Qinglong LU, Ph.D. Candidate

Chair of Transportation Systems Engineering, Department of Mobility Systems Engineering, Technical University of Munich, Germany

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Nationality: Chinese Date of Birth: 06.08.1995

Education

- **Technical University of Munich, Munich, Germany** *Jun 2021 – Present*

  Ph.D. candidate, Transportation Systems Engineering

  Thesis: Evaluation and optimization of urban vehicular traffic resilience

- **Technical University of Munich, Munich, Germany** *Oct 2018 – Oct 2020*

  Master's degree, Transportation Systems

  Thesis: Developing dynamic pricing methods for ride-sharing services

- **Sun Yat-sen University, Guangzhou, P.R. China** *Sep 2014 – Jun 2018*

  Bachelor's degree, Traffic Engineering

  Thesis: Taxi passenger demand prediction based on taxi trajectory data

Research Experience

- **Chair of Transportation Systems Engineering, Technical University of Munich** *Jun 2021 – Present*

  Research associate Munich, Germany

- **Intelligent Transportation System Laboratory, Kyoto University** *May 2023 – Jul 2023*

  Visiting researcher Kyoto, Japan

  – Evaluating traffic resilience based on macroscopic fundamental diagrams.

- **Chair of Transportation Systems Engineering, Technical University of Munich** *Nov 2020 – Apr 2021*

  Research assistant Munich, Germany

  – Integrating PCA into the simultaneous perturbation stochastic approximation algorithm.

- **Faculty of Electrical Engineering, University of Ljubljana** *Mar 2020 – Apr 2020*

  Research assistant Ljubljana, Slovenia

  – Developing autonomous and connected transport deployment scenarios linking individual driving with network efficiency.

- **Chair of Transportation Systems Engineering, Technical University of Munich** *Apr 2019 – Mar 2020*

  Research assistant Munich, Germany

  – Dynamic vanpooling: passenger preferences, operations modeling, and simulation-based quantification of impacts.

Publications

Peer-reviewed Journal Articles

1 **Q.-L. Lu**, V. Mahajan, C. Lyu, and C. Antoniou, "Analyzing the impact of fare-free public transport policies on crowding patterns at stations using crowdsensing data," *Transportation Research Part A: Policy and Practice*, vol. 179, p. 103 944, 2024.

2 **Q.-L. Lu**, M. Qurashi, and C. Antoniou, "A two-stage stochastic programming approach for dynamic od estimation using lbsn data," *Transportation Research Part C: Emerging Technologies*, vol. 158, p. 104 460, 2024.

3 Z.-J. Liu, **Q.-L. Lu***, and J. Gao, "A similarity-based data-driven car-following model considering driver heterogeneity," *Transportation research procedia*, 2023, (in press).

4 **Q.-L. Lu**, M. Qurashi, and C. Antoniou, "Simulation-based policy analysis: The case of urban speed limits," *Transportation Research Part A: Policy and Practice*, vol. 175, p. 103 754, 2023.

5 **Q.-L. Lu**, M. Qurashi, and C. Antoniou, "A ridesplitting market equilibrium model with utility-based compensation pricing," *Transportation*, pp. 1–36, 2022.

6 M. Qurashi, **Q.-L. Lu**, G. Cantelmo, and C. Antoniou, "Dynamic demand estimation on large scale networks using principal component analysis: The case of non-existent or irrelevant historical estimates," *Transportation Research Part C: Emerging Technologies*, vol. 136, p. 103 504, 2022.

7 **Q.-L. Lu**, M. Qurashi, D. Varesanovic, J. Sodnik, and C. Antoniou, "Exploring the influence of automated driving styles on network efficiency," *Transportation research procedia*, vol. 52, pp. 380–387, 2021.

8 **Q.-L. Lu**, "A structural equations approach for modeling the endogeneity of lane-mean speeds considering the downstream speeds," *European journal of transport and infrastructure research*, vol. 20, no. 4, pp. 252–265, 2020.

Peer-reviewed Conference Contributions

1 N. Yang, **Q.-L. Lu***, C. Lyu, and C. Antoniou, "Transfer learning for transportation system resilience patterns prediction using floating car data," in *103rd Annual Meeting of the Transportation Research Board (TRB 2024)*, 2024.

2 J. Dai, W. Sun, **Q.-L. Lu**, J.-D. Schmöcker, and C. Antoniou, "On the resilience of railway station demand in response to unexpected events: A case study of japan in covid-19," in *25th Euro Working Group on Transportation Conference (EWGT 2023)*, 2023.

