

**TING LEI**  
**Curriculum Vitae**  
September, 2019

**Personal Information**

Assistant Professor  
Department of Geography and Atmospheric Science  
University of Kansas  
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207 Lindley Hall  
Lawrence, KS 66045

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**Education**

Ph.D., Geography, December 2010  
University of California, Santa Barbara  
Dissertation/Thesis: "Location modeling utilizing closest and generalized closest transport/interaction assignment constructs"  
Advisor: Richard L. Church

M.S., Computer Science, 2007  
University of California, Santa Barbara

M.E., Remote Sensing and Photogrammetry, 2000  
Wuhan Tech. University of Surveying and Mapping

B.E., Geographic Information Systems, 1997  
Wuhan Tech. University of Surveying and Mapping

**Employment History**

**2002present**

- University of Kansas, Lawrence, KS  
Assistant Professor, Geography, Aug. 2015 - Present
- School of Sustainable Engineering and the Built Environment, Arizona State University  
Associate Research Scientist, Aug. 2014 to Aug. 2015
- School of Geography and Development, University of Arizona  
Postdoctoral research associate, Jan. 2014 to Aug. 2014
- Department of Geography, University of South Carolina  
Postdoctoral research associate and lecturer, April 2012 to Dec 2013

- Center for Spatial Analysis, University of Oklahoma  
Postdoctoral research associate and lecturer, Aug. 2011 to Mar. 2012
- Department of Geography, University of California, Santa Barbara  
Postdoctoral researcher, Sept. 2010 to Aug. 2011
- Department of Geography, University of California, Santa Barbara  
Graduate Research Associate (adviser: Dr. Richard Church)  
and Teaching Assistant/Associate, Sep. 2002 to Dec. 2010
- Department of Computer Science, University of California, Santa Barbara  
Graduate student, 2006 to 2007
- Electrical and Computer Engineering department, UCSB.  
Research associate 2006 to 2007

### **1997 to 2002**

- National Key Laboratory of Information Engineering in Surveying Mapping and Remote Sensing, Wuhan University

### **Courses Taught at University of Kansas**

Fall 2018

GEOG 358, Principles of Geog Info Systems  
GEOG 726, Remote Sensing of Environment II

Fall 2017

GEOG 358-11694, Principles of Geog Info Systems  
GEOG 648-25859, Location Modeling

Spring 2017

GEOG 358-58774, Principles of Geog Info Systems  
GEOG 528-66126, Spatial Databases

Fall 2016

GEOG 358-11869, Principles of Geog Info Systems

Spring 2016

GEOG 358-59565, Principles of Geog Info Systems  
GEOG 658-66132, Topics in Geogrphy Info Science: Spatial Databases

Fall 2015

GEOG 358-11964, Principles of Geog Info Systems  
GEOG 658-33188, Tpcs in Geogrphy Info Science: Location Modeling

### **Courses Taught prior to work at University of Kansas**

- Geography 345-001 Interpretation of Aerial Photographs, University of South Carolina,  
Spring 2013

- GIS 4970/5970, Principles & Applications of GIS, University of Oklahoma, Fall 2011
- Geography 128, Analytical and Computer Cartography, UC Santa Barbara (Instructor)
- Geography 13, Introduction to Computing, UC Santa Barbara (Instructor)

### **Publications (Peer-reviewed Journals)**

Lei, T.L., and Lei, Z\*. (2019, in press) Optimal spatial data matching for conflation: A network flow based approach. *Transactions in GIS*. <https://doi.org/10.1111/tgis.12561>

Lei, T.L., Evaluating the Vulnerability of Time-Sensitive Transportation Networks: A Hub Center Interdiction Problem. *Sustainability*, 2019. 11(17): p. 4614. <https://doi.org/10.3390/su11174614>

Plane, D. A\*., Tong D., & Lei, T. (2018, in press). Inter-person Separation: A New Objective Standard for Evaluating the Spatial Fairness of Political Redistricting Plans. *Geographical Analysis*, 0, 1-29. <https://doi.org/10.1111/gean.12175>

Lei, T. L. (2016). Designing Reliable Center Systems: A Vector Assignment Center Location Problem. *Geographical Analysis*, 8(4), 411-426.

Lei, T. L., Church, R. L., & Lei, Z. (2016). A unified approach for location-allocation analysis: integrating GIS, distributed computing and spatial optimization. *International Journal of Geographical Information Science*, 30(3), 515-534.

