009/2008)

Media Interviews and Reports

- **NBC News**: Microsoft, IBM Eye Big Business Opportunity in China's Air Pollution. 2015.12.28
- **Reuters**: Tech giants spot opportunity in forecasting China's smog, 2015.12.28
- China Environment News："How big data can help forecast smog", 2015.12.14
- GeekWire Reporter：What Microsoft Research is doing to help Beijing air pollution, 2015.11.30
- Springer：Top 10 Most Popular Computer Science Books authored by Chinese, 2015.9
- ComputerWorld：Microsoft predicts China's air pollution with data analysis, 2015.6.11
- Ming Pao (HK): Microsoft predicts air quality with big data, 2015.6.10
- **Fortune**: Top 40 Business Elites under 40 in China, 2014.12
- MIT Technology Review: Urban computing- using big data to solve urban challenges (In Chinese). 2014.8.31
- United Nations Global Pulse: Inferring citywide gas consumption and vehicle emission, 2014.8.28
- Featured by **Time Magazine** as a modern inventor, Nov. 23, 2013
- Interviewed by IFeng.com. Big data can predict air quality. 2013.11.29 (In Chinese)
- Sciencenet: Six Chinese scientists in Top Innovators under 35, 2013.8.23
- **MIT Technology Review:** "Analyzing newly available data about the intricacies of urban life could make cities better." 2013.8.21
- CEO&CIO: Urban Computing: Finding the intelligence from taxi trajectories, 2012.1 (In Chinese).
- MSNBC.com: "Taxicab data helps ease traffic". Future of Technology on MSNBC.com. 2011.9.30
- **MIT Technology Review**: "GPS Data on Beijing Cabs Reveals the Cause of the Traffic Jams", 2011.9.27. Featured on the first page.
- "Urban computing based on taxicabs". Reported by ACM TechNews. 2011.9.27
- **MIT Technology Review**: "Customize a personalized driving route for you", 2011.9.5 (In Chinese).
- **MIT Technology Review**: "A driving route made just for you", 2011.8.30.
- **MIT Technology Review**: Adding cabbie know-how to online maps, news featured on the first page, 2010.11.6
- **NewScientist**: Follow that cab! Racing Google Maps on city streets, 2010.11.5
- Dedicated Interview by ZOL.com, China Conferecen on World Wide Web (In Chinese)
- Day Day up 2009.10.23, The most popular entertainment TV program in China (In Chinese).
- GeoLife 2.0 interview on Microsoft Channel 10 (video), 2009
- Geolife 1.0 interview by CNET and Seattle Times (video), 2008
- Dedicated Interviewed by Sohu.com, Enlightening Research with Arts (In Chinese)

Teaching

- Course: *Spatio-Temporal Data Analytics*, In Shanghai Jiao Tong University (2013-present)
  - o Students: Undergraduate students from ACM class (in Zhiyuan College) and IEEE class (in Computer Science department); Also open to graduate students

- A 2-point subject (32 hours per semester)
- Course: *Big Data Foundations and Applications*, in Tsinghua University (2015)
    - Joint Course with Faculties from Tsinghua University
    - Students: Graduate students of IIIS, open to graduate students of other schools.
- Summer Schools
    - [Big Data and Ubiquitous Computing](#), in Peking University (2015.7).
    - Urban Computing and Big Data, in Shandong University (2015.7)
- Course: Urban Computing, in Xidian University (2015.9-12)
    - Students: Graduate students from computer science school
    - A 2-point subject (32 hours per semester)

Guest Lectures and Invited Talks

- **Guest Lectures in International Universities (Language: English)**
    - Institute for Advanced Study (IAS) talk at Hong Kong University of Science and Technology. "Urban computing: Using Big Data to Solve Urban Challenges". 2015.1.9 ([link](#))
    - Distinguished Lecture at Hong Kong Baptist University, "Urban computing: Using Big Data to Solve Urban Challenges". 2014.12.2 ([link](#))
    - Hong Kong University of Science and Technology, "Urban Computing: Using Big Data to Solve Urban Challenges", 2014.3.27
    - Chinese University of Hong Kong, "Urban Computing: Using Big Data to Solve Urban Challenges", 2014.3.28
    - **MIT, CEE Department**, "Urban Computing: Using Big Data to Solve Urban Challenges", 2013.10.8
    - The University of Illinois at Chicago, "Urban Computing with Big Data", 2013.8.19
    - The University of Melbourne, "Urban Computing: Using Big Data to Solve Urban Challenges. 2013.4.16
    - National Taiwan University, "Urban Computing with City Dynamics". 2012.11.15
    - **DB colloquium in Cornell University**, "Urban Computing with City Dynamics". 2012.9.17
    - Telecom Seminar in University of Pittsburgh. "Urban Computing with City Dynamics". 2012.9.15
    - **Carnegie Mellon University (CMU)**, "Urban Computing with City Dynamics". 2012.9.11
    - National Chiao-Tong University of Taiwan. "Urban Computing" 2012.5.10
    - Barabasi Lab in North Eastern University (USA), "Urban Computing". 2012.4.12
    - **University of Illinois at Urbana-Champaign**, "Location-Based Social Networks". 2011.11.3
    - **MIT Media Lab**, "Urban Computing: Using City Dynamics to Tackle the Biggest Challenges in Urban Spaces". 2012.4.10.
- **International talks (Language: English)**
    - Roundtable of Thought Leaders on Innovation in Cities, Singapore, 2015.1.19
    - Tech Forum of APAC Innovation Summit 14, Hong Kong Convention and Exhibition Centre 2014.12.2
    - NYU Shanghai Symposium on Data Science and Applications. 2014.11.23
    - Invited talk at Huawei Noah'S Ark Lab, "Urban Computing with Big Data", Nov. 20, 2013.
    - Invited talk at the 1st Forum on Computational Earth System Science, "Urban Computing with Big Data", Tsinghua University, Nov. 9, 2013.
    - **Talk at EmTech 2013**, "When Air Quality Meets Big Data", 2013.10.9
    - Invited talk at IBM Research at T.J. Watson, "Urban Computing with Big Data", 2013.8.27
    - Invited talk at Microsoft Research at NYC, "Urban Computing with Big Data", 2013.8.22
    - Invited talk at Nokia at Chicago, "Urban Computing: Using Big Data to Solve Urban Challenges",

2013.8.20
- Jointly invited talk at the University of Sydney and NICCTA, "Urban Computing: Using Big Data to Solve Urban Challenges. 2013.4.5
- MSRA lecture: "On Publication of the Research", March 23, 2011.
- The invited talk at Microsoft Location Summit 2009, "GeoLife: a location-based social networking service"
- Invited talk in Samsung Electronic Research, GeoLife: Understanding User Behavior Geospatially

