

# MYEONGKYU LEE

315 N. Grant Street | West Lafayette, IN  
☎ 765-543-0677 | ✉ [lee4747@purdue.edu](mailto:lee4747@purdue.edu)  
[Personal Website](#) | [Google Scholar](#)

## EDUCATION

---

- Ph.D.**    **Purdue University**, West Lafayette, IN, US    2023 – 2027 (expected)  
    **Industrial Engineering**  
    • Advisor: Dr. Brandon J. Pitts (NHanCE Laboratory)
- M.S.**    **Kookmin University**, Seoul, Korea    2021 – 2023  
    **Automobile and IT convergence**  
    • GPA: 4.0/4.0 (Graduated 1<sup>st</sup> out of 36)  
    • Advisor: Dr. Ji Hyun Yang (Humans and Vehicle Automation Laboratory)  
    • Thesis: A Study on the Analysis of Driving Data and Suggestion of Emotion Group by Driver's Emotion Using Driving Simulator  
    • Merit-based full tuition for all two years
- B.S.**    **Kookmin University**, Seoul, Korea    2015 – 2021  
    **Automotive Engineering**  
    • GPA: 3.98/4.0 (Graduated 1<sup>st</sup> out of 166)  
    • Merit-based full tuition for all four years

## RESEARCH INTERESTS

---

Human factors, cognitive engineering, human-automation interaction, human-vehicle interaction, autonomous driving, driver modeling (behavior, cognition, intention, trust), artificial intelligence, machine learning

## PUBLICATIONS

---

\* denotes that Lee, M. is the corresponding author.

### JOURNALS

5.    **Lee, M.\***, & Pitts, B. J. (under review). "The effects of automated vehicle reliability, self-estimated confidence, and repeated exposures on drivers' trust and takeover decisions". *Behaviour and Information Technology*
4.    **Lee, M.**, Ahn, C. & Yang, J. (under review). "Human-Centric Validation Framework for Monitoring Systems Embedded in Partially Automated Vehicles". *Cognition, Technology & Work*
3.    **Lee, M.**, Choi, J., Kim, S., & Yang, J. (2025). "Analysis of Drivers' Reactions to Simulated Jaywalking and Application of AI Classifiers to Predict Accidents". *International Journal of Automotive Technology*. [\[link\]](#)
2.    **Lee, M.**, Lee, S., Hwang, S., Lim, S., & Yang, J. (2023). "Effect of Emotion on Galvanic Skin Response and Vehicle Control Data During Simulated Driving". *Transportation Research Part F: Traffic Psychology and Behaviour*. [\[link\]](#)
1.    **Lee, M.**, Kim, S., Kim, J., & Yang, J. (2022). "Simulator Study on the Response Time and Defensive Behavior of Drivers in a Cut-in Situation". *International Journal of Automotive Technology*. [\[link\]](#)

### PROCEEDINGS

10. **Lee, M.\***, & Pitts, B. J. (submitted). "Identifying Preferred Driving Styles of Automated Vehicles through Drivers' Feedback". *Proceedings of the Human Factors and Ergonomics Society Annual meeting 2025*, Chicago, US, September.
9.    **Lee, M.\***, & Pitts, B. J. (accepted). "Finding Preferred Automated Vehicle Driving Styles via Exposure to Various Types of Vehicle Behavior". *Institute of Industrial and System Engineers Annual Meeting 2025*, Atlanta, US, May.
8.    **Lee, M.\***, & Pitts, B. J. (2024). "The Effects of System Confidence and Reliability on Drivers' Decision-Making in

Conditionally Automated Vehicles". *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, Phoenix, US, September. **Two best student paper awards** [\[link\]](#).

7. Dong, J., Nadri, C., Alvarez, I., Diel, C., **Lee, M.**, ... & Jeon, M. (2023). "'Play Your Anger': A report on the empathic in-vehicle interface workshop". *Automotive UI'23*, Ingolstadt, Germany, September. [\[link\]](#)
6. Park, J., **Lee, M.**, Maeng, J., & Yang, J. (2023). "Development of the Driver's HOD (Hands On/Off Detection) Method using Conductor inside the Steering wheel". *2023 Spring Conference of Ergonomics Society of Korea*, Anseong, Korea, May. [\[link\]](#)
5. Park, J., **Lee, M.**, Maeng, J., Ahn, C., & Yang, J. (2022). "A Study for STPA-based Identification of Safety Requirements from the Perspective of Drivers in Take-Over Request Situation". *3rd IEEE International Conference on Human-Machine Systems*, Orlando, US, November. [\[link\]](#)
4. **Lee, M.**, Lee, S., Hwang, S., Lim, S., & Yang, J. (2022). "Acquiring Driving Characteristic Data According to Driver Emotions and to Proposing Emotion Groups in the Driving Context". *3rd IEEE International Conference on Human-Machine Systems*, Orlando, US, November. [\[link\]](#)
3. **Lee, M.**, Kim, S., Jung, D., Lee, H., ... & Yang, J. (2022). "Simulator-Based Study of the Response Time and Defensive Behavior of Drivers in Unexpected Dangers at an Intersection". *Automotive UI 22'*, Seoul, Korea, September. [\[link\]](#)
2. Pyeon, H., Kim, H., Bae, Y., **Lee, M.**, Zhu, H., Yang, J., & Lim, S. (2022). "Establishment of a Data Collection System for Developing a Deep Learning Model Detecting Driver's Hands On/Off". *2022 Spring Conference of Korea Society of Automotive Engineers*, Seoul, Korea, June. [\[link\]](#)
1. **Lee, M.**, Shim, H., Kim, S., Choi, J., & Yang, J. (2021). "Study of driver's response time in cut-in situation with driving simulator". *2021 Spring Conference of Ergonomics Society of Korea*, Seoul, Korea, June. [\[link\]](#)

