

Joonbum Lee

Curriculum Vitae

1415 Engineering Drive
Madison, WI 53706
✉ joonbum.lee@wisc.edu

RESEARCH INTERESTS

- Topic Human-automation teaming, Driving safety, Automated vehicles, Attention management, Driver engagement/disengagement
- Methodology Predictive modeling, Naturalistic data collection and analysis, Data visualization, Literature review

EDUCATION

- 2014 **Ph.D.**, *University of Wisconsin-Madison*, Madison, WI.
Major: Industrial and Systems Engineering (Human Factors)
Dissertation: Integrating the Saliency Map with Distract-R to Predict and Evaluate Distraction Potential
Supervisor: John D. Lee
- 2011 **M.S.**, *University of Wisconsin-Madison*, Madison, WI.
Major: Industrial and Systems Engineering (Human Factors)
- 2007 **M.A.**, *Pusan National University*, Busan, South Korea.
Major: Psychology (Engineering Psychology) - Summa cum laude
Thesis: Road-crossing and Driving Behavior in the Elderly
Supervisor: Jaesik Lee
- 2005 **B.A.**, *Pusan National University*, Busan, South Korea.
Major: Psychology

AWARDS AND HONORS

- 2018 Battelle Outstanding Performance Award
- 2017 Battelle Outstanding Performance Award
- 2017 CHI Best Paper Award [C.17] (co-authored)
- 2015 1st Place for Honda Outstanding Student Paper Award [C.6] (supervised)
- 2015 2nd Place for Honda Outstanding Student Paper Award [C.5] (supervised)
- 2012 1st Place for the Intel Outstanding Student Paper Award at 4th International Conference on Automotive User Interface and Interactive Vehicular Applications [C.2]
- 2007 Best Research Achievement Award from Department of Psychology, Pusan National University
- 2007 *Summa cum laude* (GPA: 4.31/4.5, Rank: 1/12), Pusan National University

RESEARCH EXPERIENCE

- 2020-Present **Associate Scientist**, UNIVERSITY OF WISCONSIN-MADISON, Madison.
- P.23: Enhancing drivers' mode awareness for semi-automated vehicles (Sponsored by GM)
 - Roles: Principal Investigator
 - P.22: Toward responsive automation (Sponsored by Toyota CSRC)
 - Roles: Principal Investigator
 - Outcomes: C.23, C.26, IP.21, IP.22
 - P.21: Understanding override in vehicle automation (Sponsored by Toyota CSRC)
 - Roles: Principal Investigator
 - Outcomes: C.22, IP.19
 - P.20: From operator to collaborator: Human factors issues with semi-automated vehicles in complex driving environments (Sponsored by General Motors)
 - Roles: Principal Investigator
 - Outcomes: J.19, J.22, J.23, C.24, IP.20
 - P.19: Methods to transfer system knowledge to driver/operators to enhance and/or accelerate situational awareness during handoff (Sponsored by National Highway Traffic Safety Administration)
 - Roles: Consultant
 - P.18: SHRP2 speeding data: Additional analyses and speeding database development (Sponsored by National Highway Traffic Safety Administration)
 - Roles: Consultant
- 2019-2020 **Principal Research Scientist-Data Science**, BATTELLE MEMORIAL INSTITUTE, Seattle.
- P.17: Driver Engagement in L3 and L4 ADS: Driver Engagement Strategies and the Impact of Different Types of Disengagement (Sponsored by National Highway Traffic Safety Administration)
 - Roles: Principal Investigator
 - P.16: Effects of Education on Speeding Behavior (Sponsored by National Highway Traffic Safety Administration)
 - Roles: Principal Investigator
 - P.15: SHRP2 Implementation Assistance Program (IAP) Phase 3 (Sponsored by National Highway Traffic Safety Administration)
 - Roles: Technical lead
- 2016-2019 **Research Scientist-Data Science**, BATTELLE MEMORIAL INSTITUTE, Seattle.
- P.14: Principles and Guidance for Presenting Drivers with Dynamic Information on Active Traffic Management (Sponsored by National Cooperative Highway Research Program)
 - Roles: Project Manager
 - P.13: SHRP2 Implementation Assistance Program (IAP) Phase 2/Phase 3 (Sponsored by National Highway Traffic Safety Administration)
 - Roles: Technical lead
 - P.12: Analysis of SHRP2 Speeding Data (Sponsored by National Highway Traffic Safety Administration)
 - Roles: Statistician

