

Yanyan Xu

Postdoctoral Associate

Human Mobility and Networks Lab.

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Research Interests

Transportation Planning / City Planning / Human Travel Behavior / Air Quality

Appointments

Postdoctoral Associate, Department of City and Regional Planning, and Institute of Transportation Studies, University of California, Berkeley, CA. November 2018 - present.

Supervisor: Prof. Marta C. González, <http://humnetlab.mit.edu>

Postdoctoral Associate, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, MA. September 2015 - October 2018.

Supervisor: Prof. Marta C. González

Visiting Postdoctoral Scholar, Department of City and Regional Planning, University of California, Berkeley, CA. November 2017 - October 2018.

Guest Postdoctoral Fellow, Energy Analysis and Environmental Impacts Division, Lawrence Berkeley National Laboratory, Berkeley, CA. December 2017 - October 2018.

Education

Ph.D. Department of Automation, Shanghai Jiao Tong University, Shanghai, P.R. China, September 2010 - June 2015

Supervisor: Prof. Yuncai Liu

Dissertation: Short-Term Traffic Flow Prediction Based on Spatio-Temporal Correlation

M.S. Signal and Information Processing, School of Information Science and Engineering, Shandong University, Jinan, P.R. China, September 2007 - June 2010.

Supervisor: Prof. Hui Chen

B.S. Electronic Information Engineering, School of Information Science and Engineering, Shandong University, Jinan, P.R. China, September 2003 - June 2007.

Academic Activities

Projects:

Estimate Air Quality Impact at Scale with Satellite Imaginary, UC Berkeley- LBNL, April 2019 - present

Understanding traveler's routing behavior using LBS data, MIT-Cintra, September 2018 - present

Understanding Distribution of Facilities in Diverse Cities, MIT-QCRI, April 2016 - April 2018

Coupling Electric Vehicle Charging with Urban Mobility, MIT, September 2016 - August 2017

Revealing the Impacts of Traffic on Air Quality, MIT, May 2016 - August 2017

Traffic Demand Management during Mega Events, MIT-Ford, September 2015 - August 2016

Services:

Serve as reviewer for

Transportation Research Part C: Emerging Technologies
Computers, Environment and Urban Systems
Transportmetrica A: Transport Science
IEEE Transactions on Intelligent Transportation Systems
IEEE Intelligent Transportation Systems Magazine
Transportation Research Board Annual Meeting (ADC20)

Selected Publications * indicates corresponding author

In preparation & under review

1. **Yanyan Xu**, Sofiane Abbar, Marta C. González, "A Data Analysis Framework to Assess and Improve the Distribution of Urban Facilities", submitted.
2. **Yanyan Xu**, Riccardo Di Clemente, Marta C. González, "Understanding Route Choice Behavior with Location-Based Services Data", submitted.

Journal Articles

1. **Yanyan Xu**, Shan Jiang, Ruiqi Li, Jiang Zhang, Jinhua Zhao, Sofiane Abbar, Marta C. Gonzalez, "Unraveling Environmental Justice in Ambient PM_{2.5} Exposure in Beijing: A Big Data Approach", *Computers, Environment and Urban Systems*, 75, 12-21, 2019
2. **Yanyan Xu**, Serdar Colak, Emre C. Kara, Scott J. Moura and Marta C. González, "Planning for Electric Vehicle Needs by Coupling Charging Profiles with Urban Mobility", *Nature Energy*, 3, 484-493, 2018.
3. Senyan Yang, Jianping Wu, Tao Yang, **Yanyan Xu**, "Revealing Heterogeneous Spatiotemporal Traffic Flow Patterns of Urban Road Network via Tensor Decomposition-based Clustering Approach", *Physica A: Statistical Mechanics and its Applications*, 2019
4. Xiaoqing Dai, Lijun Sun, **Yanyan Xu***, "Short-term Origin-Destination based Metro Flow Prediction with Probabilistic Model Selection Approach". *Journal of Advanced Transportation*, 2018.
5. **Yanyan Xu**, and Marta C. González, "Collective Benefits in Traffic during Mega Events via the Use of Information Technologies," *J. Roy. Soc. Interface*, 14:20161041, 2017.
6. **Yanyan Xu**, Hui Chen, Qing-Jie Kong, Xi Zhai, and Yuncai Liu, "Urban Traffic Flow Prediction: A Spatio-Temporal Variable Selection Based Approach," *Journal of Advanced Transportation*, vol. 50, pp. 489-506, 2016.
7. **Yanyan Xu**, Qing-Jie Kong, Reinhard Klette, and Yuncai Liu, "Accurate and Interpretable Bayesian MARS for Traffic Flow Prediction," *IEEE Transactions on Intelligent Transportation Systems*, vol. 15, no. 6, pp. 2457-2469, 2014.
8. Qing-Jie Kong, **Yanyan Xu**, Shu Lin, Ding Wen, Fenghua Zhu and Yuncai Liu, "UTN-model based Traffic Flow Prediction for Parallel-Transportation Management Systems," *IEEE Transactions on Intelligent Transportation Systems*, vol. 14, no. 3, pp. 1541-1547, 2013.

Proceedings

1. Xiaoqing Dai, Lijun Sun, **Yanyan Xu***, "Robust Short-term Metro Flow Prediction with Probabilistic Model Selection Approach". *Proc. of the 97rd Annual Meeting of the Transportation Research Board, Washington, D.C., 2018.*
2. **Yanyan Xu**, Ruiqi Li, Shan Jiang, Jiang Zhang, and Marta C. González, "Clearer Skies in Beijing – Revealing the Impacts of Traffic on the Modeling of Air Quality," *Proc. of the 96rd Annual Meeting of the Transportation Research Board, Washington, D.C., 2017.*
3. **Yanyan Xu**, Bin Wang, Qing-Jie Kong, Yuncai Liu and Fei-Yue Wang, "Spatio-temporal Variable Selection Based Support Vector Regression for Urban Traffic Flow Prediction," *Proc. of the 93rd Annual Meeting of the Transportation Research Board, Washington, D.C., 2014.*
4. **Yanyan Xu**, Qing-Jie Kong, and Yuncai Liu, "A Spatio-Temporal Multivariate Adaptive Regression Splines Approach for Short-Term Freeway Traffic Volume Prediction," *The 16th International IEEE Conference on Intelligent Transportation Systems, Hague, Netherlands, 2013.*
5. **Yanyan Xu**, Qing-Jie Kong, and Yuncai Liu, "Short-Term Traffic Volume Prediction Using Classification and Regression Trees," *The 2013 IEEE Intelligent Vehicles Symposium (IV'13), Gold Coast, Australia, 2013, pp. 493-498.*
6. **Yanyan Xu**, Qing-Jie Kong, and Yuncai Liu "Comparison of Urban Traffic Prediction Methods between UTN-Based Spatial Model and Time Series Models," *The 15th International IEEE Conference on Intelligent Transportation Systems, Anchorage, AK, USA, 2012, pp. 814-819.*