

## Taeho Oh, Ph.D.

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Google Scholar: <https://scholar.google.co.kr/citations?user=GMN93hkAAAAJ&hl=en&oi=ao>

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### EDUCATION

**Monash University**

Ph.D in Civil and Environmental Engineering

Advisor: Prof. Graham Currie

Dissertation: “*A Feasible Human-like Multidimensional driving behavior framework design for autonomous vehicles*”

Melbourne, Australia

Sep. 2019- Mar. 2025

**Kongju National University**

M.S. in Transportation Engineering

Advisor: Prof. Seonha Lee

Thesis: “*A Study on VMS & Signal Optimization in Respect of Traffic Congestion Decisions Using COM Interface*”

Cheonan, Korea

Mar. 2015-Feb. 2017

**Kongju National University**

B.S. in Transportation Engineering

Cheonan, Korea

Mar. 2009-Feb. 2015

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### EXPERIENCES

**Korea Advanced Institute of Science and Technology (KAIST)**

Post-doctoral Research Fellow, PRISM-AI Center

Daejeon, Korea

Aug. 2025-Present

**Korea Advanced Institute of Science and Technology (KAIST)**

Post-doctoral Research Fellow, Cho Chun Shik Graduate School of Mobility

Daejeon, Korea

Apr. 2025-Jul. 2025

**Korea Advanced Institute of Science and Technology (KAIST)**

Researcher, Cho Chun Shik Graduate School of Mobility

Daejeon, Korea

Mar. 2023-Mar. 2025

**Kongju National University**

Lecturer, Department of Urban & Transportation Engineering

Cheonan, Korea

Mar. 2023-Aug. 2024

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### RESEARCH INTERESTS

**Infrastructure based Mixed traffic (CAV, CV and HDV) control**

- Developed a scalable C-V2X infrastructure control framework for real-time interactions priority management among connected autonomous vehicles (CAVs), connected vehicles (CVs), and human-driven vehicles (HDVs).

- Designed an infrastructure-based decision structures that contains customized message set (speed, acceleration and steering) to regulate the priority and trajectory of intersection approaching vehicles under mixed traffic conditions.

#### **Metaverse based multimodal virtual testing for sim-to-real gap mitigation**

- Integrated digital twin-based co-simulation with traffic simulators (SUMO, VISSIM) to generate naturalistic traffic environments by embedding realistic traffic dynamics into surrounding vehicles, enabling high-fidelity evaluation of autonomous driving systems.
- Established a digital twin-based testbed platform to mitigate the sim-to-real gap, supporting safe, repeatable and scalable validation of autonomous driving algorithms in multimodal traffic scenarios involving HDVs, pedestrians, and other vulnerable road users.

#### **Human-machine interaction based behavior modeling**

- Modeled driver decision-making and cognitive load in complex scenarios (e.g., overtaking) using multi-agent simulators and EEG-based analysis to quantify human factors.
- Analyzed interactions between vehicles and vulnerable road users to develop human-centric safety algorithms that enhance the predictability and social acceptance of autonomous systems.

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#### **REFERRED INTERNATIOANL JOURNAL ARTICLES**

1. Park, H., **Oh, T.**, Lim, J., & Kim, I. (2026). Micro mobility safety challenges: a study on drivers overtaking bicycles and E-scooters in relation to road conditions and prior riding experience. *Transportation Research Part F: Traffic Psychology and Behaviour*, 117, 103482 (**Q1, IF 4.4**).
2. **Oh, T.**, Kim, E. M., Nguyen, et.al., (2025). Scalable and Interoperable C-V2X Framework for Real-time Intelligent Decision Support in Autonomous Mobility. *Communications in Transportation Research* (**Q1, IF 14.5**).
3. Ye, S., Chen, T., Oviedo-Trespalcacios, O., Ali, Y., **Oh, T.**, & Kim, I. (2025). How do the drivers react to different C-V2X-based communication conditions in dilemma zones? A driving simulator study. *Accident Analysis & Prevention*, 221, 108208 (**Q1, IF 6.2**).
4. Lim, J., Park, H., **Oh, T.**, & Kim, I. (2025). The impact of information delivery systems in tunnels depending on lighting intensity and speed limit. *Tunnelling and Underground Space Technology*, 157, 106365 (**Q1, IF 7.4**).
5. Park, H., **Oh, T.**, & Kim, I. (2024). Effects of driver's braking behavior by the real-time pedestrian scale warning system. *Accident Analysis & Prevention*, 205, 107685 (**Q1, IF 6.2**).
6. **Oh, T.**, Lim, J., Tamakloe, R., Li, Z., & Kim, I. (2024). Enhancing mutual understanding of e-scooter user's perspective in overtaking maneuver through replaying own driving trajectory. *Accident Analysis & Prevention*, 207, 107750 (**Q1, IF 6.2**).
7. **Oh, T.**, Kang, H., & Li, Z. (2024). Exploring Safe Overtaking Behavior on Two-Lane Two-Way Road Using Multiagent Driving Simulators and Traffic Simulation. *Journal of Advanced Transportation*, 2024(1), 8242764 (**Q3, IF 1.8**).
8. **Oh, T.**, Xu, Y., Li, Z., & Kim, I. (2022). Driving Risk Analysis Based on Driving Experience at Hook-Turn Intersection Using the Emerging Virtual Reality Technology. *Journal of Advanced Transportation*, 2022(1), 8929826 (**Q3, IF 1.8**).
9. Xu, L., **Oh, T.**, Kim, I., & Hu, X. (2022). Are shared streets acceptable to pedestrians and drivers? Evidence from Virtual Reality experiments. *PLoS one*, 17(4), e0266591 (**Q2, IF 2.6**).
10. Xu, Z., Zou, X., **Oh, T.**, & Vu, H. L. (2021). Studying freeway merging conflicts using virtual reality technology. *Journal of safety research*, 76, 16-29 (**Q1, IF 4.4**).