- 2014–2016 **Postdoctoral Associate**, AGE_{LAB}, MIT, Cambridge (Supervisor: Bryan Reimer).
- P.11: Advanced Human Factors Evaluator for Automotive Distraction (Sponsored by AHEAD Consortium)
 - Roles: Technical team member
 - P.10: Utilizing Head-pose Data to Surrogate Eye-tracking Data for Driver Distraction Research (Sponsored by Santos Family foundation)
 - Roles: Co-PI, Technical lead
 - P.9: Assessing Road Type and Traffic Volume Using Drivers' Glance Data (Sponsored by Jaguar Land Rover)
 - Roles: Co-PI, Technical lead
- 2009–2014 **Graduate Research Assistant**, COGNITIVE SYSTEMS LAB, UNIVERSITY OF WISCONSIN-MADISON, Madison.
- P.8: In-Vehicle Voice Control System (Sponsored by National Highway Traffic Safety Administration)
 - P.7: Connected Vehicle Design Research and Distraction Assessment (Sponsored by National Highway Traffic Safety Administration)
 - P.6: Making Driving Simulator More Useful for Behavioral Research (Sponsored by Federal Highway Administration)
 - P.5: Motivation for Speeding (Sponsored by National Highway Traffic Safety Administration)
- 2004–2007 **Graduate Research Assistant**, ENGINEERING PSYCHOLOGY LAB, PUSAN NATIONAL UNIVERSITY, South Korea.
- P.4: Individual Differences in Information Processing
 - P.3: A Study on the Ship Collision Avoidance Behavior Using the Full Mission Ship Handling Simulator: Focused on Mariner's Situation Awareness
 - P.2: A Study on Specifying Critical Human Factors in Driving Skill Focusing on Drivers' Situation Awareness
 - P.1: A Study on Analysis and Enhancement of Mariners' Situation Awareness Based on Integrated Approaches of Psychological Experiments, Ship-Handling Simulation and Real Navigation

GRANT PROPOSALS (grant funding total since 2014: \$2.7M)

- G.17 **Investigating silent failures in automate driving using trust and mental models, 2024**, (AWARDED BY TOYOTA CSRC).
 - Led proposals
 - Role: PI
 - Amount: \$350,000
- G.16 **Enhancing drivers' mode awareness for semi-Automated Vehicles, 2023**, (AWARDED BY GENERAL MOTORS).
 - Led proposals
 - Role: PI
 - Amount: \$200,000
- G.15 **Toward Responsive Automation, 2022**, (AWARDED BY TOYOTA CSRC).
 - Led proposals
 - Role: PI
 - Amount: \$350,000
- G.14 **Understanding Override in Vehicle Automation, 2021**, (AWARDED BY TOYOTA CSRC).
 - Led proposals
 - Role: PI
 - Amount: \$160,000
- G.13 **From Operator to Collaborator: Human Factors Issues with Semi-Automated Vehicles in Complex Driving Environments, 2021**, (AWARDED BY GENERAL MOTORS).
 - Led proposals
 - Role: PI
 - Amount: \$210,000
- G.12 **Methods to Transfer System Knowledge to Driver/Operators to Enhance and/or Accelerate Situational Awareness During Handoff, 2020**, (AWARDED BY NHTSA).
 - Wrote technical sections as a subcontractor
 - Role: PI of UW-Madison
 - Subcontract Amount: \$160,000
- G.11 **SHRP2 Speeding Data: Additional Analyses and Speeding Database Development, 2020**, (AWARDED BY NHTSA).
 - Wrote technical sections as a subcontractor
 - Role: PI of UW-Madison
 - Subcontract Amount: \$10,000
- G.10 **Designing for Target Speed, 2019**, (SUBMITTED TO NCHRP).
 - Led proposals
 - Role: Project Manager/PI
 - Amount: \$740,000

