Toru Seo

Curriculum Vitae, as of February 19, 2024

Personal Information

Name: Toru SEO

Name in Japanese: 瀬尾 亨（セオ トオル）

Affiliation

Associate Professor, *Seo Lab., Department of Civil and Environmental Engineering, School of Environment and Society, Tokyo Institute of Technology, Japan*

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ORCID: 0000-0001-9767-7218

Web of Science ResearcherID: I-3748-2016

ResearchGate: https://www.researchgate.net/profile/Toru_Seo2

Google Scholar: https://scholar.google.com/citations?user=CAxkSpwAAAAJ

Degree

[2015-09-25] Doctor of Engineering, *Department of Civil Engineering, Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan*

Working Experience

[2021-04/] Associate Professor, *Tokyo Institute of Technology, Japan*

[2021-07/2022-03] Visiting Researcher, *Center for Spatial Information Science, The University of Tokyo, Japan*

[2018-06/2021-03] Assistant Professor, *The University of Tokyo, Japan*

[2016-04/2018-05] Research Staff, *Tokyo Institute of Technology, Japan*

[2017-08/2018-05] Research Associate, *University of Michigan, The United States*

[2017-06/2017-08] Visiting Scholar, *University of Michigan, The United States*

[2015-10/2016-03] Research Fellow (PD), *Japan Society for the Promotion of Science, Japan*

[2014-04/2015-09] Research Fellow (DC2), *Japan Society for the Promotion of Science, Japan*

Education

[2015-09] Dr.Eng., *Department of Civil Engineering, Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan*

Doctoral dissertation: Traffic estimation with vehicles observing other vehicles

Supervisor: Prof. Yasuo Asakura

[2013-03] M.Eng., *Department of Civil Engineering, Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan*

Master thesis: Traffic state estimation with Lagrangian observation (in Japanese)
Supervisors: Prof. Yasuo Asakura and Dr. Daisuke Fukuda

[2011-03] B.Eng., *Department of Civil and Environmental Engineering, School of Engineering, Tokyo Institute of Technology, Japan*
Graduation thesis: Pedestrian behavior modeling in a train station based on the concept of "Plan-Action" (in Japanese)
Supervisor: Dr. Daisuke Fukuda

Honors and Awards

[2017-11-04] Outstanding Paper Award, *Committee of Infrastructure Planning and Management, Japan Society of Civil Engineers*

[2017-07] TRC Best Paper Award, *Transportation Research Part C: Emerging Technologies*

[2016-11-25] Kometani–Sasaki Prize (for Dissertation), *Institute of Systems Science Research*

[2016-06-20] The 30th Japan Society of Traffic Engineers Paper Award, *Japan Society of Traffic Engineers*

[2015-09-16] Best Paper Award, *IEEE 18th International Conference on Intelligent Transportation Systems*

[2014-08-08] Research Encouragement Award, *The 34th Conference of Japan Society of Traffic Engineers*

[2013-12-05] Outstanding Paper Award, *The 30th Japan Road Conference*

Competitive Research Funding

Principal Investigator

[2020-04/2024-03] KAKENHI Grant-in-Aid for Scientific Research (B), Japan Society for the Promotion of Science, *Estimation, prediction, and control of road transportation system by integrating traffic flow theory and machine learning*, PI: Toru Seo, Total budget: JPY 13500k.

[2016-04/2020-03] KAKENHI Grant-in-Aid for Young Scientists (B), Japan Society for the Promotion of Science, *Development and verification of model describing spatiotemporal dynamics of traffic flow consists of heterogeneous vehicles*, PI: Toru Seo, Total budget: JPY 3200k.

[2014-04/2016-03] KAKENHI Grant-in-Aid for JSPS Fellows, Japan Society for the Promotion of Science, *Road network traffic state estimation using information from cameras on probe vehicles*, PI: Toru Seo, Total budget: JPY 1700k.

