# Yuan Liao

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## EDUCATION

2017– **PhD in Data Science & Mobility**, Department of Space, Earth and Environment, Chalmers University of Technology, Sweden

2013–2016 **MSc in Mechanical Engineering**, Department of Automotive Engineering, Tsinghua University, China

2009–2013 **BE in Mechanical Engineering**, Department of Automotive Engineering, Tsinghua University, China

## MANUSCRIPTS IN PREPARATION

2021 **Liao, Y**, Ek, K, Wennerberg, E, Yeh, S, Gil, J. Mobility Modelling for Travel Demand Simulation using Sparse Traces.

## MANUSCRIPTS UNDER REVIEW

2021 **Liao, Y**. Ride-sourcing compared to its public-transit alternative using big trip data.

## PUBLICATIONS

### PEER-REVIEWED

2021 **Liao, Y**, Yeh, S, Gil, J. Feasibility of estimating travel demand using social media data. *Transportation*. doi:10.1007/s11116-021-10171-x.

2021 Li, G, **Liao, Y**, Guo, Q, Shen, C, Lai, W. Traffic Crash Characteristics in Shenzhen, China from 2014 to 2016. *International Journal of Environmental Research and Public Health*. doi:10.3390/ijerph18031176.

2020 **Liao, Y**, Gil, J, Pereira, RHM, Yeh, S, Verendel, V. Disparities in travel times between car and transit: Spatiotemporal patterns in cities. *Scientific Reports*. doi:10.1038/s41598-020-61077-0.

2019 **Liao, Y**, Yeh, S, Jeuken, GS. From individual to collective behaviours: exploring population heterogeneity of human mobility based on social media data. *EPJ Data Science*. doi:10.1140/epjds/s13688-019-0212-x.

2019 Li, G, Li, SE, Zou, R, **Liao, Y**, Cheng, B. Detection of road traffic participants using cost-effective arrayed ultrasonic sensors in low-speed traffic situations. *Mechanical Systems and Signal Processing*. doi:10.1016/j.ymssp.2019.07.009.

2019 Wang, M, **Liao, Y**, Lyckvi, SL, Chen, F. How drivers respond to visual vs. auditory information in advisory traffic information systems. *Behaviour & Information Technology*. doi:10.1080/0144929X.2019.1667439.

2018 **Liao, Y**, Wang, M, Duan, L, Chen, F. Cross-regional driver–vehicle interaction design: an interview study on driving risk perceptions, decisions, and ADAS function preferences. *IET Intelligent Transport Systems*. doi:10.1049/iet-its.2017.0241.

2018 **Liao, Y**, Li, G, Li, SE, Cheng, B, Green, P. Understanding driver response patterns to mental workload increase in typical driving scenarios. *IEEE Access*. doi:10.1109/ACCESS.2018.2851309.

2017 Hu, M, **Liao, Y**, Wang, W, Li, G, Cheng, B, Chen, F. Decision tree-based maneuver prediction for driver rear-end risk-avoidance behaviors in cut-in scenarios. *Journal of Advanced Transportation*. doi:10.1155/2017/7170358.

2016 **Liao, Y**, Li, SE, Wang, W, Wang, Y, Li, G, Cheng, B. Detection of driver cognitive distraction: A comparison study of stop-controlled intersection and speed-limited highway. *IEEE Transactions on Intelligent Transportation Systems*. doi:10.1109/TITS.2015.2506602.

## PEER-REVIEWED CONFERENCE PROCEEDINGS

2018 **Liao, Y**, Yeh, S. Predictability in Human Mobility based on Geographical-boundary-free and Long-time Social Media Data. *2018 21st International Conference on Intelligent Transportation Systems (ITSC)*. doi:10.1109/ITSC.2018.8569770.

2017 **Liao, Y**, Li, G, Chen, F. Context-adaptive support information for truck drivers: an interview study on its contents priority. *2017 IEEE Intelligent Vehicles Symposium (IV)*. doi:10.1109/IVS.2017.7995886.

2017 **Liao, Y**, Duan, L, Wang, M, Chen, F. Cross-regional study on driver response behavior patterns and system acceptance with triggered forward collision warning. *2017 IEEE Intelligent Vehicles Symposium (IV)*. doi:10.1109/IVS.2017.7995778.

2016 **Liao, Y**, Li, SE, Li, G, Wang, W, Cheng, B, Chen, F. Detection of driver cognitive distraction: an SVM based real-time algorithm and its comparison study in typical driving scenarios. *2016 IEEE Intelligent Vehicles Symposium (IV)*. doi:10.1109/IVS.2016.7535416.