- G.9 **State of Knowledge on Drowsy Driving, 2019**, (SUBMITTED TO NHTSA).
- Led proposals
 - Role: PI
 - Amount: \$450,000
- G.8 **Driver Engagement in L3 and L4 ADS: Driver Engagement Strategies and the Impact of Different Types of Disengagement, 2019**, (AWARDED BY NHTSA).
- Contributed technical proposal writing
 - Role: PI
 - Amount: \$1,000,000
- G.7 **Using the SHRP2 Naturalistic Driving Study Database to Improve Teen Driving: Development of a Research Agenda, 2019**, (SUBMITTED TO TRB).
- Led technical proposal writing
 - Role: PI
 - Amount: \$75,000
- G.6 **SHRP2 Naturalistic Driving Study Pooled Fund: Advancing Implementable Solutions, 2019**, (AWARDED BY FHWA).
- Led technical proposal writing
 - Role: Co-PI
 - Amount: \$25,000
- G.5 **NHTSA Behavioral Safety Research for Traffic Safety IDIQ, 2016**, (SUBMITTED TO NHTSA).
- Wrote a hypothetical task section of this proposal (Title: Determine the Prevalence and Impact of Legal Marijuana Use on Motorcycle Riders)
 - IDIQ contract
- G.4 **NHTSA Human Factors and Driver Performance IDIQ, 2016**, (SUBMITTED TO NHTSA).
- Wrote a hypothetical task section of the proposal (Title: Interface Metrics for Advanced Technologies)
 - IDIQ contract
- G.3 **Assessing Road Type and Traffic Volume Using Drivers' Glance Data: A Feasibility Assessment, 2016**, (AWARDED BY JAGUAR LAND ROVER).
- Led technical proposal writing
 - Role: Co-PI
 - Amount: \$114,000
- G.2 **Investigating the Relationship of Driver Head-eye Correspondence (Phase II Grant), 2015**, (AWARDED BY SANTOS FAMILY FOUNDATION).
- Led technical proposal writing
 - Role: Co-PI
 - Amount: \$65,000
- G.1 **Investigating the Relationship of Driver Head-eye Correspondence (Phase I Grant), 2014**, (AWARDED BY SANTOS FAMILY FOUNDATION).
- Led technical proposal writing
 - Role: Co-PI
 - Amount: \$100,000

TEACHING

- 2020 (Spring) **Instructor**, ARIZONA STATE UNIVERSITY, Online.
○ HSE 531 Data Analytics: Modeling Human-Subjects Data
- 2019-2020 **Instructor**, CENTER FOR HUMAN PERFORMANCE AND SAFETY, BATTELLE, Seattle.
○ Mini-course: R for Data Science
- 2014 **Teaching Certificate Program**, MIT, Cambridge.
○ Completed the Kaufman Teaching Certificate Program (KTCP) at MIT
- 2011 **Teaching Assistant**, UNIVERSITY OF WISCONSIN-MADISON, Madison.
○ Course: Introduction to Human Factors
- 2004-2006 **Teaching Assistant**, PUSAN NATIONAL UNIVERSITY, South Korea.
○ Course: Human and Mechanical, Human Factors, Industrial and Organization Psychology