#### **PUBLICATIONS IN EDIT**

4. **Lee, M.** & Pitts, B.J. "What you perceive is more important than what actually is: The influence of interaction failure type and timing on drivers' perception and trust in highly automated vehicles".
3. Zang, J., **Lee, M.**, Li, G., & Pitts, B.J. "Challenges of older adults that influence automated vehicle adoption".
2. **Lee, M.**, Luster, M. S., Oishi, M., & Pitts, B.J. "Predicting roadway obstacle type based on driver behavioral and physiological responses".
1. **Lee, M.**, & Pitts, B.J. "Bias formation in automated vehicles: the effects of repeated exposure to inconsistent information accuracy on drivers' behavior and physiological responses".

#### **PATENTS**

3. **Lee, M.**, Yang, J., Lim, S., Zhu, H., Pyeon, H., & Bae, Y. "Method for Providing a Plurality of Driving Modes Based on Whether a Driver grips Steering Wheel or Not". *Korean Patent (10-2527164)*.
2. **Lee, M.**, Yang, J., Lim, S., Zhu, H., Pyeon, H., & Bae, Y. "Method for Controlling Steering Wheel Based on Whether a Driver grips Steering Wheel or Not". *Korean Patent (10-2620416)*.
1. **Lee, M.**, Yang, J., Park, J., & Maeng, J. "Device and Method for Detecting Driver's Steering Wheel Grip". *Korean Patent (10-2527171)*.

#### **PRESENTATIONS/INVITED TALKS**

12. **Lee, M. (presenter)**, & Pitts, B. J. (2025) "An investigation into how vehicle reliability, confidence information, and repeated exposure affect trust in automated vehicles". *Transportation Research Board Annual Meeting*, D.C., US, January.
11. **Lee, M. (presenter)** (2024) "An investigation into how vehicle reliability, confidence information, and repeated exposure affect trust in automated vehicles". *BK 21 Seminar at Kookmin University*, Seoul, Korea, December.
10. **Lee, M. (presenter)**, & Pitts, B. J. (2024) "Bi-directional human-to-vehicle communication about driving style preferences". *NSF Site-Visit at Purdue University*, West Lafayette, US, November.
9. **Lee, M. (presenter)**, & Pitts, B. J. (2024) "The Effect of System Reliability and Confidence Information on Drivers' Behavior in Automated Vehicles". *4th Next Generation Transportation System Conference at Purdue University*, West Lafayette, US, September.
8. **Lee, M. (presenter)**, & Pitts, B. J. (2024) "The Effects of System Confidence and Reliability on Drivers' Decision-Making in

- Conditionally Automated Vehicles". *2024 Human Factors and Ergonomics Society Annual Meeting*, Phoenix, US, September.
7. Zang, J., **Lee, M. (co-presenter)**, Li, G., & Pitts, B. J. (2024) "Challenges of Older Adults in Adopting Automated Vehicles: A Systematic Review". *2024 Human Factors and Ergonomics Society Annual Meeting*, Phoenix, US, September.
  6. **Lee, M. (presenter)**, & Pitts, B. J. (2024) "Bias in Driver-AV interactions: Starting the Conversation about Closing-the-loop". *NSF Retreat at University of New Mexico*, Albuquerque, US, May.
  5. **Lee, M. (presenter)**, & Pitts, B. J. (2023) "Characterizing the effects of system confidence presentation and exposure bias on drivers' behavior". *NSF Site-Visit at Purdue University*, West Lafayette, US, November.
  4. **Lee, M. (presenter)**, & Yang, J. (2022) "Acquiring Driving Characteristic Data According to Driver Emotions and Proposing Emotion Groups in the Driving Context". *BK 21 Program Performance Sharing Conference at Kookmin University*, Seoul, Korea, December.
  3. **Lee, M. (presenter)**, Lee, S., Hwang, S., Lim, S., & Yang, J. (2022) "Acquiring Driving Characteristic Data According to Driver Emotions and Proposing Emotion Groups in the Driving Context". *3rd IEEE International Conference on Human-Machine Systems*, Orlando, US, November.
  2. **Lee, M. (presenter)**, Kim, S., Jung, D., Lee, H., ... & Yang, J. (2022) "Simulator-Based Study of the Response Time and Defensive Behavior of Drivers in Unexpected Dangers at an Intersection". *14th International ACM Conference on Automotive User Interfaces and Interactive Vehicular Applications*, Seoul, Korea, September.
  1. **Lee, M. (presenter)**, Shim, H., Kim, S., Choi, J., & Yang, J. (2021). "Study of driver's response time in cut-in situation with driving simulator". *2021 Spring Conference of Ergonomics Society of Korea*, Seoul, Korea, June.