Panelists

- Roundtable of Thought Leaders on Innovation in Cities, Singapore, 2015.1.19
- The Connected Cities Panel, **EmTech 2013,** Cambridge, MA, USA, 2013.10
- Early Career Panel, at Spatial and Spatio-Temporal Databases (SSTD 2011).
- Mobile applications, Wireless China Industry Summit 2010
- Location-Based Services, Wireless China Industry Summit 2009
- Location-Based Services, Wireless China Industry Summit 2008

Publications   (12,000+ citations, H-Index 53, 3,200+ citations in the past single year)

(Authors associated with * are/were the interns I have supervised in MSRA)

Books, Book Chapters, Special issues, and Proceedings

- Rui Zhang, Timos Sellis, **Yu Zheng**, Mohamed Mokbel (Eds.): The Special Issue on Data Management and Analysis in Location-Based Social Networks. Distributed and Parallel Databases.
- **Yu Zheng**, Licia Capra, Ouri Wolfson, Yang Hai (Eds.): The Special Issue on Urban Computing. ACM Transactions on Intelligent Systems and Intelligent Systems.
- M. A. Nascimento, T. Sellis, R. Cheng, J. Sander, **Yu Zheng**, H.-P. Kriegel, M. Renz, C. Sengstock (Eds.): Advances in Spatial and Temporal Databases - 13th International Symposium, SSTD 2013, Munich, Germany, 2013. Proceedings**.** Springer 2013 Lecture Notes in Computer Science ISBN 978-3-642-40234-0
- **Yu Zheng** and Xiaofang Zhou, Computing with Spatial Trajectories. Springer 2011. ISBN:978-1-4614-1628-9
- **Yu Zheng**, Location-Based Social Networks: Users. Springer press, 2011. (A book chapter). ISBN: 978-1-4614-1628-9
- **Yu Zheng** and Xing Xie, Location-Based Social Networks: Locations. Springer press, 2011. (A book chapter)
- **Yu Zheng**, Mohamed F. Mokbel. Proceeding of the 3rd ACM SIGSPATIAL International Workshop on Location-Based Social Networks.
- **Yu Zheng**, Ouri Wolfson. The Proceeding of the International Workshop on Urban Computing. UrbComp 2012.
- **Yu Zheng,** Jason Hong. The Proceeding of the 4th international workshop on Location-Based Social Networks (LBSN 2012)
- **Yu Zheng**, Steven E. Koonin, Ouri Wolfson. The Proceeding of the 2nd International Workshop on Urban Computing. UrbComp 2013.

Journal Papers

1. Siyuan Zhang, Lu Qin, **Yu Zheng**, and Hong Cheng. Effective and Efficient: Large-scale Dynamic City Express. IEEE Transactions on Data Engineering (**TKDE**).

2. Yanjie Fu, Hui Xiong, Yong Ge, **Yu Zheng**, Zijun Yao, and Zhi-Hua Zhou. Modeling of Geographic Dependencies for Real Estate Ranking. ACM Transactions on Knowledge Discovery from Data (TKDD). DOI:10.1145/2934692

3. Dongyu Liu, Di Weng, Yuhong Li, Jie Bao, **Yu Zheng**, Huaming Qu, Yingcai Wu, "SmartAdP: Visual Analytics of Large-scale Taxi Trajectories for Selecting Billboard Locations", IEEE Transactions on Visualization & Computer Graphics, (1), pp.1-10.

4. **Yu Zheng.** Methodologies for Cross-Domain Data Fusion: An Overview. IEEE Transactions on Big Data, vol. 1, no. 1. 2015.

5. **Yu Zheng**. Trajectory Data Mining: An Overview. ACM Transaction on Intelligent Systems and Technology (**ACM TIST**). 2015. vol. 6, issue 3. *Hot!*

6. Nicholas Jing Yuan*, **Yu Zheng**, Xing Xie, Yingzi Wang, Kai Zheng, Hui Xiong. Discovering Urban Functional Zones Using Latent Activity Trajectories, IEEE Transactions on Knowledge and Data Engineering (**TKDE**), 2015, vol. 27, issue 3, 1041-4347.

7. Fuzheng Zhang*, Nicholas Jing Yuan, David Wilkie, **Yu Zheng**, Xing Xie. Sensing the Pulse of Urban Refueling Behavior: A Perspective from Taxi Mobility. ACM Transaction on Intelligent Systems and Technology (**ACM TIST**). 2015, vol 6, issue 3.

8. Jie Bao*, **Yu Zheng**, David Wilkie, Mohamed F. Mokbel. Recommendations in Location-based Social Networks: A Survey. GeoInformatica, vol. 19, no. 3, 525-565, 2015. DOI：10.1007/S10707-014-0220-8.

9. **Yu Zheng**, Licia Capra, Ouri Wolfson, Yang Hai. Urban Computing: Concepts, Methodologies, and Applications. ACM Transaction on Intelligent Systems and Technology (**ACM TIST**), 5(3), 2014. *Hot!*

10. Shuo Ma*, **Yu Zheng**, Ouri Wolfson. Real-Time City-Scale Taxi Ridesharing. IEEE Transactions on Knowledge and Data Engineering (**TKDE**), 27(7), 1782-1795, 2015.

11. Jianqiu Xu, Ralf Gutting, **Yu Zheng**. The TM-RTree: An Index on Generic Moving Objects for Range Queries. GeoInformatica. 2015

12. Kai Zheng*, **Yu Zheng**, Nicholas Jing Yuan, Shuo Shang, Xiaofang Zhou. Online Discovery of Gathering Patterns over Trajectories. IEEE Transactions on Knowledge and Data Engineering (**TKDE**), 2014

13. Jing Yuan*, **Yu Zheng**, Xing Xie, Guangzhong Sun. T-Drive: Enhancing Driving Directions with Taxi Drivers' Intelligence. IEEE Transactions on Knowledge and Data Engineering (**TKDE**), 2013.

14. Linsey Xiaolin Pang, Sanjay Chawla, Wei Liu, **Yu Zheng**. On Detection of Emerging Anomalous Traffic Patterns Using GPS Data. Data & Knowledge Engineering (**DKE**), 2013.

15. Nicolas Jing Yuan*, **Yu Zheng**, Liuhang Zhang, Xing Xie. T-Finder: A Recommender System for Finding Passengers and Vacant Taxis. IEEE Transactions on Knowledge and Data Engineering (**TKDE**).

16. Lu-An Tang*, **Yu Zheng**, Jing Yuan, Jiawei Han, Alice Leung, Wen-Chih Peng, Thomas La Porta. A Framework of Traveling Companion Discovery on Trajectory Data Streams. ACM Transaction on Intelligent Systems and Technology (**ACM TIST**), 2013.