3 **Q.-L. Lu**, M. Qurashi, and C. Antoniou, "A two-stage stochastic programming approach for dynamic od estimation," in *102nd Annual Meeting of the Transportation Research Board (TRB 2023)*, 2023.

4 **Q.-L. Lu**, W. Sun, J. Dai, J.-D. Schmöcker, and C. Antoniou, "Surrogate modeling for recovery measures optimization to improve MFD-based traffic resilience," in *The 9th International Symposium on Transport Network Resilience (INSTR)*, 2023.

5 **Q.-L. Lu**, W. Sun, D. Jiannan, J.-D. Schmöker, and C. Antoniou, "An MFD-based optimization approach to improve transportation system resilience under infrastructure disruptions," in *25th Euro Working Group on Transportation Conference (EWGT 2023)*, 2023.

6 M. Neun, C. Eichenberger, H. Martin, *et al.*, "Traffic4cast at neurips 2022–predict dynamics along graph edges from sparse node data: Whole city traffic and eta from stationary vehicle detectors," in *NeurIPS 2022 Competition Track*, PMLR, 2022, pp. 251–278.

7 **Q.-L. Lu**, K. Yang, and C. Antoniou, "Crash risk analysis for the mixed traffic flow with human-driven and connected and autonomous vehicles," in *2021 IEEE International Intelligent Transportation Systems Conference (ITSC)*, IEEE, 2021, pp. 1233–1238.

8 M. Qurashi, **Q.-L. Lu**, G. Cantelmo, and C. Antoniou, "PC-SPSA: Exploration and assessment of different historical data–set generation methods for enhanced DTA model calibration," in *9th Symposium of the European Association for Research in Transportation (hEART2020)*, 2021.

Working papers (under review)

1 T. Guo, H. Wu, **Q.-L. Lu**, and C. Antoniou, *Two-stage stochastic optimization approach for uam station siting*, *Transportation Research Part A: Policy and Practice*, (submitted).

2 **Q.-L. Lu**, W. Sun, J. Dai, J.-D. Schmöcker, and C. Antoniou, *Traffic resilience based on macroscopic fundamental diagram: Evaluation and the role of network topology*, *Reliability Engineering & System Safety*, (submitted).

3 C. Lyu, **Q.-L. Lu**, X. Wu, and C. Antoniou, *Tucker factorization-based tensor completion for robust transport data imputation*, *Transportation Research Part C: Emerging Technologies*, (submitted).

Review activities

Journals

- Transportation Research Part A: Policy and Practice
- Transportation Letters: The International Journal of Transportation Research
- Research in Transportation Business and Management

International conferences

- Transportation Research Board
- IEEE Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS)
- MobilTUM

Grants, Honors & Awards

- Best Paper of the PhD Session, Euro Working Group on Transportation *Oct, 2023*
- DAAD-Kyoto University Partnership Programme, DAAD *May, 2023*
- Traffic4Cast Competition 2022: Second Place, IARAI *Nov, 2022*
- ITS Bavaria Award 2021: Best Master's Thesis Award, ITS Bavaria *May, 2022*
- Graduation Scholarship (DAAD STIBET), TUM *Aug, 2020*
- Short Term Scientific Mission (STSM) Grant, WISE-ACT and DAAD *Apr, 2020*

Projects

- Deep learning anticipated urban mobility peaks (DARUMA) *Apr 2021 - Apr 2024*

  An European Interest Group CONCERT-Japan DARUMA project

- A MFD dynamics based resilience optimization model for road transportation under network disruptions

  Apr 2023 - Jul 2023
  DAAD-Kyoto University Partnership Programme towards SDGs 2023

- Developing ACT deployment scenarios linking individual driving with network efficiency

  Apr 2020 - May 2020
  Under the COST Action CA16222: Wider impacts and scenario evaluation of autonomous and connected transport

Teaching

- **2021/2022/2023 Winter semester** *Oct - Feb*
  - Special Topics on Model Calibration

- **2022 Summer semester** *Apr - Aug*
  - Statistical Learning and Data Analytics for Transportation Systems
  - Optimization for Transportation Systems

- **Theses supervision**
  - Transfer learning for transportation system resilience estimation using floating car data (*Nov 2022 - May 2023*. Student: Ningkang Yang. **Master's Thesis**) (ITS Bavaria Award 2023: Best Master's Thesis)
  - Calibration of car-following models with genetic algorithm and particle swarm optimization methods (*May 2022 - Oct 2022*. Student: Yuting He. **Bachelor's Thesis**)