Song Gao

PhD student in Geographic Information System (GIS)

Space and Time Knowledge Organization Lab (STKO), University of California Santa Barbara, CA 93106

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INTERESTS Place-Based GIS, Big Geo-Data Analytics, Spatial Data Mining, Spatial Statistics

EDUCATION

PhD Student – GIS	UC Santa Barbara, USA (2012-2016 Expected)	
Master of Science – Cartography and GIS	Peking University, China (2009-2012)	
Bachelor of Science – Geography	Beijing Normal University, China (2005-2009)	

INTERNSHIP

Apple, Inc.   June 2014–Sep. 2014
Software Engineering Summer Intern at Apple Maps   Cupertino
- Teamwork for building the next-generation of POIs pipeline for Maps Services
- Improve the POI matching and conflation algorithm for multiple vendor sources

Esri, Inc.   May 2011–Oct. 2011
Developer of Esri Research & Development Center   Beijing
- Develop a location-based-service App: iCampus GIS for Android
- Research for enterprise Cloud GIS solutions

EXPERIENCE

Research Assistant   Sept. 2014–Now
Semantic Web and Linked Data Driven Scientometrics   STKO Lab
- Work with Prof. Krzysztof Janowicz
- Design and develop a semantically-enabled scientometics knowledge sharing and discovering platfrom

Research Assistant   Sept. 2013–Now
California Multi-campus Research Program and Initiative (MRPI): Virtual Co-Laboratory
for Policy Analysis in the Greater L.A. Region   California
- Website: http://la-plan.org
- Design and develop a Web-GIS user interface for running a variety of spatial-models to support the Southern California Association of Governments (SCAG)' planning and decision making

Main Developer   June 2013–Aug. 2013
A scalable workflow for geoprocessing Big Geo-Data based on Hadoop

Developer   Feb. 2013–Apr. 2013
Citation Map: Visualizing the Spread of Scientific Ideas through Space and Time
- Website: http://stko-work.geog.ucsb.edu:8080/map
- Transform the way of exploring paper citations on the world map

Research Assistant   Sept. 2012–Aug. 2013
National Geospatial-Intelligence Agency (NGA): Geospatial Feature Conflation: Conceptual, Statistical, and Optimization Approaches   UCSB
- Work with Prof. Michael F. Goodchild
- Develop a optimized geospatial data conflation toolbox using Python

Research Assistant June 2009–Aug. 2012

Analyzing Human Mobilty and Urban Dynamics by Mining GPS Trajectory Data
and Mobile Phone Data PKU Geosoft Lab

- Develop spatio-temporal data mining algorithms for processing large-scale mobile phone data and GPS trajectories using Python

Main Developer Apr.2009–Oct. 2009

3D Virtual Shopping Mall on Digital Earth: An Integration of GIS and e-Commerce

- First place in the Esri University Student GIS Development Contest
- Design and implement it by integrating GIS server and e-Commerce TaoBao APIs with other three team members

Main Developer June 2008–May 2009

Geo-Wiki: A Wiki Supporting Geographical Semantics and Knowledge Sharing Based
on Geo-ontology BNU

- Design a geo-ontology and semantically annotate multi-source geographical information
- Develop the web system using Apache, PHP and MySQL

Community Services

President of Chinese Students and Scholars Association May.2014–Now

- Lead a team of 100 officers for serving all Chinese people at UCSB
- Design new programs&activities for promoting international friendship on campus, facilitating the exchange of both academic and culture information.