INVITED PRESENTATIONS

- IP.22 MIT AVT Consortium, Cambridge, MA (Online)
"Understanding hands-off behaviors while using Tesla Autopilot", 2023
- IP.21 67th International Annual Meeting of Human Factors and Ergonomics Society, Washington, D.C.
"Towards directive driving automation: Nudging drivers away from overriding using social norms", 2023
- IP.20 67th International Annual Meeting of Human Factors and Ergonomics Society, Washington, D.C.
"Sharing vehicle situation awareness reduces driver-initiated overrides in urban environment", 2023
- IP.19 66th International Annual Meeting of Human Factors and Ergonomics Society, Atlanta, GA
"Incorporating Driver Expectations Into a Taxonomy of Transfers of Control for Automated Vehicles", 2022
- IP.18 Guest Lecture for ISyE 349-Introduction to Human Factors at University of Wisconsin-Madison, Madison, WI
"Human Factors Research in Driving Safety", 2021
- IP.17 Enterprise Applications of the R Language Conference (EARL), Seattle, WA
"R Use Cases: Examining Influence of Roadway Design Features on Drivers' Speed Choice in Washington", 2018
- IP.16 Puget Sounds Human Factors and Ergonomics Society, Seattle, WA
(Webinar) "Driver Distraction: A Human Factors Problem at the Intersection of Transportation and Healthcare", 2018
- IP.15 Transportation Research Board 97th Annual Meeting, Washington D.C.
"(Presentation and panel discussion) Data Processing and Statistical Considerations in the Analysis of Site-based Time-series Data from the SHRP2", 2018

- IP.14 60th International Annual Meeting of Human Factors and Ergonomics Society, Washington D.C.
"Sensation Seeking and Drivers' Glance Behavior While Engaging in a Secondary Task", 2016
- IP.13 Liberty Mutual Research Institute for Safety, Hopkinton, MA.
"Multiple Approaches for a Deeper Understanding of Driver Distraction", 2016
- IP.12 Harvard Schepens Eye Research Institute, Boston, MA.
"Investigating Drivers' Head and Glance Correspondence", 2015
- IP.11 8th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design, Snowbird, UT.
"Predicting Secondary Task Involvement and Differences in Task Modality Using Field Highway Driving Data", 2015
- IP.10 Transportation Research Board 94th Annual Meeting, Washington D.C.
"Analyses of Glance Patterns of Older and Younger Drivers During a Visual-Manual HMI Interaction", 2015
- IP.9 AHEAD Consortium, Detroit, MI
"Glance Pattern Analysis", 2014
- IP.8 AHEAD Consortium, Cambridge, MA
"Integrating the Saliency Map with Distract-R to Assess Driver Distraction of Vehicle Displays", 2014
- IP.7 Human Factors and Ergonomics Society New England Chapter, Boston, MA
"Integrating the Saliency Map with Distract-R to Assess Driver Distraction", 2014
- IP.6 57th International Annual Meeting of Human Factors and Ergonomics Society, San Diego, CA
"A Saliency-based Search Model: Application of the Saliency Map for Driver-vehicle Interfaces", 2013
- IP.5 Transportation Research Board 90th Annual Meeting, Washington D.C.
"Matching Simulator Characteristics to Highway Design Problems", 2011
- IP.4 Transportation Research Board 90th Annual Meeting, Washington D.C.
"Computational Model of Drivers' Visual Attention for Assessing Simulator Fidelity", 2011
- IP.3 Annual Symposium of Korean Psychological Association, South Korea
"Analysis of Age Difference in Road Crossing Behavior Using Signal Detection Theory", 2007
- IP.2 Annual Symposium of the Korean Data Analysis Society, South Korea
"The Effects of Stimuli Types and Task Difficulty on Driver's Memory Search in Dynamic Driving Situation", 2006
- IP.1 Conferences of Korean Psychological and Social Issues, South Korea
"Effect of Item Size In-Vehicle Navigation System on Driver's Visual Search and Driving Performances", 2006