Co-Investigator

[2023-04/2026-03] KAKENHI Grant-in-Aid for Scientific Research (B), Japan Society for the Promotion of Science, *Validation of traffic flow theory on highway and strategic design of traffic control system*, PI: Kentaro Wada, Total budget: JPY 2200k.

[2021-04/2024-03] Research Fund by Committee on Advanced Road Technology, Ministry of Land, Infrastructure, Transport and Tourism, Japan, *Next-gen traffic measurement methods combining camera images and multiple observation data*, PI: Hideki Yaginuma, Total budget: JPY 0.

[2019-04/2022-03] KAKENHI Grant-in-Aid for Scientific Research (B), Japan Society for the Promotion of Science, *Traffic flow optimization by intervention control to automated vehicles*, PI: Yasuhiro Shiomi, Total budget: JPY 1800k.

[2019-04/2022-03] Research Fund by Committee on Advanced Road Technology, Ministry of Land, Infrastructure, Transport and Tourism, Japan, *Facility location and transportation management considering multi-scale modal cooperation*, PI: Takahiko Kusakabe, Total budget: JPY 1650k.

[2018-04/2021-03] Research Fund by Committee on Advanced Road Technology, Ministry of Land, Infrastructure, Transport and Tourism, Japan, *Tourism Congestion Management using Learning-based Monitoring and Prediction of Traffic*, PI: Takashi Fuse, Total budget: JPY 9000k.

[2017-04/2021-03] KAKENHI Grant-in-Aid for Scientific Research (A), Japan Society for the Promotion of Science, *Research on mathematical models for management of large-scale transportation network under mega disaster*, PI: Yasuo Asakura, Total budget: JPY 700k.

[2017-04/2020-03] KAKENHI Grant-in-Aid for Scientific Research (B), Japan Society for the Promotion of Science, *Integrated Analytical Modeling of Urban Rail Transit System with High-Frequent Operations*, PI: Daisuke Fukuda, Total budget: JPY 1200k.

[2017-04/2019-03] KAKENHI Grant-in-Aid for Challenging Research (Exploratory), Japan Society for the Promotion of Science, *Market diffusion and social influences of automated cars: Integrated approach from traffic engineering and transport economics*, PI: Daisuke Fukuda, Total budget: JPY 600k.

Affiliated Societies

IEEE, IEEE Intelligent Transportation Systems Society

Japan Society of Civil Engineers

Japan Society of Traffic Engineers

Information Processing Society of Japan

Academic Services

Editor

[2022/] Japanese Journal of JSCE (Associate editor)

[2017] JSTE Traffic Engineering, Vol.52, No.4 (Guest editor)

Journal reviewer

Transportation Research Part A: Policy and Practice; Transportation Research Part B: Methodological; Transportation Research Part C: Emerging Technologies; Transportation Research Part E: Logistics and Transportation Review; Transportation; Transportation Research Record; Transportmetrica A; Transportmetrica B; IEEE Transactions on Intelligent Transportation Systems; IEEE Intelligent Transportation Systems Magazine; IEEE Transactions on Vehicular Technology; IET Intelligent Transportation System; Travel Behaviour and Society; Transportation Letters; Transportation Planning and Technology; International Journal of Sustainable Transportation; Physica A: Statistical Mechanics and its Applications; International Journal of Intelligent Transportation Systems Research; Asian Transportation Studies; IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences; Engineering Applications of Artificial Intelligence; Artificial Life and Robotics; Hydrological Research Letters; Sensors; PLOS ONE; Entropy; Energies; MethodsX; Journal of Japan Society of Civil Engineers, Ser. D3; JSTE Journal of Traffic Engineering

Conference session chair

IEEE International Conference on Intelligent Transportation Systems; EURO Working Group on Transportation Meeting; JSCE Infrastructure Planning and Management Conference

Committee member etc.