SKILLS

- Adept at Python,C/C++,Java
- Adept at Latex, Matlab and R
- Expert in Popular GIS Software Development and Web Applications
- Familiar with JavaScript+D3, HTML, PHP, Apache
- Familiar with Semantic Web, Ontology Design
- Familiar with ProgreSQL, MySQL, SQL Server
- Familiar in Ubuntu, Linux Server, Amazon EC2, and Hadoop Cluster
- Experience in Apache Hive, Cassandra, Scala
- Passion about New Product Design and Management

PUBLICATIONS

- 18. **Song Gao**, Jiuean Yang, Bo Yan, Yingjie Hu, Krzysztof Janowicz, Grant McKenzie. **Detecting Origin-Destination Mobility Flows From Geotagged Tweets in Greater Los Angeles Area**. In *the Eighth International Conference on Geographic Information Science (GIScience'14)*, Sep 23-26, 2014, Vienna, Austria.
- 17. **Song Gao**, Jiuean Yang, Krzysztof Janowicz, Yingjie Hu, Bo Yan. **TrajAnalyst: Matching Data to Trajectory Analysis Modules via a Conceptual Framework**. In *GIScience'14 Workshop on Analysis of Movement Data*, Sep 23-26, 2014, Vienna, Austria.
- 16. **Song Gao**, Krzysztof Janowicz, Grant McKenzie, Linna Li. **Towards Platial Joins and Buffers in Place-Based GIS**. In *ACM SIGSPATIAL COMP'13*, Nov. 5, 2013, Orlando, FL, USA.
- 15. **Song Gao**, Yingjie Hu, Krzysztof Janowicz, Grant McKenzie. **A Spatiotemporal Scientometrics Framework for Exploring the Citation Impact of Publications and Scientists**. In *ACM SIGSPATIAL GIS 2013*, Nov. 5-8, 2013, Orlando, FL, USA.

- 14. **Song Gao**, Michael F. Goodchild. **Asking Spatial Questions to Identify GIS Functionality**. In *Proceedings of the 4th International Conference on Computing for Geospatial Research and Applications*. July 22-24, 2013, San Jose, CA, USA.
- 13. **Song Gao**, Yu Liu, Yaoli Wang, Xiujun Ma. **Discovering Spatial Interaction Communities from Mobile Phone Data**. *Transactions in GIS*. 2013, 17(3):463-481.
- 12. **Song Gao**, Yaoli Wang, Yong Gao, Yu Liu. **Understanding Urban Traffic Flow Characteristics: A Rethinking of Betweenness Centrality**. *Environment and Planning B: Planning and Design*. 2013, 40(1):135-153.
- 11. Yaoli Wang, **Song Gao**, Yu Liu. **Exploration into Urban Street Closeness Centrality and its Application Methods: A case study of Qingdao**. *Geographic Research*. 2013, 32(3):352-364. (in Chinese)
- 10. Jiansheng Wu, Li Huang, Yu Liu, Jian Peng, Weifeng Li, **Song Gao**, Chaogui Kang. **Traffic Flow Simulation Based on Call Detail Records**. *Acta Geographica Sinica*. 2013, 67(12):1657-1665. (in Chinese)
- 9. Yu Liu, Chaogui Kang, **Song Gao**, Yu Xiao, Yuan Tian. **Understanding Intra-Urban Trip Patterns from Taxi Trajectory Data**. *Journal Of Geographical Systems*. 2012, 14(4):463-483.
- 8. Yu Liu, Fahui Wang, Yu Xiao, **Song Gao**. **Urban Land Uses and Traffic Source-Sink Areas: Evidence from GPS-Enabled Taxi Data in Shanghai**. *Landscape and Urban Planning*. 2012, 106(1):73-87.
- 7. Yong Gao, **Song Gao**, Runqiang Li, Yu Liu. **A Semantic Geographical Knowledge Wiki System Mashed up with Google Maps**. *Science in China Series E: Technological Sciences*. 2010, 53:52-60.
- 6. **Song Gao**, Hao Yu, Yong Gao, Yingle Sun. **A Design of RESTful Style Digital Gazetteer Service in the Cloud Computing Environment**. In *Proceedings of 18th International Conference on Geoinformatics*. June 18-20, 2010, Beijing, China.
- 5. Chaogui Kang, **Song Gao**, Xing Lin, Yu Xiao, Yihong Yuan, Yu Liu, Xiujun Ma. **Analyzing and Geo-visualizing Individual Human Mobility Patterns using Mobile Call Records**. In *Proceedings of 18th International Conference on Geoinformatics*. June 18-20, 2010, Beijing, China.
- 4. **Song Gao**, Yu Liu, Xing Lin. **Geo-Wiki: A Semantic Geographical Knowledge Wiki System**. In *Proceedings of 6th International Symposium on Digital Earth (ISDE6)*. Sept. 8-12, 2009, Beijing, China.
- 3. **Song Gao**, Tiechun Wang, Yue Zhao. **Integrating SWAT and Xin'anjiang Model Based on ArcGIS Desktop**. In *Proceedings of 5th SWAT International Conference*. Oct. 15-19, 2008, Beijing, China.
- 2. Yu Liu, Yu Xiao, **Song Gao**, Chaogui Kang, Yaoli Wang. **A Review of Human Mobility Research Based on Location Aware Devices**.*Geography and Geo-Information Science*. 2011, 27(4):8-13. (in Chinese)
- 1. Qian Feng, **Song Gao**, Min Fan. **Optimal Path Finding Algorithm of Urban Transit Network Based on Topology**. *Science and Technology Information*. 2008, 34(12):29-32. (in Chinese)