17. Vincent W. Zheng*, **Yu Zheng**, Xing Xie, Qiang Yang. Towards Mobile Intelligence: Learning from GPS History Data for Collaborative Recommendation. **Artificial Intelligence**. 2012

18. Xiangye Xiao*, **Yu Zheng**, Qiong Luo, Xing Xie. Inferring Social Ties between Users with Human Location History. Journal of Ambient Intelligence and Humanized Computing. (Invited paper)

19. Hyoseok Yoon*, **Yu Zheng**, Xing Xie, and Woontack Woo. Social Itinerary Recommendation from User-generated Digital Trails. International Journal on Personal and Ubiquitous Computing (PUC).

20. **Yu Zheng**, Xing Xie. Learning travel recommendations from user-generated GPS traces. In ACM Transaction on Intelligent Systems and Technology (**ACM TIST**), 2(1), 2-19.

21. **Yu Zheng**, Lizhu Zhang*, Zhengxin Ma, Xing Xie, Wei-Ying Ma. Recommending friends and locations based on individual location history. In **ACM Transaction on the Web,** 5(1), 2011.

22. **Yu Zheng**, Xing Xie, Wei-Ying Ma, GeoLife: A Collaborative Social Networking Service among User, location and trajectory. **IEEE Data Engineering Bulletin**. 33, 2, 2010, pp. 32-40. **The most cited paper**

23. **Yu Zheng**, Yukun Chen*, Quannan Li*, Xing Xie, Wei-Ying Ma. Understanding transportation modes based on GPS data for Web applications. **ACM Transaction on the Web**. Volume 4, Issue 1, January, 2010. pp. 1-36.

24. Xiangwei Zhu, **Yu Zheng**, Ming Wan, Xing Xie. GeoLife: Sharing the geographic life. In the International Journal on Design.

25. **Yu Zheng**, Dake He, Mingxing He. Trusted computing based user authentication scheme for mobile equipment (in Chinese), Chinese Journal on Computers. 2006, 29(8):1255-1264

26. **Yu Zheng**, Dake He. Trusted computing-based security model for software protection (in Chinese), Journal of Southwest Jiaotong University, 41(1), 2006, pp.63-67

27. **Yu Zheng,** Dake He. An efficient scheme for GPS data compress (in Chinese), Journal of China railway science. 2005, 26(3): 134-138

28. **Yu Zheng**, Dake He, Qixiang Mei. On the fly authentication scheme based on self-certified public key for 3G mobile communication system (in Chinese), Chinese Journal on Computers. 2005, 26(8):1327-1332

29. Qixiang Mei, Dake He, **Yu Zheng**. New threshold cryptosystem against chosen cipher text attack based on pairing (in Chinese), Journal of Southwest Jiaotong University, 2005, 40(6): 727-730

30. **Yu Zheng,** Dake He. A security scheme for broadband wireless access network (in Chinese), Chinese journal of railway.2004, 26(5): 121-124.

Conference Publications

1. Guojun Wu, Yichen Ding, Yanhua Li, Jie Bao, **Yu Zheng**, Jun Luo, Mining Spatio-Temporal Reachable Regions over Massive Trajectory Data. **ICDE 2017**

2. Chao Zhang, Keyang Zhang, Quan Yuan, Haoruo Peng, **Yu Zheng**, Tim Hanratty, Shaowen Wang and Jiawei Han. Regions, Periods, Activities: Uncovering Urban Dynamics via Cross-Modal Representation Learning. **WWW 2017**

3. Junbo Zhang, **Yu Zheng**, Dekang Qi. Deep Spatio-Temporal Residual Networks for Citywide Crowd Flows Prediction, In Proceedings of the 31st AAAI Conference (**AAAI 2017**).

4. Minh X. Hoang, **Yu Zheng**, Ambuj K. Singh. Forecasting Citywide Crowd Flows Based on Big Data. in Proceedings of the 24th ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2016**)

5. Junbo Zhang, **Yu Zheng**, Dekang Qi, Ruiyuan Li, Xiuwen Yi. DNN-Based Prediction Model for Spatial-Temporal Data. in Proceedings of the 24th ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2016**) Demo Paper

6. Jie Bao, Ruiyuan Li, Xiuwen Yi, **Yu Zheng**. A Cloud-based Trajectory Data Management System. in Proceedings of the 24th ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2016**)

7. Yuhong Li, Jie Bao, Yanhua Li, Yingcai Wu, Zhiguo Gong, **Yu Zheng**. Mining the Most Influential k-Location Set from Massive Trajectories. in Proceedings of the 24th ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2016**)

8. Ying Wei*, **Yu Zheng**, Qiang Yang. Transfer knowledge between Cities. In Proceedings of the 22th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2016**).

9. Shenggong Ji*, **Yu Zheng**, Tianrui Li. Urban Sensing Based on Human Mobility. In Proceedings of the 18th ACM International Conference on Ubiquitous Computing (**UbiComp 2016**)

10. Xiuwen Yi*, **Yu Zheng**, Junbo Zhang, Tianrui Li. ST-MVL: Filling Missing Values in Geo-sensory Time Series

Data. In Proceedings of the 25th International Joint Conference on Artificial Intelligence (**IJCAI 2016**)

11. Ye Liu*, **Yu Zheng**, Yuxuan Liang, Shuming Liu, David S. Rosenblum. Urban Water Quality Prediction based on Multi-task Multi-view Learning. In Proceedings of the 25th International Joint Conference on Artificial Intelligence (**IJCAI 2016**)

12. Chao Zhang, Guangyu Zhou, Quan Yuan, Honglei Zhuang, **Yu Zheng**, Lance Kaplan, Shaowen Wang, Jiawei Han. GeoBurst: Real-time Local Event Detection in Geo-tagged Tweet Streams. the 39th International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR 2016**).

13. **Yu Zheng**, Huichu Zhang, Yong Yu. Detecting Collective Anomalies from Multiple Spatio-Temporal Datasets across Different Domains. In the Proceeding of the 23rd ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2015**).

14. Yexin Li*, **Yu Zheng**, Huichu Zhang, Lei Chen. Traffic Prediction in a Bike-Sharing System, In the Proceeding of the 23rd ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2015**)

15. Liang Hong, **Yu Zheng**, Duncan Yung, Jingbo Shang, Lei Zou. Detecting Urban Black Holes Based on Human Mobility Data. In the Proceeding of the 23rd ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2015**).