[2023-06/2025-03-31] Secretary, Secretariat of committee on traffic technology, Hanshin Expressway Company Limited

[2022-08-04/2024-03-08] Member, Study group for rail transport project evaluation, Japan Transport and Tourism Research Institute

[2022-06-10/] Associate Editor, Editorial committee on Journal of Japan Society of Civil Engineers, Japan Society of Civil Engineers

[2022-06-08/2024-03-15] Member, Committee on novel traffic control methods, Japan Society of Traffic Engineers

[2022-04-01/2025-05-31] Member, Committee on practical application of theory on traffic congestion at highway basic segments, Japan Society of Traffic Engineers

[2022-04/2023-01] Program Committee Member, The 20th ITS Symposium 2022, ITS Japan

[2018-10/2021-03] Member, Study group for rail transport project evaluation, Japan Transport and Tourism Research Institute

[2018-09/2019-06] Member, Working group for advanced road management using vehicle trajectory data, Japan Society of Traffic Engineers

[2017-02/2017-10] Invited Member, "Traffic Engineering" editorial committee, Japan Society of Traffic Engineers

Teaching Experience

Classes

[2021/] Transportation Science and Simulation, *Tokyo Institute of Technology (Graduate school)*

[2021/] Frontiers in Civil Engineering (partial), *Tokyo Institute of Technology (Graduate school)*

[2023/] School of Environment and Society Academic Group Basic Science I (partial), *Tokyo Institute of Technology*

[2023/] Introduction to Infrastructure and Environment (partial), *Tokyo Institute of Technology*

[2022/] Traffic and Transportation Systems, *Tokyo Institute of Technology*

[2021/] Surveying (partial, primary), *Tokyo Institute of Technology*

[2021/] Research Opportunity in Laboratories (CVE) (partial), *Tokyo Institute of Technology*

[2021/] Integrated Civil and Environmental Engineering Project (partial), *Tokyo Institute of Technology*

[2021/] Urban and Transportation Planning Project (partial), *Tokyo Institute of Technology*

[2021/2022] Fundamentals of Infrastructure Planning (partial, primary), *Tokyo Institute of Technology*

[2019/2020] Spatial Information Engineering I (partial), *The University of Tokyo*

[2018/2019] Applied Project III (partial), *The University of Tokyo*

[2018/2020] Fieldwork Exercise (partial), *The University of Tokyo*

[2018/2020] Fieldwork in Spatial Information Engineering (partial), *The University of Tokyo*

[2011] Infrastructure Planning and Design (teaching assistant), *Tokyo Institute of Technology*

Supervision

Doctor: 1 (Tokyo Institute of Technology)

- Dahiya, Garima. Fundamental diagrams and traffic state estimation methods: analysis and modeling using Zen Traffic Data, Doctor of Engineering, Tokyo Institute of Technology, 2022-09-22

Master: 3 (Tokyo Institute of Technology)

Bachelor: 5 (Tokyo Institute of Technology)

Master (auxiliary): 2 (The University of Tokyo)

Bachelor (auxiliary): 3 (The University of Tokyo)

Awards won by supervised students: Paper Award, the Japan Society of Photogrammetry and Remote Sensing Reiwa 1st Fall Conference (2019); Kimura Award, Department of Civil and Environmental Engineering, Tokyo Institute of Technology (2022); Kikkawa–Yamaguchi Award, Department of Civil and Environmental Engineering, Tokyo Institute of Technology and its Alumni Association "Kyuyu" (2022)

Publications

Book

1. Seo, T. *Macroscopic Traffic Flow Simulation: Fundamental Mathematical Theory and Python Implementation*. Corona Publishing Co., Ltd., 2023. (in Japanese)

Book Chapters

2. Wada, K., Seo, T., and Shiomi, Y. Flow breakdown. In Vickerman, R. (Ed.), *International Encyclopedia of Transportation*, Vol. 4, pp. 143–153. Elsevier, 2021
1. Wada, K., Seo, T., and Shiomi, Y. Bottleneck. In Vickerman, R. (Ed.), *International Encyclopedia of Transportation*, Vol. 4, pp. 134–142. Elsevier, 2021