PRESENTATIONS

- Oral presentation, Spatio-Temporal Visual Analytics for Exploring Trajectory Patterns and Dynamic Spatial Interactions. In *the 2014 AutoCarto International Symposium on Automated Cartography*, Oct.5-8, 2014, Pittsburgh, PA, USA.
- Oral presentation, Finding Public Transportation Community Structure based on Large-Scale Smart Card Records in Beijing. In *the NSF Workshop on Big Data and Urban Informatics*, Aug.11-12, 2014, Chicago, IL, USA.

- Oral presentation, A Scalable Geoprocessing Workflow for Big Geo-Data Analysis and Optimized Geospatial Feature Conflation based on Hadoop. In *the NSF CyberGIS AHM'13*, Sept. 15-17, 2013, Seattle, WA, USA.
- Oral presentation. In *COM.Geo 2013*, July 22-24, 2013, San Jose, CA, USA.
- Oral presentation. In *the 33rd Esri International User Conference*, July 8-12, 2013, San Diego, CA, USA.
- Poster presentation, The Visualization of Spatial Data. In *Spatial@UCSB.Local'13*, June 6, 2013, Santa Barbara, CA, USA.
- Oral presentation, Spatio-temporal patterns from mobile phone data. In *Spatial Lighting Talks'13*, Feb. 27, 2013, Santa Barbara, CA, USA.
- Oral presentation, Spatial community detection and urban structure analysis from mobile phone data. In *the Association of American Geographers (AAG) Annual Meeting*, Apr. 9-13, 2010, Los Angeles, CA, USA.
- Oral presentation. In *the 18th International Conference on Geoinformatics*, June 18-20, 2010, Beijing, China.
- Poster presentation. In *the 6th International Symposium on Digital Earth*, Sept. 8-12, 2009, Beijing, China.

HONORS AND AWARDS

- 2014 The Jack & Laura Dangermond Graduate Fellowship
- 2014 UCSB Geography Excellence in Research Award
- 2014 The Cartography and Geographic Information Society (CaGIS) Doctoral Scholarship Award
- 2014 Second Prize in Learning Analytics and Knowledge Data Challenge
- 2013 NSF Travel Award in ACM SIGSPATIAL GIS, Orlando, FL
- 2013 CyberGIS All-Hands Meeting NSF Travel Award, Seattle, WA
- 2013 Second Prize in the Robert Raskin Mashup Mapping Competition
- 2013 AAG International Geographic Information Fund Student Grants
- 2013 Jack Dangermond Travel Grants for Spring 2013, Los Angeles, CA
- 2009-2012 First Class Academic Scholarships at Peking University
- 2012 The Youth Scientist Competition Award at Peking University
- 2011 First Prize in the Esri GIS Web Application Development Contest
- 2009 Outstanding Graduate Award of Beijing Normal University
- 2008 One of the Torch Bearers for the 29th Beijing Olympic Games
- 2006-2008 National Fellowships for Outstanding Undergraduates