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🐙 GitHub Profile

## EDUCATION

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- **Technical University of Munich, Munich, Germany** *Jun 2021 – Present*  
*Ph.D. candidate, Transportation Systems Engineering*
- **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 (985 & 211), Guangzhou, P.R. China** *Sep 2014 – Jun 2018*  
*Bachelor's degree, Traffic Engineering*

## RESEARCH EXPERIENCE

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- **Intelligent Transportation System Laboratory, Kyoto University** *May 2023 – Jul 2023*  
*Visiting researcher* Kyoto, Japan  
– Evaluation and optimization of 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 the PCA into the simultaneous perturbation stochastic approximation algorithm.
- **Faculty of Electrical Engineering, University of Ljubljana** *Mar 2020 – Apr 2020*  
*Research assistant* Ljubljana, Slovenia  
– Developing ACT deployment scenarios linking individual driving with network.
- **Chair of Transportation Systems Engineering, Technical University of Munich** *Apr 2019 – Mar 2020*  
*Research assistant* Munich, Germany  
– Dynamic vanpool services: passenger preferences, operations modeling, and simulation-based quantification of impacts.

## TEACHING

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- **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: Ningkan 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)

## PUBLICATIONS

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### Journal Articles

- 1 **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. 103754, 2023.
- 2 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,” *arXiv preprint arXiv:2303.07758*, 2023.
- 3 **Q.-L. Lu**, M. Qurashi, and C. Antoniou, “A ridesplitting market equilibrium model with utility-based compensation pricing,” *Transportation*, pp. 1–36, 2022.
- 4 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. 103504, 2022.
- 5 X. Wu, C. Lyu, **Q.-L. Lu**, and V. Mahajan, “Similarity-based feature extraction for large-scale sparse traffic forecasting,” *arXiv preprint arXiv:2211.07031*, 2022.
- 6 **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.
- 7 **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.

### Conference Contributions

- 1 C. Lyu, **Q.-L. Lu**, X. Wu, and C. Antoniou, “Robust low-rank tensor decomposition framework for transport data imputation,” in *103rd Annual Meeting of the Transportation Research Board (TRB 2024)*, 2024.
- 2 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.
- 3 **Q.-L. Lu**, V. Mahajan, C. Lyu, and C. Antoniou, “Analyzing crowding in public transport during 9-eur ticket using crowdsensing data,” in *25th Euro Working Group on Transportation Conference (EWGT 2023)*, 2023.
- 4 **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.
- 5 **Q.-L. Lu**, W. Sun, D. Jiannan, J.-D. Schmöcker, 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 **Q.-L. Lu**, M. Qurashi, and C. Antoniou, “A stochastic programming method for od estimation using lbsn check-in data,” in *4th Symposium on Management of Future Motorway and Urban Traffic Systems*, 2022.
- 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. 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.
- 9 M. Qurashi, **Q. Lu**, G. Cantelmo, and C. Antoniou, “Pc-spsa: Implementation assessment and exploration of different historical data-set generation methods for enhanced dta model calibration,” in *3rd Symposium on Management of Future Motorway and Urban Traffic Systems*, 2020.

## HONORS & AWARDS

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| • Best Paper of the PhD Session, Euro Working Group on Transportation | Oct, 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 |