16. Yuhong Li, **Yu Zheng**, Shenggong Ji, Wenjun Wang, Leong Hou U, Zhiguo Gong. Urban-EMS: Location Selection for Ambulance Stations in Time-dependent Road Networks. In Proceedings of the 23rd ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2015**). (short paper).

17. Siyuan Zhang, Lu Qin, **Yu Zheng**, Hong Cheng. Effective and Efficient: Large-scale Dynamic City Express. In Proceedings of the 23rd ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL 2015**). (short paper)

18. Jia-Dong Zhang, Chi-Yin Chow, **Yu Zheng**. ORec: An Opinion-Based Point-of-Interest Recommendation Framework. In Proceeding of the 24th ACM International Conference on Information and Knowledge Management (CIKM 2015).

19. **Yu Zheng**, Xiuwen Yi, Ming Li, Ruiyuan Li, Zhangqing Shan, Eric Chang, Tianrui Li. Forecasting Fine-Grained Air Quality Based on Big Data. In the Proceeding of the 21th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2015**).

20. Chao Zhang*, **Yu Zheng**, Xiuli Ma, Jiawei Han. Assembler: Efficient Discovery of Spatial Co-evolving Patterns in Massive Geo-sensory Data. In Proceedings of the 21th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2015**).

21. Hsun-Ping Hsieh*, Shou-De Lin, **Yu Zheng**. Inferring Air Quality for Station Location Recommendation Based on Urban Big Data. In Proceedings of the 21th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2015**).

22. Yu Sun, Jianzhong Qi, **Yu Zheng**, Rui Zhang. K-Nearest Neighbor Temporal Aggregate Queries. In Proc. of EDBT 2015.

23. Yanjie Fu*, Yong Ge, **Yu Zheng**, Zijun Yao, Hui Xiong, Yanchi Liu, and Tong Xu. Sparse Real Estate Ranking with Online User Reviews and Offline Moving Behaviors. IEEE International Conference on Data Mining (ICDM 2014).

24. Jingbo Shang*, **Yu Zheng**, Wenzhu Tong, Eric Chang, Yong Yu. Inferring Gas Consumption and Pollution Emission of Vehicles throughout a City. In the Proceeding of the 20th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2014**).

25. Yilun Wang*, **Yu Zheng**, Yexiang Xue. Travel Time Estimation of a Path using Sparse Trajectories. In Proceedings of the 20th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2014**).

26. Yanjie Fu*, Hui Xiong, Yong Ge, Zijun Yao, **Yu Zheng**, Zhi-Hua Zhou. Exploiting Geographic Dependencies for Real Estate Appraisal: A Mutual Perspective of Ranking and Clustering. In Proceedings of the 20th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2014**).

27. **Yu Zheng**, Tong Liu, Yilun Wang, Yanmin Zhu, Yanchi Liu, Eric Chang. Diagnosing New York City's Noises with Ubiquitous Data. In Proceedings of the 16th ACM International Conference on Ubiquitous Computing (**UbiComp 2014**)

28. Yilun Wang, **Yu Zheng**, Tong Liu**.** A Noise Map of New York City**.** In Proceedings of the 16th ACM International Conference on Ubiquitous Computing (**UbiComp 2014**)

29. Xuxu Chen*, **Yu Zheng**, Yubiao Chen, Qiwei Jin, Weiwei Sun, Eric Chang, Wei-Ying Ma. Indoor Air Quality Monitoring System for Smart Buildings. In Proceedings of the 16th ACM International Conference on Ubiquitous Computing (**UbiComp 2014**)

30. Renchu Song, Weiwei Sun, Baihua Zheng, **Yu Zheng**. PRESS: A Novel Framework of Trajectory Compression in Road Networks. The 40th International Conference on Very Large Data Bases (**VLDB 2014**).

31. Bei Pan*, **Yu Zheng**, David Wilkie* and Cyrus Shahabi. Crowd Sensing of Traffic Anomalies based on Human Mobility and Social Media. In Proceedings of the 21th ACM International Conference on Advances in Geographical Information Systems (ACM SIGSPATIAL 2013).

32. **Yu Zheng**, Furui Liu*, Hsun-Ping Hsieh*. U-Air: When Urban Air Quality Inference Meets Big Data. 19th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2013**).

33. Fuzhen Zhang*, David Wilkie*, **Yu Zheng**, Xing Xie. Sensing the Pulse of Urban Refueling Behavior. 15th ACM International Conference on Ubiquitous Computing (**UbiComp 2013**).

34. Andy Yuan Xue, Rui Zhang, **Yu Zheng**, Xing Xie, Jianhui Yu, Yong Tang. DesTeller: A System for Destination Prediction Based on Trajectories with Privacy Protection. (Demo). The 39th International conference on Very Large Data Bases (**VLDB 2013**).

35. Shuo Ma*, **Yu Zheng**, Ouri Wolfson. T-Share: A Large-Scale Dynamic Taxi Ridesharing Service. The 29th IEEE International Conference on Data Engineering (**ICDE 2013**) **Best paper runner-up award**.

36. Kai Zheng*, **Yu Zheng**, Nicholas Jing Yuan, Shuo Shang. On Discovery of Gathering Patterns from Trajectories. The 29th IEEE International Conference on Data Engineering (**ICDE 2013**)

37. Andy Yuan Xue, Rui Zhang, **Yu Zheng**, Xing Xie, Jin Huang, Zhenghua Xu. Destination Prediction by Sub-Trajectory Synthesis and Privacy Protection against Such Prediction. The 29th IEEE International Conference on Data Engineering (**ICDE 2013**)

38. Sanjay Chawla, **Yu Zheng**, and Jiafeng Hu. Inferring the root cause in road traffic anomalies, IEEE International Conference on Data Mining (**ICDM 2012**).

39. Jie Bao*, **Yu Zheng**, Mohamed F. Mokbel. Location-based and Preference-Aware Recommendation Using Sparse Geo-Social Networking Data. In Proceedings of the 20 ACM International Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL** 2012).

40. Nicolas Jing Yuan*, **Yu Zheng**, Xing Xie. Discovering regions of different functions in a city using human mobility and POIs. 18th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2012**).

41. Ling-Yin Wei*, Yu Zheng, Wen-Chih Peng, Constructing Popular Routes from Uncertain Trajectories. 18th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2012**).

42. **Yu Zheng**. Tutorial on Location-Based Social Networks. In proceedings of the 21st International conference on World Wide Web (**WWW 2012**).