Refereed International Journal Articles

14. Chen, X., Qin, G., Seo, T., Yin, J., Tian, Y., and Sun, J. A macro-micro approach to reconstructing

vehicle trajectories on multi-lane freeways with lane changing. *Transportation Research Part C: Emerging Technologies*, in press

13. Maruyama, R. and Seo, T. Integrated public transportation system with shared autonomous vehicles and fixed-route transits: Dynamic traffic assignment-based model with multi-objective optimization. *International Journal of Intelligent Transportation Systems Research*, Vol. 21, pp. 99–114, 2023
12. Seo, T., Wada, K., and Fukuda, D. Fundamental diagram of urban rail transit considering train–passenger interaction. *Transportation*, Vol. 50, pp. 139–1424, 2023
11. Seo, T. and Asakura, Y. Multi-objective linear optimization problem for strategic planning of shared autonomous vehicle operation and infrastructure design. *IEEE Transactions on Intelligent Transportation Systems*, Vol. 23, pp. 3816–3828, 2022
10. Seo, T., Kawasaki, Y., Kusakabe, T., and Asakura, Y. Fundamental diagram estimation by using trajectories of probe vehicles. *Transportation Research Part B: Methodological*, Vol. 122, pp. 40–56, 2019
9. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. Evolution of a dynamic ridesharing system based on rational behaviour of users. *International Journal of Sustainable Transportation*, Vol. 13, No. 8, pp. 614–626, 2019
8. Seo, T., Kusakabe, T., Gotoh, H., and Asakura, Y. Interactive online machine learning approach for activity-travel survey. *Transportation Research Part B: Methodological*, Vol. 123, pp. 362–373, 2019 (Selected paper from IATBR2015)
7. Lykov, S., Seo, T., and Asakura, Y. Analysis of spatiotemporal dependencies in two-dimensional traffic flow in large-scale urban area with probe vehicle data. *Journal of the Eastern Asia Society for Transportation Studies*, Vol. 12, pp. 1676–1696, 2017
6. Seo, T., Bayen, A. M., Kusakabe, T., and Asakura, Y. Traffic state estimation on highway: A comprehensive survey. *Annual Reviews in Control*, Vol. 43, pp. 128–151, 2017
5. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. A passengers matching problem in ridesharing systems by considering user preference. *Journal of the Eastern Asia Society for Transportation Studies*, Vol. 11, pp. 1416–1432, 2015
4. Seo, T. and Kusakabe, T. Probe vehicle-based traffic state estimation method with spacing information and conservation law. *Transportation Research Part C: Emerging Technologies*, Vol. 59, pp. 391–403, 2015 (Selected paper from ISTTT21)
3. Seo, T., Kusakabe, T., and Asakura, Y. Estimation of flow and density using probe vehicles with spacing measurement equipment. *Transportation Research Part C: Emerging Technologies*, Vol. 53, pp. 134–150, 2015 **[Best Paper Award]**
2. Fukuda, D., Seo, T., Yamada, K., Yaginuma, H., and Matsuyama, N. An econometric-based model of pedestrian walking behavior implicitly considering strategic or tactical decisions. In Weidmann, U., Kirsch, U., and Schreckenberg, M. (Eds.), *Pedestrian and Evacuation Dynamics 2012*, pp. 615–624. Springer International Publishing, 2014
1. Narioka, N., Seo, T., Kusakabe, T., and Asakura, Y. Incident detection method using longitudinal occupancy time-series data. *Journal of the Eastern Asia Society for Transportation Studies*, Vol. 10, pp. 1720–1733, 2013

