

# MYEONGKYU LEE

[myeongkyu@purdue.edu](mailto:myeongkyu@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)  
• 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-computer interaction, autonomous driving, driver modeling (behavior, cognition, intention, trust), 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, Sep. 2025.
- [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 2025.
- [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, Sep. 2024. **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, Sep. 2023. [\[link\]](#)

- [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 ESK*, Anseong, Korea, May 2023. [\[link\]](#)
- [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, Nov. 2022. [\[link\]](#)
- [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, Nov. 2022. [\[link\]](#)
- [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, Sep. 2022. [\[link\]](#)
- [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, Jun. 2022. [\[link\]](#)
- [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 ESK*, Seoul, Korea, Jun. 2021. [\[link\]](#)

## **PUBLICATIONS IN EDIT**

- [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. "The Impact of Information Accuracy and Repetitive Exposures on Driver Behavior and Physiological Response in Highly Reliable Automated Vehicles".

## **PATENTS**

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

## **PRESENTATIONS/INVITED TALKS**

- [12] **Lee, M. (presenter)**, & Pitts, B.J. "An investigation into how vehicle reliability, confidence information, and repeated exposure affect trust in automated vehicles". *Transportation Research Board Annual Meeting*, D.C., US, Jan. 2025.
- [11] **Lee, M. (presenter)** "An investigation into how vehicle reliability, confidence information, and repeated exposure affect trust in automated vehicles". *BK 21 Seminar at Kookmin University*, Seoul, Korea, Dec. 2024.
- [10] **Lee, M. (presenter)**, & Pitts, B.J. "Bi-directional human-to-vehicle communication about driving style preferences". *NSF Site-Visit at Purdue University*, West Lafayette, US, Nov. 2024.
- [9] **Lee, M. (presenter)**, & Pitts, B.J. "The Effect of System Reliability and Confidence Information on Drivers' Behavior in Automated Vehicles". *4<sup>th</sup> Next Generation Transportation System Conference at Purdue University*, West Lafayette, US, Sep. 2024.
- [8] **Lee, M. (presenter)**, & Pitts, B.J. "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, Sep. 2024.
- [7] Zang, J., **Lee, M. (co-presenter)**, Li, G., & Pitts, B.J. "Challenges of Older Adults in Adopting Automated Vehicles: A Systematic Review". *2024 Human Factors and Ergonomics Society Annual Meeting*, Phoenix, US, Sep. 2024.
- [6] **Lee, M. (presenter)**, & Pitts, B.J. "Bias in Driver-AV interactions: Starting the Conversation about Closing-the-loop". *NSF Retreat at University of New Mexico, Albuquerque*, US, May 2024.

- [5] **Lee, M. (presenter)**, & Pitts, B.J. "Characterizing the effects of system confidence presentation and exposure bias on drivers' behavior". *NSF Site-Visit at Purdue University*, West Lafayette, US, Nov. 2023.
- [4] **Lee, M. (presenter)**, & Yang, J. "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, Dec. 2022.
- [3] **Lee, M. (presenter)**, Lee, S., Hwang, S., Lim, S., & Yang, J. "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, Nov. 2022.
- [2] **Lee, M. (presenter)**, Kim, S., Jung, D., Lee, H., ... & Yang, J. "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, Sep. 2022.
- [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, Jun. 2021

## RESEARCH EXPERIENCE

---

- [7] **Cognitive Autonomy for Human CPS: Turning Novices into Experts** Aug. 2023 - Present
  - Role: Graduate Research Assistant, Purdue University
  - Sponsor: National Science Foundation, US
- [6] **Study on the Model Development for the Driver Emotion Recognition** Oct. 2022 – Jul. 2023
  - Role: Graduate Research Assistant, Kookmin University
  - Sponsor: Hyundai Motor Company, Korea
- [5] **Artificial Intelligence Adaptation on the Steering Wheel System** Sep. 2021 – Aug. 2022
  - Role: Graduate Research Assistant, Kookmin University
  - Sponsor: Hyundai Motor Company, Korea
- [4] **Study on the Driver's Mental Model and Behavior in Take-over Situation** May 2021 – May 2022
  - Graduate Research Assistant, Kookmin University
  - Sponsor: Hyundai Motor Company, Korea
- [3] **Study on the Vehicle Control Data/Physiological Data According to Emotions** Mar. 2020 – Nov. 2021
  - Role: Graduate Research Assistant, Kookmin University
  - Sponsor: Hyundai Motor Company, Korea
- [2] **Study on the Driver Behavior Characteristics in Four Dangerous Situations** Mar. 2020 – Nov. 2020
  - Role: Undergraduate Research Assistant, Kookmin University
  - Sponsor: National Forensic Service, Korea
- [1] **Undetectable Communications for Drone Applications** Dec. 2019 – Feb. 2020
  - Role: Undergraduate Research Assistant, University of California, Irvine
  - Sponsor: Kookmin University, Korea

## TEACHING EXPERIENCE

---

- Basic Dynamics Kookmin University, Fall 2021, Fall 2022
- Vehicle Driver Modeling Kookmin University, Spring 2022
- Automotive Human Factors Engineering Kookmin University, Spring 2021
- General Physics/Engineering Mathematics Kookmin University, Fall 2018 – Spring 2019

## AWARDS AND HONORS

---

- Best Student Paper Award *Surface Transportation Technical Group, HFES, 2024*
- Best Student Paper Award *Korean HFES Affinity Group, HFES, 2024*
- Travel Grant *HFES, 2024*
- Graduation with honors (grad class rank: 1/36) *Kookmin University, 2023*

- Merit-based Scholarship (masters, all semesters) *Kookmin University, 2021-2022*
- Best Paper Award *Korea Electronics Association, 2022*
- Competition of creating Intellectual Property Rights, 3<sup>rd</sup> award *Kookmin University, 2022*
- Poster competition of Brain Korea 21 program, 2<sup>nd</sup> out of 38 students *Kookmin University, 2022*
- Graduation with honors (undergrad class rank: 1/166) *Kookmin University, 2021*
- Merit-based Scholarship (undergrad, all semesters) *Kookmin University, 2015-2021*

## **SERVICE**

---

### **Committee Experience**

- Human Factors and Ergonomics Society Annual Meeting: Session Co-Chair (*Phoenix, US, 2024*)
- Automotive UI 2022: Local chair (*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 (2024)
- Human Factors and Ergonomics Society Annual Meeting (2025)

### **NHaNCE Lab**

- Lab technical manager (2024 – present)