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**REFERRED KOREAN JOURNAL ARTICLES**

1. Yoo, Y., Kang, H., Yoo, S., & **Oh, T\***. (2023). Tour-based Personalized Trip Analysis and Calibration Method for Activity-based Traffic Demand Modelling. *The Journal of The Korea Institute of Intelligent Transport Systems*, 22(6), 32-48.
2. Kwon, D., **Oh, T.**, Yoo, S., & Kang, H. (2023). Entity Embeddings for Enhancing Feasible and Diverse Population Synthesis in a Deep Generative Models. *The Journal of The Korea Institute of Intelligent Transport Systems*, 22(6), 17-31.
3. Park, H., **Oh, T.**, & Kim, I. (2022). A Study on Validation of Omnidirectional VR Treadmill by Comparison of Spatial Orientation Skills. *The Journal of The Korea Institute of Intelligent Transport Systems*, 21(5), 15-27.
4. Jung, J., **Oh, T.**, & Kim, I. (2021). Volume delay function calibration based on GPS trajectory data. *Journal of Korean Society of Transportation*, 39(4), 399-408.

\*Corresponding author

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**PATENTS AND SOFTWARES**

1. Kim, M, **Oh, T.**, Park, H., Lim, J., Kim, I. (2025) Metaverse client application for Autonomous vehicle virtual test environment (Software registered, No C-2025-030751)
2. Kim, M, **Oh, T.**, Kim, I. (2024) Metaverse server application, (Software registered, No. C-2024-044627)
3. **Oh, T.**, Kim, I. (2020). *Apparatus and method for renting personal mobility* (Pending, No. 10-2020-0113827)
4. **Oh, T.**, Kim, I. (2020). *System and method for renting personal mobility* (Pending, No. 10-2020-0113828)
5. Lee, S., Kim, S., **Oh, T.**, Yoo, K. (2016) *Parking demand estimation method* (Registered, No. 10-1681560)

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**REFERRED CONFERENCE PAPERS**

1. **Oh, T.**, Li, Z., Kim, I, Robust Overtaking Behavior with Human Interaction in Multi-agent Driving Simulator Supported by Machine Learning, TRB, 2023, Washington DC
2. Park, H., **Oh, T.**, Kim, I, Effects of Driver's Braking Response by the Real-Time Pedestrian Scale Warning System, TRB, 2023, Washington DC
3. **Oh, T.**, Kim, I, Overtaking Maneuvers using Multi-Agent Systems on a Two-Lane Two-Way Road, ITS World Congress, 2022, LA
4. Park, H., **Oh, T.**, Kim, I, Validation of Spatial Orientation Skill using Virtual Reality Treadmill, ITS World Congress, 2022, LA
5. Kwon, D., **Oh, T.**, Lee, C., Kim, I. Large Scale Multi-source Traffic Flow Forecasting Based on Attention Based Spatio-Temporal Graph Convolutional Networks - LSTM, ITS World Congress, 2022, LA
6. Xu, L., **Oh, T.**, Kim, I., Hu, X., Explore the applicability of shared streets with virtual reality technology: A case study of Suzhou, China, Transportation Research Board's 100th Annual Meeting, 2020, Washington, D.C
7. **Oh, T.**, Xu, Y., Li, Z., & Kim, I., The Use of Emerging Virtual Reality Technology in Road Safety Analysis: The hook-turn case, Transportation Research Board's 99th Annual Meeting, 2019, Washington, D.C

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## TEACHING

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Lecturer at Kongju National University                                                                                                                                                              | Spring, 2024 |
| <ul style="list-style-type: none"><li>- Transportation Facilities (2007123, 3 Units)</li><li>- Smart Mobility (2006581, 3 Units)</li><li>- Mobility data visualization (2007034, 3 Units)</li></ul> |              |
| Lecturer at Kongju National University                                                                                                                                                              | Fall, 2023   |
| <ul style="list-style-type: none"><li>- Mobility Artificial Intelligence (2007124, 3 Units)</li><li>- Mobility data preprocessing and analysis (2007035, 3 Units)</li></ul>                         |              |
| Lecturer at Kongju National University                                                                                                                                                              | Spring, 2023 |
| <ul style="list-style-type: none"><li>- Probability and Statistics (512031, 3 Units)</li><li>- Mobility data visualization (2007034, 3 Units)</li></ul>                                             |              |

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## AWARDS

1. TRB Outstanding Paper Award, Committee on Bicycle Transportation at 104th Transportation Research Board (TRB) Annual Meeting
  - Park., H., **Oh, T.**, Lim, J., \*Kim, I., Micromobility Safety Challenges: A Study on Drivers Overtaking Bicycles and E-Scooters according to Road Conditions and Cross-Modal Experience, the 104th TRB Annual Meeting, Washington, DC, US, 2025
2. Academic award, Korean Society of Transportation (KST), 2022,
  - Jung, J., **Oh, T.**, Kim, I., A Method for Calibrating Travel Cost Functions Based on GPS Trajectory Data, 2022
3. Best paper award, The 85th Korean Society of Transportation (KST) Conference, 2021
  - **Oh, T.**, Kim, I., Development of a VR Multi-agent Driving Simulator Platform Integrated with Microsimulation, 2021
4. First prize, 2020 Big Data Analysis and Idea Contest, (Team: Cho, W., **Oh, T.**, Han, J)

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## PROFESSIONAL LICENSE

Engineer Transportation (National Technical Qualification Certificate in Korea : 14201080464U)

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