PEER REVIEWED JOURNAL ARTICLES

- J.23 Rheem, H., **Lee, J.**, Lee, J. D., Szczerba, J. F., Rajavenkatanarayanan, A., and Mathieu, R. (accepted). Collaborating with your car: Reducing effort decreases older drivers' mental workload during driver-automation collaboration in unstructured driving environment, *Transportation Research Record*
- J.22 Rheem, H., **Lee, J.**, Lee, J. D., Szczerba, J. F., and Tsimhoni, O. (submitted). Explaining automated vehicle behavior using the abstraction hierarchy to maintain common ground, *Journal of Cognitive Engineering and Decision Making*.
- J.21 Grahn, H., Kujala, T., Taipalus, T., **Lee, J.**, and Lee, J. D. (2023). On the relationship between occlusion times and off-forward glance durations in simulated driving, *Accident Analysis and Prevention*, 182(2023): 106955.
- J.20 Kamaraj, A. V., **Lee, J.**, Domeyer, J. E., Liu, S.-Y., and Lee, J. D. (2023). Comparing subjective similarity of automated driving style to objective distance-based similarity, *Human Factors: The Journal of Human Factors and Ergonomics Society* (2023): 00187208221142126.
- J.19 **Lee, J.**, Rheem, H., Lee, J. D., Szczerba, J. F., and Tsimhoni, O. (2023). Reframing automation interaction: Human-AI teaming in highly automated vehicles, *Journal of Cognitive Engineering and Decision Making*, 17(1), 49-74.
- J.18 Richard, C. M., **Lee, J.**, Atkins, R., and Brown, J. (2020). Using SHRP2 naturalistic driving data to examine driver speeding behavior, *Journal of Safety Research*.
- J.17 **Lee, J.**, Munoz, M., Fridman, L., Victor, T., Reimer, B., and Mehler, B. (2018). Investigating drivers' head and glance correspondence, *PeerJ Computer Science* 4:e146 <https://doi.org/10.7717/peerj-cs.146>.
- J.16 Lee, J., Lee, J. D., Bargman, J., **Lee, J.**, and Reimer, B. (2018). How safe is tuning a radio?: Using the radio tuning task as a benchmark for distracted driving, *Accident Analysis and Prevention*, 110, 29-37.
- J.15 **Lee, J.**, Sawyer, B. D., Mehler, B., Angell, L., Seppelt, B. D., Fridman, L., and Reimer, B. (2017). Linking the detection response tasks and the AttenD buffer through assessing Human-Machine Interface workload, *Transportation Research Record*, 2663, 82-89.
- J.14 Seppelt, B. D., Seaman, S., **Lee, J.**, Angell, S., Mehler, B., and Reimer, B. (2017). Glass half-full: On-road glance metrics differentiate crashes from near-crashes in the 100-Car data, *Accident Analysis and Prevention*, 107, 48-62.
- J.13 **Lee, J.**, Roberts, S. C., Reimer, B., and Mehler, B. (2017). Does order matter? Investigating the effect of sequence on in-vehicle glance duration with on-road driving data, *PLoS ONE*, 12(2): e0171730. doi:10.1371/journal.pone.0171730.
- J.12 Munoz, M., Reimer, B., **Lee, J.**, Mehler, B., and Fridman L. (2016). Distinguishing patterns in drivers' visual attention allocation using hidden Markov models, *Transportation Research Part F: Traffic Psychology and Behaviour*, 43, 90-103.