Li, W., Song, M., & Lei, T. L. (2016). Spatiotemporal data representation and its effect on the performance of spatial analysis in a cyberinfrastructure environment. *Computers & Geosciences*, 87, 11-21.

Lei, Z., Wang, M., Lei, T. L., & Li, D. (2016). Tracking moving weak objects in celestial image sequences. *IEEE Transactions on Aerospace and Electronic Systems*, 52(3), 1257-1266.

Lei, T. L. \*, & Church, R. L., (2015), On the Unified Dispersion Problem: Efficient Formulations and Exact Algorithms. *European Journal of Operational Research*, 241(3):622-630.

Lei, T.L.\* and Church, (2015), R.L., On the finite optimality set of the vector assignment  $p$ -median problem. *Geographical Analysis*, 47(2): (134-145).

Lei, T.L. \*, Tong, D. and Church, R.L., (2014), Designing robust coverage systems: A maximal covering model with geographically varying failure probabilities. *Annals of the Association of American Geographers*, 104(5):922-938.

Lei, T. L. \* and Church, R. L., (2014), Vector Assignment Ordered Median Problem: a unified median problem. *International Regional Science Review*, 37(2): 194-224.

Lei, Z., Wang, M\*, Li, D., & Lei, T. L. (2014). Stream Model based Ortho-Rectification in GPU Cluster Environment. *IEEE Transactions on Geoscience & Remote Sensing Letters*, 1-5.

Lei, T.L. \* and Tong, D., (2013), Hedging against service disruptions: an expected median location problem with site-dependent failure probabilities, *Journal of Geographical Systems*, 15: 491-512

Lei, T. L., (2013), Identifying critical facilities in hub-and-spoke networks: A hub interdiction median problem. *Geographical Analysis*, 45 (2): 105-122.

Lei, T.L.\* and Church, R.L., (2013), A unified model for dispersing facilities. *Geographical Analysis*, 45(4): 401-418.

Gao, P.\*, Kupfer, J.A., Guo, D., and Lei, T. L., (2013), Identifying Functionally-Connected Habitat Compartments with a Novel Regionalization Technique. *Landscape Ecology*, 28(10): 1949-1959.

Lei, T.L., Chen, Y. and Goulias, K.G., (2012), Opportunity-based Dynamic Transit Accessibility in Southern California: Measurement, Findings, and a Comparison with Automobile Accessibility. *Transportation Research Record* 2276 (3): 26-37.

Lei, T.L. and Church, R.L.\*, (2011), Locating short-term empty-container storage facilities to support port operations: A user optimal approach. *Transportation Research Part E*, 47: 738-754.

Lei, T.L. and Church, R.L., (2011), Constructs for multi-level closest assignment in location modeling, *International Regional Science Review*, 34(3): 339-367.

Lei, T.L. and Church, R.L.\*, (2010), Mapping Transit-Based Access: Integrating GIS, Routes and Schedules, *International Journal of Geographic Information Science*, 24 (2): 283-304.

Chen, Y., Ravulaparthi, S., Deutsch, K., Dalal, P., Yoon, S. Y., Lei, T. L., et al. (2011), Development of opportunity-based accessibility indicators. *Transportation Research Record*

Guo, B., D. Li, Lei, T. and Wang, M.. (1999), Development of ITS and application of 3S in ITS, *Geo-Spatial Information Science* 2(1): 86-89.

### **Reports and Book Chapters**

R.L. Church, V. Noronha, T. Lei, W. Corrigan, S. Burbidge, and J. Marston. Spatial and Temporal Utility Modeling to Increase Transit Ridership. *Final Report prepared for California Partners in Advanced Transit and Highways(PATH)*, 2005.

### **Conference Proceedings**

Lei, Z., Chen, X., & Lei, T. (2016). Sub-Pixel Location of Motion Blurred Weak Celestial Objects in Optical Sensor Image Based on Elliptical 2D Gaussian Surface Fitting. In *International Conference on Industrial Informatics - Computing Technology, Intelligent Technology, Industrial Information Integration (ICIICII)*. Wuhan, China: IEEE. (Reviewed/Refereed)

Lei, T. L., Liang, X., Mascaro, G., White, D., Westerhoff, P., & Maciejewski, R. (2015). An Interactive Web-Based Geovisual Analytics Tool to Explore Water Scarcity in Niger River Basin. In A. Middel, G. Weber, & K. Rink, Workshop on Visualisation in Environmental Science (EnvirVis) (2015). Cagliari, Sardinia, Italy. (Reviewed/Refereed)

### **Conference Presentations**

Koncur, J., & Lei, T. (2017, April 9). County-level Big Data Exploration and Analysis: Property Value Change in Johnson County, KS 2012-2015. Presented at the Annual Meetings of Association of American Geographers, Boston, MA.