2015 Li, G, Li, SE, **Liao, Y**, Wang, W, Cheng, B, Chen, F. Lane change maneuver recognition via vehicle state and driver operation signals—Results from naturalistic driving data. *2015 IEEE Intelligent Vehicles Symposium (IV)*. doi:10.1109/IVS.2015.7225793.

2015 **Liao, Y**, Li, SE, Wang, W, Wang, Y, Li, G, Cheng, B. The impact of driver cognitive distraction on vehicle performance at stop-controlled intersections. *2015 IEEE Intelligent Vehicles Symposium (IV)*. doi:10.1109/IVS.2015.7225806.

## THESIS

2020 **Liao, Y**. Understanding Human Mobility with Emerging Data Sources: Validation, spatiotemporal patterns, and transport modal disparity. Chalmers University of Technology. research.chalmers.se/en/publication/515718.

## PRESENTATIONS

2020 **Liao, Y**. Understanding Human Mobility with Emerging Data Sources (Licentiate Seminar), *Department of Space, Earth and Environment, Chalmers University of Technology*, Gothenburg, Sweden.

**Liao, Y**, Yeh, S. Private Car vs. Public Transit: Spatiotemporal Variations of Travel Time in Cities using Emerging Data Sources, *The Transportation Research Board (TRB) 99th Annual Meeting*, Washington DC, USA.

2019 **Liao, Y**, Yeh, S. Using geotagged tweets to assess human mobility: a comparison with travel survey and GPS log data, *8th Symposium of the European Association for Research in Transportation (hEART)*, Budapest, Hungary.

**Liao, Y**. Private Car vs. Public Transit: Spatiotemporal Variations of Travel Time in Cities using Emerging Data Sources, *K2 | The Swedish Knowledge Centre for Public Transport, Seminar*, Lund, Sweden.

**Liao, Y**. Human mobility through the lens of geotagged tweets, *SMoG-group seminar, Department of Architecture and Civil Engineering, Chalmers University of Technology*, Gothenburg, Sweden.

2018 **Liao, Y**. Predictability in Human Mobility based on Geographical-boundary-free and Long-time Social Media Data, *The 21st IEEE International Conference on Intelligent Transportation Systems*, Maui, Hawaii, USA.

**Liao, Y**. From Individual to Collective Behaviours: Exploring Variations of Human Mobility in Space and Time based on Social Media Data, *International Energy Workshop 2018*, Gothenburg, Sweden.

2017 **Liao, Y**. Exploring the Patterns of Human Movement Using Twitter Data, *Fulbright Day*, Gothenburg, Sweden.

2016 **Liao, Y**. Human factors in intelligent vehicles: Research methods for driver behaviors, workload assessment, and HMI design, *Shenzhen University*, Shenzhen, China.

**Liao, Y**. Driving safety status and preferences on V2X-based safety assistance of truck drivers - Some implications for interaction design, *SAFER Lunch Seminar*, Gothenburg, Sweden.

## TEACHING ASSISTANCE

2018–2020 FFR170: Sustainable Energy Futures
*Department of Space, Earth and Environment, Chalmers University of Technology*

## ACADEMIC SERVICE & AFFILIATIONS

### REVIEWER

International Journal of Transportation Science and Technology – Transactions in GIS – IEEE Transactions on Intelligent Transportation Systems – IEEE Access – Transportation – IEEE Intelligent Transportation Systems Magazine – International Journal of Human Factors and Ergonomics

### AFFILIATIONS

2015– IEEE Student Member

### OTHER

2018–2020 Vice-chair of IEEE Young Professional Sweden Section

## AWARDS & HONORS

2018 Chalmers Area of Advance - Energy, **Travel Grant** to present at 21st IEEE International Conference on Intelligent Transportation Systems, November 4-7, 2018, Maui, Hawaii, USA

2016 **Excellent Master Thesis** of the Year (TOP 5%), Tsinghua University, China

2016 **Excellent Postgraduate Student** of the Year (TOP 5%), Tsinghua University, China

2014 **First Class Scholarship**, Tsinghua University, China

2013 **Excellent Undergraduate Thesis** of the Year (TOP 5%), Tsinghua University, China

2012 **First Class Scholarship**, Tsinghua University, China

## TECHNICAL SKILLS

| | |
|---|---|
| Data | Machine learning, data mining, Python, SQL, R, SPSS, MATLAB |
| Mobility | Spatial analysis, GIS techniques, ArcMap, QGIS |

## LANGUAGES

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|---|---|
| Mandarin | Native |
| English | Advanced |