43. Kai Zheng*, **Yu Zheng**, Xing Xie, Xiaofang Zhou. Reducing Uncertainty of Low-Sampling-Rate Trajectories. In Proceedings of IEEE International conference on Data Engineering (**ICDE 2012).**

44. Lu-An Tang*, **Yu Zheng**, Jing Yuan, Jiawei Han. On Discovery of Traveling Companions from Streaming Trajectories. In Proceedings of the IEEE International conference on Data Engineering (**ICDE 2012).**

45. Linsey Xiaolin Pang, Sanjay Chawla, Wei Liu, and **Yu Zheng**. On Mining Anomalous Patterns in Road Traffic Streams. In the 7th International Conference on Advanced Data Mining and Applications (ADMA 2011). **The best paper award**

46. Hechen Liu*, Ling-Yin We, **Yu Zheng,** Markus Schneider. Route Discovery from Mining Uncertain Trajectories. Demo Paper, IEEE International Conference on Data Mining (**ICDM 2011**).

47. **Yu Zheng,** Yanchi Liu, Jing Yuan, Xing Xie, Urban Computing with Taxicabs, 13th ACM International Conference on Ubiquitous Computing (**UbiComp 2011**), Beijing, China, 2011. **Best Paper Nominee.**

48. Jing Yuan*, **Yu Zheng**, Liuhang Zhang, Xing Xie, Guangzhong Sun, Where to Find My Next Passenger? , 13th ACM International Conference on Ubiquitous Computing (**UbiComp 2011**), Beijing, China, Sep. 2011.

49. Wei Liu*, **Yu Zheng**, Sanjay Chawla, Jing Yuan* and Xing Xie. Discovering Spatio-Temporal Causal Interactions in Traffic Data Streams. 17th SIGKDD conference on Knowledge Discovery and Data Mining (**KDD 2011**).

50. Jing Yuan*, **Yu Zheng**, Xing Xie, Guangzhong Sun. Driving with Knowledge from the Physical World. 17th SIGKDD conference on Knowledge Discovery and Data Mining **(KDD 2011).**

51. Lu-An Tang*, **Yu Zheng**, Xing Xie, Jing Yuan*, Xiao Yu and Jiawei Han. Retrieving k-Nearest Neighboring Trajectories by a Set of Point Locations. In the 12th Symposium on Spatial and Temporal Databases (SSTD 2011).

52. Jing Yuan*, **Yu Zheng**, Chengyang Zhang, Wenlei Xie, Xing Xie, Guangzhong Sun, Yan Huang. T-Drive: Driving Directions Based on Taxi Trajectories. In Proceedings of the 18th ACM SIGSPATIAL Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL** GIS 2010). **The Best Paper Runner-Up Award**.

53. **Yu Zheng**, Jing Yuan*, Wenlei Xie, Xing Xie, Guangzhong Sun. Drive smartly as a taxi driver. Demo paper, International Conference on Ubiquitous Intelligence and Computing (UIC 2010).

54. **Yu Zheng**, Xixuan Feng, Xing Xie, Shuang Peng, James Fu. Detecting Nearly Duplicated Records in Location Datasets. In Proceedings of ACM SIGSPATIAL Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL** GIS 2010).

55. Xiangye Xiao*, **Yu Zheng**, Qiong Luo, Xing Xie. Finding Similar Users Using Category-Based Location History. Poster. In Proceedings of the 18th ACM SIGSPATIAL Conference on Advances in Geographical Information Systems (**ACM SIGSPATIAL** GIS 2010).

56. Hyoseok Yoon*, **Yu Zheng**, Xing Xie, Woontack Woo. Smart Itinerary Recommendation based on User-Generated GPS Trajectories. In Proceedings of the 7th International Conference on Ubiquitous Intelligence and Computing (UIC 2010). **The Best Paper Award**.

57. Vincent Wenchen Zheng*, Bin Cao, **Yu Zheng**, Xing Xie, Qiang Yang. Collaborative Filtering Meets Mobile Recommendation: A User-centered Approach. In proceedings of AAAI conference on Artificial Intelligence (**AAAI 2010**), Washington D.C., USA. ACM, 236-241.

58. Jing Yuan*, **Yu Zheng**, Chengyang Zhang, Xing Xie, Guangzhong Sun. An Interactive Voting-based Map Matching Algorithm. In proceedings of the 11th International Conference on Mobile Data Management (MDM 2010).

59. **Yu Zheng**, Xing Xie. Learning Location Correlation from GPS trajectories. Short paper (6 pages). In proceedings of the 11th International Conference on Mobile Data Management (MDM 2010), Kensas, Missouri, USA.

60. Vincent Wenchen Zheng*, **Yu Zheng**, Xing Xie, Qiang Yang. Collaborative Location and Activity Recommendations with GPS History Data. In proceedings of 19th World Wide Web Conference (**WWW 2010**), Raleigh, NC, USA. ACM Press: 1029-1038.

61. Zaiben Chen*, Heng Tao Shen, Xiaofang Zhou, **Yu Zheng**, Xing Xie. Searching Trajectories by Locations: An Efficiency Study, In Proceedings of the ACM **SIGMOD** International Conference on Management of Data (**SIGMOD 2010**), Indianapolis, Indiana, USA.

62. Chang Sheng*, **Yu Zheng**, Wynne Hsu, Mong Li Lee, Xing Xie. Answering Top-k Similar Region Queries. In Proceedings of Database Systems for Advanced Applications (DASFAA 2010), Springer Press: 186-201.

63. **Yu Zheng**, Lizhu Zhang, Xing Xie, Wei-Ying Ma. Mining Correlation between Locations Using Human Location History. In Proceedings of the 17th ACM SIGSPATIAL Conference on Advances in Geographical Information Systems, short paper (4 pages), (**ACM SIGSPATIAL GIS 2009**). ACM Press: 352-361.

64. Yin Lou*, Chengyang Zhang*, **Yu Zheng**, Xing Xie, Wei Wang, Yan Huang. Map-Matching for Low-Sampling-Rate GPS Trajectories. In Proceedings of the 17th ACM SIGSPATIAL Conference on Geographical Information Systems (**ACM SIGSPATIAL GIS 2009**).

65. Yukun Chen*, Kai Jiang*, **Yu Zheng**, Chunping Li, Nenghai Yu. Trajectory Simplification Method for Location-Based Social Networking Services. In Proceedings of ACM GIS workshop on Location-based social networking services. 2009.

66. Vincent Wenchen Zheng*, **Yu Zheng**, Qiang Yang. Joint Learning User's Activities and Profiles from GPS Data. In Proceedings of ACM GIS workshop on Location-based social networking services. 2009.

67. **Yu Zheng**, Lizhu Zhang, Xing Xie, Wei-Ying Ma. Mining interesting locations and travel sequences from GPS trajectories. In Proceedings of the 18th World Wide Web Conference (**WWW 2009**), Madrid Spain. ACM Press: 791-800.