Refereed Japanese Journal Articles

12. Nagasaki, K. and Seo, T. Route choice model based on angular indicator and case study. *Japanese Journal of JSCE*, 2024, in press. (in Japanese)
11. Oda, K., Seo, T., and Nakanishi, W. Estimation of location-dependent fundamental diagrambased on connected vehicle data and sparse modeling. *JSTE Journal of Traffic Engineering*, Vol. 10, No. 1, pp. A_316–A_323, 2024. (in Japanese)
10. Sato, K., Seo, T., and Fuse, T. Data-driven dynamic congestion toll optimization methods based on reinforcement learning. *Journal of Japan Society of Civil Engineers, Ser. D3 (Infrastructure Planning and Management)*, Vol. 76, No. 5, pp. I_1273–I_1285, 2021. (in Japanese)
9. Seo, T. and Kusakabe, T. Traffic state estimation using satellite remote sensing and probe vehicles. *JSTE*

Journal of Traffic Engineering, Vol. 5, No. 2, pp. A_1–A_10, 2019. (in Japanese)

8. Aiko, S., Thaithatkul, P., Seo, T., and Asakura, Y. Optimum routing of ride share vehicles for given activity patterns. *Journal of Japan Society of Civil Engineers, Ser. D3 (Infrastructure Planning and Management)*, Vol. 73, No. 5, pp. I_1233–I_1242, 2017. (in Japanese)
7. Wada, K., Seo, T., Nakanishi, W., Satsukawa, K., and Yanagihara, M. Recent advances in kinematic wave theory of traffic flows: variational formulation and network extension. *Journal of Japan Society of Civil Engineers, Ser. D3 (Infrastructure Planning and Management)*, Vol. 73, No. 5, pp. I_1139–I_1158, 2017. (in Japanese)
6. Fukuda, D., Mizuguchi, M., Seo, T., Kusakabe, T., and Asakura, Y. Evaluation of area level travel time reliability using large-scale probe vehicle trajectories recorded for a long period. *Journal of Japan Society of Civil Engineers, Ser. D3 (Infrastructure Planning and Management)*, Vol. 73, No. 5, pp. I_1105–I_1118, 2017. (in Japanese)
5. Seo, T., Kusakabe, T., and Asakura, Y. Trip purpose estimation method for probe person survey using sequential learning. *Journal of Japan Society of Civil Engineers, Ser. D3 (Infrastructure Planning and Management)*, Vol. 73, No. 5, pp. I_517–I_526, 2017. (in Japanese) **[Outstanding Paper Award]**
4. Seo, T., Kusakabe, T., and Asakura, Y. Methodology for calibration of fundamental diagram based on trajectories of sampled vehicles: Concept and numerical experiment. *JSTE Journal of Traffic Engineering*, Vol. 2, No. 2, pp. A_1–A_10, 2016. (in Japanese)
3. Narioka, N., Seo, T., Kusakabe, T., and Asakura, Y. A method for detecting incidents from traffic detector data based on the non-parametric statistics. *JSTE Journal of Traffic Engineering*, Vol. 1, No. 1, pp. 11–20, 2015. (in Japanese) **[JSTE Paper Award]**
2. Seo, T., Kusakabe, T., and Asakura, Y. Estimation of traffic state using probe vehicles that equipped with spacing measurement devices. *Journal of Japan Society of Civil Engineers, Ser. D3 (Infrastructure Planning and Management)*, Vol. 69, No. 5, pp. I_809–I_818, 2013. (in Japanese)
1. Seo, T., Yaginuma, H., and Fukuda, D. Modeling pedestrian behavior based on the concept of "Plan-Action" structure: An application in a train station. *Journal of Japan Society of Civil Engineers, Ser. D3 (Infrastructure Planning and Management)*, Vol. 68, No. 5, pp. I_679–I_690, 2012. (in Japanese)

