**MYEONGKYU LEE**

Email: [myeongkyu@purdue.edu](mailto:myeongkyu@purdue.edu); [Personal Website](https://myeongkyulee.github.io/); [Google Scholar](https://scholar.google.com/citations?user=YUFnYU4AAAAJ&hl=en)

**RESEARCH INTERESTS**

Human-Computer Interaction (domain: driving), Driver Trust, Behavior, Intention Prediction & Modeling

**EDUCATION**

**Ph.D. Purdue University,** West Lafayette, IN 2023 – Present

**Industrial Engineering**

* Advisor: Dr. Brandon J. Pitts (*N*HanCE Laboratory)

**M.S. Kookmin University,** Seoul, KOREA 2021 – 2023

**Automobile and IT convergence**

* GPA: 4.0/4.0 (Graduated 1st 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 1st out of 166)
* Merit-based full tuition for all four years

**PUBLICATIONS**

**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]](https://link.springer.com/article/10.1007/s12239-024-00070-2)

[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]](https://www.sciencedirect.com/science/article/pii/S1369847823000037)

[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]](https://link.springer.com/article/10.1007/s12239-022-0073-3)

**PROCEEDINGS**

[10] **Lee, M.**, & Pitts, B.J. (*under review)*. “Identifying Preferred Driving Styles of Automated Vehicles through Drivers’ Feedback”.*Proceedings of the Human Factors and Ergonomics Society Annual meeting 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 (IISE) Annual Meeting 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, AZ, September 2024.**Two best student paper awards**[[link](https://journals.sagepub.com/doi/full/10.1177/10711813241260388)]*.*

[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 2023. [[link]](https://dl.acm.org/doi/abs/10.1145/3581961.3609865)

[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]](https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE11445736)

[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*, Florida, US, November 2022. [[link]](https://ieeexplore.ieee.org/abstract/document/9980656)

[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*, Florida, US, November 2022. [[link]](https://ieeexplore.ieee.org/abstract/document/9980685)

[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 2022. [[link]](https://dl.acm.org/doi/abs/10.1145/3544999.3552322)

[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 KSAE*, Seoul, Korea, June 2022. [[link]](https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE11102890)

[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, June 2021. [[link]](https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE10589837)

**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., Oishi, M., & Pitts, B.J.“Predicting obstacle types with machine learning based on driver behavioral and physiological data”.

[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*, Washington D.C., Jan. 2025*

[11] **Lee, M. (presenter)** “An investigation into how vehicle reliability, confidence information, and repeated exposure affect trust in automated vehicles”.Kookmin University BK 21 Seminar, *Seoul, Korea., Dec. 2024*

[10] **Lee, M. (presenter)**, & Pitts, B.J. “Bi-directional human-to-vehicle communication about driving style preferences”.NSF Site-Visit, *Purdue University, Nov. 2024*

[9] **Lee, M. (presenter)**, & Pitts, B.J. “The Effect of System Reliability and Confidence Information on Drivers’ Behavior in Automated Vehicles”.4th Next Generation Transportation System Conference, *Purdue University, Sep. 2024*

[8] **Lee, M. (presenter)**, & Pitts, B.J. “The Effects of System Confidence and Reliability on Drivers’ Decision-Making in Conditionally Automated Vehicles”.Human Factors and Ergonomics Society Annual Meeting, *AZ, 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”.Human Factors and Ergonomics Society Annual Meeting, *AZ, Sep. 2024*

[6] **Lee, M. (presenter)**, & Pitts, B.J. “Bias in Driver-AV interactions: Starting the Conversation about Closing-the-loop”.NSF Retreat, *University of New Mexico, 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, *Purdue University, 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 21Performance Sharing Conference, *Kookmin University, 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, *Florida, 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”.Proceedings of 2021 Spring Conference of ESK, *Seoul, Korea, Jun. 2021*

**RESEARCH EXPERIENCE**

[7] **Cognitive Autonomy for Human CPS: Turning Novices into Experts**

* Role: Graduate Research Assistant, Purdue University
* Period: Aug. 2023 – present
* Sponsor: National Science Foundation, US

[6] **Study on the Model Development for the Driver Emotion Recognition**

* Role: Graduate Research Assistant, Kookmin University
* Period: Oct. 2022 – Jul. 2023
* Sponsor: Hyundai Motor Company, Korea

[5] **Artificial Intelligence Adaptation on the Steering Wheel System**

* Role: Graduate Research Assistant, Kookmin University
* Period: Sep. 2021 – Aug. 2022
* Sponsor: Hyundai Motor Company, Korea

[4] **Study on the Driver’s Mental Model and Behavior in Take-over Situation**

* Role: Graduate Research Assistant, Kookmin University
* Period May 2021 – May 2022
* Sponsor: Hyundai Motor Company, Korea

[3] **Study on the Vehicle Control Data/Physiological Data According to Emotions**

* Role: Graduate Research Assistant, Kookmin University
* Period: Mar. 2020 – Nov. 2021
* Sponsor: Hyundai Motor Company, Korea

[2] **Study on the Driver Behavior Characteristics in Four Dangerous Situations**

* Role: Undergraduate Research Assistant, Kookmin University
* Period: Mar. 2020 – Nov. 2020
* Sponsor: National Forensic Service, Korea

[1] **Undetectable Communications for Drone Applications**

* Role: Undergraduate Research Assistant, University of California, Irvine
* Period: Dec. 2019 – Feb. 2020
* Sponsor: Kookmin University, Korea

**AWARDS AND HONORS**

* Best Student Paper Award (*Surface Transportation Technical Group, HFES, 2024*)
* Best Student Paper Award ($200 – *Korean HFES Affinity Group, HFES, 2024*)
* Travel Grant ($500 – *HFES, 2024*)
* Graduation with honors (grad class rank: 1/36) ($800 - *Kookmin University, 2023*)
* Merit-based Scholarship (masters, all semesters) ($20,000 – *Kookmin University, 2021-2022*)
* Best Paper Award (*Korea Electronics Association, 2022*)
* Competition of creating Intellectual Property Rights, 3rd award ($350 - *Kookmin University, 2022*)
* Poster competition of Brain Korea 21 program, 2nd out of 38 students ($500 - *Kookmin University, 2022*)
* Graduation with honors (undergrad class rank: 1/166) ($350 - *Kookmin University, 2021*)
* Merit-based Scholarship (undergrad, all semesters) ($21,000 - *Kookmin University, 2015-2021*)

**SERVICE**

**Committee Experience**

* Human Factors and Ergonomics Society Annual Meeting: Session Co-Chair (*Phoenix, AZ, 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)