68. Yang Ye*, **Yu Zheng**, Yukun Chen, Jianhua Feng, Xing Xie. Mining Individual Life Pattern Based on Location History. In proceedings of the 10th International Conference on Mobile Data Management (MDM 2009). IEEE, 1-10.

69. **Yu Zheng**, Yukun Chen, Xing Xie, Wei-Ying Ma. GeoLife2.0: A Location-Based Social Networking Service. In proceedings of the 10th International Conference on Mobile Data Management (MDM 2009). **The most cited paper**

70. **Yu Zheng**, Like Liu*, Longhao Wang, Xing Xie. Learning Transportation Mode from Raw GPS Data for Geographic Applications on the Web, In Proceedings of the 17th World Wide Web Conference (**WWW 2008**), Beijing, China. ACM Press: 247-256.

71. **Yu Zheng**, Quannan Li, Yukun Chen, Xing Xie, Wei-Ying Ma. Understanding Mobility Based on GPS Data. In Proceedings of the 10th ACM conference on Ubiquitous Computing **(UbiComp 2008)**, Seoul, Korea. ACM Press: 312–321.

72. Quannan Li*, **Yu Zheng**, Xing Xie, Yukun Chen, Wenyu Liu, Wei-Ying Ma. Mining user similarity based on location history. In Proceedings of the 16th ACM SIGSPATIAL conference on Advance in Geographical Information Systems (**ACM SIGSPATIAL GIS 2008**), Irvine, CA, USA. ACM Press: 1-10. **The most cited paper**

73. Longhao Wang*, **Yu Zheng**, Xing Xie, Wei-Ying Ma. A Flexible Spatio-Temporal Indexing Scheme for Large-Scale GPS Track Retrieval, In Proceedings of the 9th International conference on Mobile Data Management (MDM 2008), Beijing China. IEEE Press: 1-8.

74. **Yu Zheng**, Xing Xie, Ruochi Zhang, Wei-Ying Ma. Searching Your Life on Web Maps, SIGIR workshop on mobile information retrieval, 2008, Singapore.

75. **Yu Zheng**, Longhao Wang, Ruochi Zhang, Xing Xie, Wei-Ying Ma. GeoLife: Managing and understanding your past life over maps, In Proceedings of the 9th International conference on Mobile Data Management (MDM 2008), Beijing China.

76. **Yu Zheng,** Xing Xie, Wei-Ying Ma. Distributed Architecture For Large Scale Image-Based Search, In Proceedings of International conference on Multimedia Explore (ICME 2007), Beijing China**.**

77. **Yu Zheng**, jingchun Xia, Dake He. Trusted User Authentication Scheme Combining Password with Fingerprint for Mobile Devices. IEEE International Symposium on Biometrics and Security Technologies (ISBAST 2008).

78. Dake He, Jianbo Wang, **Yu Zheng**. User Authentication Scheme Based on Self-certified Public-key for Next Generation Wireless Network. IEEE International Symposium on Biometrics and Security Technologies (ISBAST 2008).

79. **Yu Zheng**, Dake He, Mingxing He. User Authentication Scheme for Trusted Mobile Platform, Advance in China Crypt06.

80. **Yu Zheng**, Dake He, Weichi Yu, Xiaohu Tang. Trusted Computing-Based Security Architecture For 4G Mobile Networks, In proc. of IEEE conference PDCAT'05, Dalian, 2005**.**

81. **Yu Zheng**, Dake He, Hongxia Wang, Xiaohu Tang. Secure DRM Scheme For Future Mobile Networks Based on Trusted Mobile Platform,In proc. of IEEE conference WCNM05, Wuhan, 2005

82. **Yu Zheng**, Dake He, Xiaohu Tang, Hongxia Wang. AKA and Authorization Scheme For 4G Mobile Networks Based on Trusted Mobile Platform , IEEE conference ICICS05,Thailand Bangkok, Nov.6-9, 2005

83. **Yu Zheng**, Xiaohu Tang, Dake He, Lixing Xu. Investigation on Pseudorandom Properties of FCSR Sequence, In proc. of IEEE conference ICCCAS05, Hong Kong, 2005.

84. **Yu Zheng**, Dake He, Lixing Xu, Xiaohu Tang. Security Scheme For 4G wireless Systems. In proc. of IEEE conference ICCCAS05. Hong Kong, 2005.

85. **Yu Zheng**, Dake He. Research on the security architecture of dynamic multicast (in Chinese), Chinese annual conference on Information security. 2005

86. **Yu Zheng,** Dake He. TC-Based AKA Scheme For 4G Mobile Networks, In proc. of International conf. IECT05, Chengdu, 2004

87. **Yu Zheng**, Dake He. Hybrid Authentication Architecture for 4G Mobile Communication Systems. WICSP'04, 2004, Chengdu China, pp.58-64.

Technical Report

1. **Yu Zheng**, Xuxu Chen, Qiwei Jin, Yubiao Chen, Xiangyun Qu, Xin Liu, Eric Chang, Wei-Ying Ma, Yong Rui, Weiwei Sun. A Cloud-Based Knowledge Discovery System for Monitoring Fine-Grained Air Quality. MSR-TR-2014-40.

2. Nicholas Jing Yuan, **Yu Zheng**, Xing Xie. Segmentation of Urban Areas Using Road Networks. MSR-TR-2012-65. 2012.

3. Yin Zhu*, **Yu Zheng**, Liuhang Zhang, Darshan Santani, Xing Xie, Qiang Yang. Inferring Taxi Status Using GPS Trajectories. MSR Technical Report. MSR-TR-2011-144. Mar. 2011. (Posted on arVix at Cornell)

Invited Articles in Magazines

1. **Yu Zheng**. Urban Computing with Big Data. Communications of China Computer Federation (in Chinese), 2013.8

2. **Yu Zheng**. LBSN 2011 Workshop Report: The 3rd ACM SIGSPATIAL International Workshop on Location-Based Social Networks. SIGSPATIAL Special 4(1), 2012

3. **Yu Zheng**. ACM SIGSPATIAL GIS 2011 report (in Chinese). CCCF 2012.2.
4. **Yu Zheng**, Xing Xie. Enabling smart location-based services by mining GPS traces. Invited paper. In Journal on Communication of China Computer Federation (CCCF 2010, In Chinese).
5. **Yu Zheng**, Xing Xie. Location-based services on the Cloud. Invited Paper, Journal on Digital Mobile Era. (In Chinese). 2009
6. Xing Xie, **Yu Zheng**, Understanding User Behavior Geospatially, Invited Paper, Communications of China Computer Federation (in Chinese), Oct. 2008.