## RESEARCH EXPERIENCE

---

- |    |  |                       |
|----|--|-----------------------|
| 7. | <b>Cognitive Autonomy for Human CPS: Turning Novices into Experts</b>  | Aug. 2023 – Present   |
|    | <ul style="list-style-type: none"> <li>• Role: Graduate Research Assistant, Purdue University</li> <li>• Sponsor: National Science Foundation, US</li> </ul>               |                       |
| 6. | <b>Study on the Model Development for the Driver Emotion Recognition</b>   | Oct. 2022 – Jul. 2023 |
|    | <ul style="list-style-type: none"> <li>• Role: Graduate Research Assistant, Kookmin University</li> <li>• Sponsor: Hyundai Motor Company, Korea</li> </ul>                 |                       |
| 5. | <b>Artificial Intelligence Adaptation on the Steering Wheel System</b>   | Sep. 2021 – Aug. 2022 |
|    | <ul style="list-style-type: none"> <li>• Role: Graduate Research Assistant, Kookmin University</li> <li>• Sponsor: Hyundai Motor Company, Korea</li> </ul>                 |                       |
| 4. | <b>Study on the Driver's Mental Model and Behavior in Take-over Situation</b>  | May 2021 – May 2022   |
|    | <ul style="list-style-type: none"> <li>• Graduate Research Assistant, Kookmin University</li> <li>• Sponsor: Hyundai Motor Company, Korea</li> </ul>                       |                       |
| 3. | <b>Study on the Vehicle Control Data/Physiological Data According to Emotions</b>  | Mar. 2020 – Nov. 2021 |
|    | <ul style="list-style-type: none"> <li>• Role: Graduate Research Assistant, Kookmin University</li> <li>• Sponsor: Hyundai Motor Company, Korea</li> </ul>                 |                       |
| 2. | <b>Study on the Driver Behavior Characteristics in Four Dangerous Situations</b>   | Mar. 2020 – Nov. 2020 |
|    | <ul style="list-style-type: none"> <li>• Role: Undergraduate Research Assistant, Kookmin University</li> <li>• Sponsor: National Forensic Service, Korea</li> </ul>        |                       |
| 1. | <b>Undetectable Communications for Drone Applications</b>  | Dec. 2019 – Feb. 2020 |
|    | <ul style="list-style-type: none"> <li>• Role: Undergraduate Research Assistant, University of California, Irvine</li> <li>• Sponsor: Kookmin University, Korea</li> </ul> |                       |

## TEACHING EXPERIENCE

---

### Kookmin University

- |  |             |
|--|-------------|
| • Basic Dynamics                       | 2021 - 2022 |
| • Vehicle Driver Modeling              | 2022        |
| • Automotive Human Factors Engineering | 2021        |

## AWARDS AND HONORS

---

- |  |   |
|--|---|
| • Best Student Paper Award   | <i>Surface Transportation Technical Group, HFES, 2024</i> |
| • Best Student Paper Award   | <i>Korean Affinity Group, HFES, 2024</i>                  |
| • Travel Grant   | <i>HFES, 2024</i>   |
| • Graduation with honors (master's - class rank: 1/36)                             | <i>Kookmin University, 2023</i>                           |
| • Merit-based Scholarship (master's for full tuition, all semesters)               | <i>Kookmin University, 2021-2022</i>                      |
| • Best Paper Award   | <i>Korea Electronics Association, 2022</i>                |
| • Competition of creating Intellectual Property Rights, 3 <sup>rd</sup> award      | <i>Kookmin University, 2022</i>                           |
| • Poster competition of Brain Korea 21 program, 2 <sup>nd</sup> out of 38 students | <i>Kookmin University, 2022</i>                           |
| • Graduation with honors (bachelor's - class rank: 1/166)                          | <i>Kookmin University, 2021</i>                           |
| • Merit-based Scholarship (bachelor's for full tuition, all semesters)             | <i>Kookmin University, 2015-2021</i>                      |

## SERVICE

---

### Committee Experience

- Session Co-Chairs, Human Factors and Ergonomics Society Annual Meeting, Phoenix, US, 2024
- Local chair (committee member), Automotive UI 2022, Seoul, Korea, 2022

### Journal Reviewer

- International Journal of Automotive Technology
- Transportation Research Part F: Traffic Psychology and Behaviour
- Applied Ergonomics

### Conference Proceedings Reviewer

- Human Factors and Ergonomics Society Annual Meeting (2025)
- Human Factors and Ergonomics Society Annual Meeting (2024)

### NHaNCE Lab

- Lab technical manager (2024 – present)