Refereed International Conference Presentations

44. Fujiya, K., Nagasaki, K., and Seo, T. Modeling pedestrian fundamental diagram based on directional statistics. In *Proceedings of the 27th International Conference of Hong Kong Society for Transportation Studies*, Hong Kong, 2023
43. Nagasaki, K. and Seo, T. Route choice model using angular indicators. In *The 25th EURO Working Group on Transportation Meeting*, Santander, Spain, 2023
42. Zhong, H., Seo, T., Nakanishi, W., Yasuda, S., Asakura, Y., and Iryo, T. Generation of aggregated road network by vehicle trajectory data. In *International Symposium on Transportation Data and Modelling 2023*, Ispra, Italy, 2023
41. Seo, T. Understanding large-scale traffic flow using model-based and data-driven dimension reduction: with COVID-19 and Olympic-Paralympic case study. In *International Symposium on Transportation Data and Modelling 2023*, Ispra, Italy, 2023
40. Maruyama, R. and Seo, T. Dynamic user optimal model for shared autonomous vehicles system: Development and systematic comparison with social optimal model. In *IEEE 25th International Conference on Intelligent Transportation Systems*, Web conference, 2022
39. Seo, T. and Asakura, Y. Multi-objective linear optimization for strategic planning of shared autonomous vehicle operation and infrastructure design. In *The 8th International Symposium on Dynamic Traffic Assignment*, Web conference (Postponed from 2020), 2021
38. Seo, T., Tago, Y., Shinkai, N., Nakanishi, M., Tanabe, J., Ushirogochi, D., Kanamori, S., Abe, A., Kodama, T., Yoshimura, S., Ishihara, M., and Nakanishi, W. Evaluation of large-scale complete vehicle trajectories dataset on two kilometers highway segment for one hour duration: Zen Traffic Data. In *2021 International Symposium on Transportation Data and Modelling*, Web conference (Postponed from 2020), 2021

37. Sato, K., Seo, T., and Fuse, T. A reinforcement learning-based dynamic congestion pricing method for the morning commute problems. In *Transportation Research Procedia*, Vol. 52, pp. 347–355, 2021. (The 23rd EURO Working Group on Transportation Meeting, 16–18 September 2020, Web conference)
36. Seo, T. Calibration-free traffic state estimation method using single detector and connected vehicles with Kalman filtering and RTS smoothing. In *IEEE 23rd International Conference on Intelligent Transportation Systems*, Web conference, 2020
35. Sakai, K., Seo, T., and Fuse, T. Traffic density estimation method from small satellite imagery: Towards frequent remote sensing of car traffic. In *IEEE 22nd International Conference on Intelligent Transportation Systems*, pp. 1776–1781, Auckland, New Zealand, 2019
34. Seo, T. Trial-and-error congestion pricing for morning commute problem with day-to-day dynamics. *Transportation Research Procedia*, Vol. 47, pp. 561–568, 2020. (The 22nd EURO Working Group on Transportation Meeting, 18–20 September 2019, Barcelona, Spain)
33. Fukuda, D., Imaoka, M., and Seo, T. Empirical investigation of fundamental diagram for urban rail transit using Tokyo's commuter rail data. In *TRANSITDATA2019: 5th International Workshop and Symposium*, Paris, France, 2019