Awards

Best Paper Awards

1. Best paper runner-up award at the 29th IEEE International Conference on Data Engineering (**ICDE 2013**).
2. Best paper award at the 7thInternational Conf. on Advanced Data Mining and Applications (ADMA 2011)
3. Best paper nominee at the 13th International Conference on Ubiquitous Computing (**UbiComp 2011)**
4. Best paper runner up award at **ACM SIGSPATIAL GIS 2010**
5. Best paper award at 8th International conference on Ubiquitous Intelligence and Computing (UIC 2010)
6. Outstanding Ph.D. thesis award from Southwest Jiaotong University 2007

Talent Awards

1. 2014 **Top 40 Business Elites under 40** in China by Fortune Magazine.
2. **2013 Top Innovators under** 35 by MIT Technology Review (**TR35**)
3. Microsoft Golden Star, 2008.12
4. Outstanding Ph.D. student in Southwest Jiaotong University. 2005.10
5. The second prize of "Challenge Cup" National Contest of College Students of academic science and technology. 2001.12

Technical Transfer Awards

1. Merging location records. Shipped to Bing Local Search (Japan and China), Jan. 2010
2. A Chinese address breaker. Shipped to Bing Local Search (China). April, 2009.
3. Spatial outlier detection. Shipped to Bing Local Search (China). April. 2009

Patent Awards

1. MS 322848.01, "Learning Transportation Modes from Raw GPS Data", 2/26/2007. USPTO #20090216704, Class: 706 52
2. MS 322389.01, "SYSTEM FOR LOGGING LIFE EXPERIENCES USING GEOGRAPHIC CUES", 2/26/2007. IPC8 Class: AG01C2134FI
   USPC Class: 701209
3. MS 322852.01, ASM 8110, "INDEXING LARGE-SCALE GPS TRACKS", 2/26/2007, IPC8 Class: AG06F700FI
   USPC Class: 707101
4. International Patent. MS 324938.01, "Determining User Similarities Based on Location Histories", 11/3/2008. US20100111372
5. US Patent. MS 325489.01, "Making Friend and Location Recommendations Based on Location Similarities", 12/8/2008

6. International Patent. MS 326249.01, "Detecting Spatial Outliers in a Location Entity Dataset", 1/14/2009

7. US Patent. MS 326004.01, "Identifying Interesting Locations", 2/20/2009

8. US Patent. MS 327345.01, "Search and Replay of Experiences", 5/27/2009

9. US Patent. MS 327344.01, "Location Context Based Calling", 6/3/2009

10. US Patent. MS 327346.01, "Nearby Contact Alert Based on Location and Context", 6/3/2009

11. US Patent. MS 327762.01 MS1-4846US, "Mining Life Pattern Based on Location History", 9/17/2009

12. US Patent. MS 327763.01, MS1-4847US, "Recommending Points of Interests in a Region", 9/28/2009

13. International Patent. MS 328341.01, MS1-4911US, "Route Computation Based on Route-Oriented Vehicle Trajectories", 12/28/2009

14. US Patent. MS328342.01, MS1-4909US, "Map-Matching for Low-Sampling-Rate GPS Trajectories", 12/30/2009

15. US Patent. MS328339.01, MS1-4913US, "Mining Correlation Between Locations Using Human Location History", 12/31/2009

16. US Patent. MS329247.01, MS1-4950US, "Collaborative Location and Activity Recommendations", 2010,4.15

17. US Patent. MS 329245.01, MS1-4949US, "Searching similar trajectories by locations". 4/23/2010

18. US Patent. MS 330719.01, "Prioritizing travel itineraries". 10/29/2010

19. US Patent. MS# 331672.01, "Inferring a behavior state of a vehicle", 5/19/2011

20. US/International Patent. 333873.01 / MS1-5200US, "Urban Computing of Route-Oriented Vehicles", 10/24/2011

21. US Patent. MS1-5341US. "Discover Functional Regions". 2013.3.14

22. US Patent. PCT5402. "Air quality inference Using Multiple data sources" 2013.6

23. US/International Patent. MS#342009.01. Measuring Traffic Speed in a Road Network, filed on 8/26/2014.

24. US/International Patent. Diagnosing urban noise with big data (MS# 342010.01). filed on 10/22/2014

Real Systems

Urban Air: Inferring and Forecasting Fine-Grained Air Quality using Big Data (2013-)

A system that infers the real-time and fine-grained air quality throughout a city, based on historical and real-time reports from a limited number of existing air quality measurement stations and other data sources reflecting city dynamics: meteorology, traffic flow, human mobility, structure of road networks, and points of interests. Urban Air also forecasts fine-grained air quality over the next 48 hours. The system also suggests the number of measurement stations that a city needs and candidate locations for building new stations. Urban Air has been deployed with the Ministry of Environmental Protection of China, providing fine-grained air quality information for over 70 Chinese cities.

CityNoise: Diagnose Urban Noises using Big Data (2013-)

The project aims to diagnose a city's noise pollution with crowdsensing and ubiquitous data. It reveals the fine-grained noise situation throughout a city and analyzes the composition of noises in a particular location, by using 311 complaint data together with road network data, points of interests, and social media.

T-Share: A large-Scale Dynamic Taxi Ridesharing Service (2012-2013)

T-Share is a large-scale dynamic taxi-sharing system that accepts passengers' real-time ride requests sent from smart phones and schedules taxis to pick up via ridesharing, subject to time, capacity and monetary constraints. The system yields significant social and environmental benefits. Compared with traditional non-ridesharing, *passengers* pay less and get a higher chance of being served; *taxi drivers* earn more money; *governments* save

energy consumption and reduce the emission of air pollutants.

[T-Drive](): Driving Directions Based on Taxi Trajectories   (2009-2011)

T-Drive is a navigation system providing personalized driving directions that adapt to weather, traffic conditions, and your own driving habits. The system uses GPS data from taxicabs to gather information about both real-time and past traffic conditions. It also gleaned the weather from publicly available websites. The system uses these datasets to predict what traffic conditions a driver is likely to encounter upon arriving at various points on a path and to adjust the directions accordingly.

T-Finder: A Passenger-Cabbie Recommender System   (2010-2012)

T-Finder is a recommender for taxi drivers and people expecting to take a taxi, using the knowledge of 1) passengers' mobility patterns and 2) taxi drivers' pick-up behaviors learned from the GPS trajectories of taxicabs. First, this recommender provides taxi drivers with some locations (and the routes to these locations), towards which they are more likely to pick up passengers quickly (during the routes or at the parking places) and maximize the profit. Second, it recommends people with some locations (within a walking distance) where they can easily find vacant taxis.