Lei, T. (2015, April 25). GIS Modeling for Evaluating Water Scarcity in the Niger River Basin. Presented at the Annual Meetings of Association of American Geographers, Chicago, IL.

Ting Lei, On the Vulnerability of Minimax Networks: An Interdiction Center Problem, presented at the Annual meetings of Association of American Geographers, Tampa, FL, April 2014.

R.L. Church and T.L. Lei, a generalized structure for a  $p$ -median: merging the vector assignment and the ordered median problems, presented at Western Regional Science Association, Kauai, HI February 2012 (presented by co-author).

K.G. Goulias, C.R. Bhat, R.M. Pendyala, Y. Chen, R. Paleti, K.C. Konduri, T. Lei, D. Tang, S.Y. Yoon, G. Huang, and H. Hu, Simulator of Activities, Greenhouse Emissions, Networks, and Travel (SimAGENT) in Southern California, Paper presented at the 91st Annual Transportation Research Board Meeting, Washington D.C., January 23-27, 2011

R.L. Church and T. Lei, Optimizing the disruption of a median service system, Presented at the INFORMS Annual Meeting at Austin, Texas, Nov 2010.

T. Lei and R.L. Church, Reducing traffic in handling empty containers: a case study of the Los Angeles basin, Presented at the 3rd National Urban Freight Conference at Long beach, Oct. 2009

T. Lei and R.L. Church, Vector Assignment  $r$ -interdiction model, Presented at the AAG annual conference at Las Vegas, March 2009.

T. Lei and R.L. Church, Generalized Constraints for Closest Assignment in Location Modeling, 2009 INFORMS annual conference at San Diego, Nov 2009

T. Lei and R.L. Church, A new class of dispersion-based facility location models, Presented at the 56th Annual North American Meetings of the Regional Science Association at San Francisco, Nov 2009

R.L. Church and T. Lei, Minimizing the impact of port operations: a new location model for away-from-port container storage yards, *Presented at the 2008 NARSC Conference, Brooklyn, NY, Nov. 2008* (presented by co-author).

T. Lei, D. Li, and J. Gong, The Expression of Road Network for Vehicle Navigation, Proceedings of ISPRS 19 Congress, B4/2, 567-571, 2000

### **Funding**

External:

Lei, T. (Principal), Ho, A. (Co-Principal), Kondyli, A. (Co-Principal), Fowles, J. (Co-Principal), & Sutley, E. (Co-Principal). Exploring the Factors Influencing Property Value Changes and Neighborhood Health in Johnson County, Kansas. Johnson County, Kansas \$39,746, Submitted November 5, 2015 (June 1, 2016 - June 1, 2017).

Internal:

Lei, T. (Principal). Facilitating transportation network conflation using GIS and spatial optimization. \$8,000 (2016 - 2017). (Refereed/Competitive)

### **Editorial Board**

Transportation Research Letters

### **Referee Experience**

International Journal of Geographic Information Science  
Geographical Analysis  
European Journal of Operational Research  
Transportation Research, Part E  
Transportation Research Letters  
Networks and Spatial Economics  
GeoJournal

### **Affiliations**

Association of American Geographers

### **Technical Skills**

Programming Languages:

C, C++17, C# .NET, Python, JavaScript (ECMAScript 2018), R, Java, Lisp, Matlab, Assembly

GIS Software:

ESRI ArcGIS, ERDAS IMAGINE, Leica Photogrammetric Suite, AutoCAD  
PostGIS, QGIS, GeoServer, MapServer, OGR/GDAL, GeoPandas

GIS & Spatial Databases:

Arc Objects, ArcPy, OGR/GDAL,  
QGIS, pyQGIS, PostGIS, GeoServer  
PostgreSQL, PostgreSQL Server Programming, PostGIS, MySQL

High performance computing:

MPI, UPC, CUDA

Web programming:

HTML5/JavaScript, NodeJS, OpenLayers, Leaflet, PHP

Cloud Computing:

AWS EC2, Docker, Kubernetes, Jupyter Hub

Optimization:

IBM-ILOG CPLEX/OPL, LINGO/LINDO, AMPL, GNU GLPK