32. Seo, T. and Yin, Y. Optimal pricing for departure time choice problems with unknown preference and demand: Trial-and-error approach. In *Transportation Research Board 98th Annual Meeting*, 2019
31. Seo, T. and Kusakabe, T. Use of small satellites and connected vehicles for large-scale traffic monitoring in road network. In *IEEE 21st International Conference on Intelligent Transportation Systems*, pp. 2805–2810, Maui, The United States, 2018
30. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. Adoption of dynamic ridesharing system under influence of information on social network. *Transportation Research Procedia*, Vol. 37, pp. 401–408, 2019. (The 21st EURO Working Group on Transportation Meeting, 17–19 September 2018, Braunschweig, Germany)
29. Seo, T. and Kusakabe, T. Traffic state estimation using small imaging satellites and connected vehicles. *Transportation Research Procedia*, Vol. 34, pp. 4–11, 2018. (ISTS and IWTDCS 2018, 4–6 August 2018, Matsuyama, Japan)
28. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. User equilibrium model of ridesharing transport with high-occupancy vehicles lane. In *Proceedings of the 14th International Conference on Advanced Systems in Public Transport*, Brisbane, Australia, 2018
27. Kusakabe, T., Seo, T., Nakanishi, W., and Asakura, Y. Implementation of interactive online machine learning approach for smart phone based activity-travel survey. In *The 15th International Conference on Travel Behaviour Research*, Santa Barbara, The United States, 2018
26. Seo, T. and Yin, Y. Estimating individual congestion externality using connected vehicle data. In *2018 Global Symposium for Connected and Automated Vehicles and Infrastructure*, Ann Arbor, The United States, 2018
25. Seo, T. and Bayen, A. M. Traffic state estimation method with efficient data fusion based on the Aw–Rascle–Zhang model. In *IEEE 20th International Conference on Intelligent Transportation Systems*, Yokohama, Japan, 2017
24. Kawasaki, Y., Seo, T., Kusakabe, T., and Asakura, Y. Fundamental diagram estimation using GPS trajectories of probe vehicles. In *IEEE 20th International Conference on Intelligent Transportation Systems*, Yokohama, Japan, 2017
23. Lykov, S., Seo, T., and Asakura, Y. Analysis of spatiotemporal dependencies in two-dimensional traffic flow in large-scale urban area with probe vehicle data. In *The 12th International Conference of Eastern Asia Society for Transportation Studies*, Ho Chi Minh City, Vietnam, 2017
22. Aiko, S., Itabashi, R., Seo, T., Kusakabe, T., and Asakura, Y. Social benefit of optimal ride-share transport with given travelers' activity patterns. *Transportation Research Procedia*, Vol. 27, pp. 261–269, 2017. (The 20th EURO Working Group on Transportation Meeting, 4–6 September 2017, Budapest, Hungary)
21. Seo, T. and Asakura, Y. Endogenous market penetration dynamics of automated and connected vehicles: Transport-oriented model and its paradox. *Transportation Research Procedia*, Vol. 27, pp. 238–245, 2017.