[GeoLife](): Building Social Networks using Human Location History   (2007-2010)

GeoLife is one of the first location-based social-networking services. It enables users to share life experiences and build connections among each other using human location history. By mining many users' location histories, GeoLife discovers the top most interesting locations, classical travel sequences, and travel experts. By understanding individual location history, GeoLife measures the similarity between users and perform personalized friend & location recommendation.

My Ph.D. Students

Xiuwen Yi, Southwest Jiaotong University, 2014.9 (Co-supervise with Prof. Tianrui Li)

Huichu Zhang, Shanghai Jiao Tong University, 2015.9 (Co-supervise with Prof. Yong Yu)

Zheyi Pang, Shanghai Jiao Tong University, 2015.9 (Co-supervise with Prof. Yong Yu)

Shenggong Ji, Southwest Jiaotong University, 2015.9 (Co-supervise with Prof. Tianrui Li)

Ruiyuan Li, Xidian University, 2016.9

Zhaoyuan Wang, Southwest Jiaotong University, 2016.9

Yuxuan Liang, Xidian University, 2017.9

Dekang Qi, Southwest Jiaotong University, 2017.9

Selected Interns I have supervised

Oversea Interns

1. Sakshi Babbar, Ph.D. student @ University of Sydney, Australia
2. Sheng Chang, Ph.D. student @ National University of Singapore, Singapore

3. Zaiben Chen, Ph.D. student @ The University of Queensland, Australia
4. Yanjie Fu Ph.D. student @ Rutgers university, USA
5. Minh X. Hoang, Ph.D. candidate @ University of California at Santa Barba.
6. Bao Jie, Ph.D. student @ University of Minnesota, USA
7. Wei Liu, Ph.D. student @ University of Sydney, Australia
8. Ye Liu, Ph.D. student @ National University of Singapore, Singapore.
9. Hechen Liu, Ph.D. student @ University of Florida, USA
10. Xin Lu, Ph.D. student @ MIT, USA.
11. Shuo Ma, Ph.D. student @ University of Illinois at Chicago, USA
12. Chuishi Meng, Ph.D. student @ University at Buffalo, USA.
13. Bei Pan, Ph.D. student @ University of Southern California, USA
14. Darshan Santani, Ph.D. student @ ETH, Zurich
15. Lu-An Tang, Ph.D. student @ University of Illinois at Urbana-Champaign, USA
16. David Wilkie, Ph.D. student @ University of North Carolina at Chapel Hill, USA
17. Yexiang Xue, Ph.D. student @ Cornell University, USA
18. Yingxiang Yang, Ph.D. student @ MIT, USA.
19. Kawai Yong, Ph.D student @ University of Pittsburgh, USA
20. Hyoseok Yoon, Ph.D. student @ GIST University, South Korea
21. Xianyuan Zhan, Ph.D. candidate @ Purdue University
22. Chao Zhang, Ph.D. student @ University of Illinois at Urbana-Champaign, USA
23. Chengyang Zhang, Ph.D. student @ University of North Texas, USA
24. Xiao Zhang, Ph.D. student @ Penn State University, USA
25. Xianyuan Zhang, Ph.D. student @ Purdue University, USA
26. Kai Zheng, Ph.D. student @ The University of Queensland, Australia

Interns from Hong Kong, Macao and Taiwan

27. Chih-Chieh Hung, Ph.D. student @ National Chiao-Tung University, Taiwan
28. Hsun-Ping Hsie, Ph.D. student @ National Taiwan University
29. Yexin Li, Master student @ Hong Kong University of Science and Technology
30. Yuhong Li, Ph.D. student @ The University of Macao
31. Ying Wei, Ph.D. student @ Hong Kong University of Science and Technology (HKUST)
32. Vincent Wenchen Zheng, Ph.D. student @ Hong Kong University of Science and Technology (HKUST)
33. Xiangye Xiao, Ph.D. student @ Hong Kong University of Science and Technology (HKUST)
34. Ling-Ying Wei, Ph.D. student @ National Chiao-Tung University, Taiwan
35. Yixuan Zhu, @ the University of Hong Kong

Interns from China Mainland

36. Yubiao Chen. Ph.D. student @ HIT, China
37. Yukun Chen, Master student @ Tsinghua University, China
38. Xuxu Chen. Master student @ Fudan University, China
39. Jianqiao Feng. Undergraduate @ Peking University (went to Johns Hopkins University)
40. Xixuan Feng, Undergraduate student @ Peking University (went to University of Wisconsin-Madison)
41. Zhenni Feng, Ph.D. student @ Shanghai Jiao Tong University

42. Ge Gao, undergraduate student @ Wuhan University
43. Zhengqiang Gong, undergraduate student @ Uni.of Sci. and Technology of China (went to U.C. Berkeley)
44. Tianfu He, Ph.D. student @ HIT, China
45. Shenggong Ji, Ph.D. student @ Southwest Jiaotong University
46. Bohang Li, Undergraduate student @ Zhejiang University
47. Quannan Li, Undergraduate student @ Huazhong University of Science and Technology (went to UCLA)
48. Ruiyuan Li, Master student @ Wuhan University
49. Furui Liu, Undergraduate student @ Zhejiang University (went to Chinese University of Hong Kong)
50. Like Liu, Sichuan University @ (Joined Microsoft Research as an RSDE)
51. Tong Liu, Ph.D. student @ Shanghai Jiao Tong University
52. Yin Lou, Undergraduate student @ Fudan University, China (went to Cornell University)
53. Bai Long, Master student @ University of Science and Technology of China
54. Pengfei Qiu, Master student @ University of Science and Technology of China
55. Sijie Ruan, Undergraduate student @ Xidian University
56. Zhangqing Shan, Ph.D. student @ Fudan University
57. Jingbo Shang, Undergraduate student @ Shanghai Jiao Tong University (went to UIUC)
58. Junkai Sun, Undergraduate student @ Xidian University
59. Wenzhu Tong, Undergraduate Student @ Wuhan University (went to UIUC)
60. Yilun Wang, Undergraduate student @ Zhejiang University (went to Stanford)
61. Longhao Wang, Master student @ Renmin University (went to U.C. Berkeley)
62. Chenggang Wu, Master student @ Tianjing University
63. Wenlei Xie, Undergraduate student @ Fudan University (went to Cornell University)
64. Ye Yang, Master student @ Tsinghua University (went to Columbia University)
65. Xiuwen Yi, Ph.D. student @ Southwest Jiaotong University
66. Jing Yuan, Ph.D. student @ University of Science and Technology of China (Joined Microsoft Research)
67. Fuzheng Zhang, Ph.D. student @ University of Science and Technology of China (Joined Microsoft Research)
68. Lizhu Zhang, Master student @ Tsinghua University
69. Huichu Zhang, Ph.D. student @ Shanghai Jiao Tong University