(The 20th EURO Working Group on Transportation Meeting, 4–6 September 2017, Budapest, Hungary)

20. Seo, T., Wada, K., and Fukuda, D. A macroscopic and dynamic model of urban rail transit with delay and congestion. In *Transportation Research Board 96th Annual Meeting*, Washington DC, The United States, 2017
19. Seo, T., Tchrakian, T. T., Zhuk, S., and Bayen, A. M. Filter comparison for estimation on discretized PDEs modeling traffic: Ensemble Kalman filter and Minimax filter. In *IEEE 55th Conference on Decision and Control*, pp. 3979–3984, Las Vegas, The United States, 2016
18. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. Field experiment on traveler's behavior in smart ridesharing system. In *The 21st International Conference of Hong Kong Society for Transportation Studies*, Hong Kong, 2016
17. Seo, T., Wada, K., and Fukuda, D. A simplified model of urban railway system for dynamic traffic assignment. In *Proceedings of the 21st International Conference of Hong Kong Society for Transportation Studies*, pp. 357–364, Hong Kong, 2016
16. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. User equilibria for ridesharing transportation. In *The 5th symposium arranged by European Association for Research in Transportation*, Delft, The Netherlands, 2016
15. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. Simulation approach for investigating dynamics of passenger matching problem in smart ridesharing system. *Transportation Research Procedia*, Vol. 21, pp. 29–41, 2017. (Selected paper from ISTS&IWTDCS, Jeju, Korea, July 7–8, 2016)
14. Seo, T., Kusakabe, T., and Asakura, Y. Calibration of fundamental diagram using trajectories of probe vehicles: Basic formulation and heuristic algorithm. *Transportation Research Procedia*, Vol. 21, pp. 6–17, 2017. (Selected paper from ISTS&IWTDCS, Jeju, Korea, July 7–8, 2016)
13. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. Day-to-day dynamics of passenger matching problem in smart ridesharing systems. In *Proceedings of the 20th International Conference of Hong Kong Society for Transportation Studies*, pp. 449–456, Hong Kong, 2015
12. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. A numerical study on the effect of variety of user preference to ridesharing system's performance. In *The 7th Regional Symposium on Infrastructure Development*, Bangkok, Thailand, 2015 **[Best Presentation Award]**
11. Ozaki, N., Ueno, H., Sato, T., Wada, S., Ooba, Y., Suzuki, Y., Takahashi, Y., Sakai, H., Warita, H., Matsushita, M., Seo, T., Kusakabe, T., and Asakura, Y. Image recognition based OBU probe system for traffic monitoring. In *Proceedings of the 22nd ITS World Congress*, Bordeaux, France, 2015
10. Seo, T., Kusakabe, T., and Asakura, Y. Traffic state estimation with the advanced probe vehicles using data assimilation. In *IEEE 18th International Conference on Intelligent Transportation Systems*, pp. 824–830, Gran Canaria, Spain, 2015 **[Best Paper Award]**
9. Thaithatkul, P., Seo, T., Kusakabe, T., and Asakura, Y. A passengers matching problem in ridesharing systems by considering user preference. In *Proceedings of the 11th International Conference of Eastern Asia Society for Transportation Studies*, Cebu, Philippines, 2015 **[Outstanding Poster Presentation Award]**
8. Seo, T. and Kusakabe, T. Probe vehicle-based traffic flow estimation method without fundamental diagram. *Transportation Research Procedia*, Vol. 9, pp. 149–163, 2015. (Selected paper from ISTTT21 Poster Session, Kobe, Japan, August 5–7, 2015)
7. Kusakabe, T., Seo, T., Goto, H., and Asakura, Y. Interactive online machine learning approach for activity-travel survey. In *Proceedings of the 14th International Conference on Travel Behaviour Research*, Windsor, The United Kingdom, 2015
6. Kusakabe, T., Seo, T., Goto, H., and Asakura, Y. Improving activity-travel survey using on-line machine learning and smartphone-based interactive system. In *International Workshop on Activity-Travel Behavior Analysis and Multi-State Supernetwork Modeling*, Hong Kong, 2014
5. Nguyen, L. X., Seo, T., Van, H. T., Kusakabe, T., and Asakura, Y. Mixed flow observation using video cameras on probe vehicles: A case study in Ho Chi Minh City. In *Proceedings of the 19th International Conference of Hong Kong Society for Transportation Studies*, pp. 374–381, Hong Kong, 2014
4. Narioka, N., Seo, T., Kusakabe, T., and Asakura, Y. Incident detection method using longitudinal occupancy

time-series data. In *Proceedings of the 10th International Conference of Eastern Asia Society for Transportation Studies*, Taipei, Taiwan, 2013

3. Seo, T., Kusakabe, T., and Asakura, Y. Traffic flow monitoring utilizing on-vehicle devices of spacing measurement. In *The 2nd Symposium of the European Association for Research in Transportation*, Stockholm, Sweden, 2013
2. Seo, T., Kusakabe, T., and Asakura, Y. Traffic state estimation method using probe vehicles equipped with spacing measurement system. In *Proceedings of International Symposium on Recent Advances in Transport Modelling*, Kings Cliff, Australia, 2013
1. Fukuda, D., Seo, T., Yamada, K., Yaginuma, H., and Matsuyama, N. An econometric based pedestrian walking behaviour model implicitly considering strategic or tactical decisions. In *Proceedings of the 6th International Conference on Pedestrian and Evacuation Dynamics*, Zürich, Switzerland, 2012

Others

9. Nagasaki, K. and Seo, T. Understanding impact of angle in urban transportation. *arXiv preprint arXiv:2310.16470*, 2023
8. Seo, T. UXsim: An open source macroscopic and mesoscopic traffic simulator in Python—a technical overview. *arXiv preprint arXiv: 2309.17114*, 2023
7. Chen, X., Qin, G., Seo, T., Tian, Y., and Sun, J. A macro-micro approach to reconstructing vehicle trajectories on multi-lane freeways with lane changing. *arXiv preprint arXiv: 2306.05627*, 2023
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