- J.11 **Lee, J.**, Mehler, B., Reimer, B., Ebe, K., and Coughlin, J. F. (2016). Relationship between older drivers' cognitive abilities as assessed on the MoCA and glance patterns during visual-manual radio-tuning while driving, *The Journals of Gerontology, Series B: Psychological Sciences*, *gbw131*.
- J.10 Fridman, L., **Lee, J.**, Reimer, B., and Mehler, B. (2016). A framework for robust driver gaze classification, *SAE Technical Paper 2016-01-1426*, doi: 10.4271/2016-01-1426.
- J.9 Fridman, L., **Lee, J.**, Reimer, B., and Victor, T. (2016). "Owl" and "Lizard": Patterns of head pose and eye pose in driver gaze classification, *IET Computer Vision*, *10*(4), 308-314.
- J.8 Fridman, L., Langhans, P., **Lee, J.**, and Reimer, B. (2016). Driver gaze estimation without using eye movement, *IEEE Intelligent Systems*, *31*(3), 49-56.
- J.7 Lee, J. D., McGehee, D. V., Brown, J. L., Richard, C. M., Ahmad, O., Ward, N. J., Hallmark, S., and **Lee, J.** (2011). Matching simulator characteristics to highway design problems, *Transportation Research Board*, *2248/2011*, 53-60.
- J.6 **Lee, J.**, Kim, B., Lee, S., and Lee, J. (2008). The effect of age on judgment in driving: A simulation study, *Journal of the Korean Society of Safety*, *23*(1), 46-50.
- J.5 **Lee, J.**, and Lee, J. (2007). Analysis of age difference in road crossing behavior using signal detection theory, *Korean Journal of Industrial and Organizational Psychology*, *20*(3), 253-265.
- J.4 **Lee, J.**, and Lee, J. (2006). The effects of stimuli types and task difficulty on driver's memory search in dynamic driving situation, *Journal of the Korean Data Analysis Society*, *8*(1), 391-406.
- J.3 **Lee, J.**, and Lee, J. (2006). The effect of mariner's situation awareness training on navigation performances, *Korean Journal of Experimental Psychology*, *18*(3), 221-237.
- J.2 **Lee, J.**, Oh, J., and Lee, J. (2006). The effect of repeated mariner training using a ship-handling simulator system on ship control, *Journal of Korean Navigation and Port Research*, *30*(6), 427-432.
- J.1 Gong, D., **Lee, J.**, and Lee, J. (2005). A driving study on driver's subjective speed estimation as a function of the vehicle noise types and intensity, *Korean Journal of Psychological and Social Issues*, *11*(2), 31-46.

PEER REVIEWED CONFERENCE PROCEEDINGS

- C.26 **Lee, J.**, Kim, B., Rheem, H., Kamaraj, A. V., Kim, S., Domeyer, J. E., Lee, J. D., Toyoda, H. (2023). Towards directive driving automation: Nudging drivers away from overriding using social norms, *Human Factors and Ergonomics Society 67th Annual Meeting*.
- C.25 Kamaraj, A. V., **Lee, J.**, Parker, J., Domeyer, J. E., Liu, S., Lee, J. D. (2023). Bimodal trust: High and low trust in vehicle automation influence response to automation errors, *Human Factors and Ergonomics Society 67th Annual Meeting*.

- C.24 **Lee, J.**, Rheem, H., Lee, J. D., Szczerba, J. F., Rajavenkatanarayanan, A., Mathieu, R. (2023). Sharing vehicle situation awareness reduces driver-initiated overrides in urban environment, *Human Factors and Ergonomics Society 67th Annual Meeting*.
- C.23 **Lee, J.**, Kamaraj, A. V., Li, M., Domeyer, J. E., Toyoda, H., and Lee, J. D. (2023). Drivers' glance behavior during driver-initiated overrides of L2 driving automation: A comparison between intentional and unintentional overrides, *Transportation Research Board*
- C.22 **Lee, J.**, Lee, J. R., Koenig, M. L., Douglas, J. R., Domeyer, J. E., Lee, J. D., and Toyoda, H. (2022). Incorporating driver expectations into a taxonomy of transfers of control for automated vehicles, *Human Factors and Ergonomics Society 66th Annual Meeting*.
- C.21 **Lee, J.**, Venkatraman, V., and Richard, C. M. (2019). Predicting buckled and unbuckled trips of occasional seat belt users in SHRP2 data, *Human Factors and Ergonomics Society 63rd Annual Meeting*.
- C.20 Richard, C. M., **Lee, J.**, and Atkins, R. (2018). Predictors of observed speeding behavior in SHRP2 NDS data, *7th International Symposium on Naturalistic Driving Research*.
- C.19 Richard, C. M., Atkins, R., **Lee, J.**, and Brown, J. (2017). A framework for identifying speed-related crashes in the SHRP2 NDS driving event dataset, *10th SHRP2 Safety Data Symposium: From Analysis to Results*.
- C.18 Lavalliere, M., Mehler, B., **Lee, J.**, Seppelt, B. D., and Reimer, B. (2017). Task analysis of embedded visual-manual phone-calling interfaces in nine production vehicles, *27th CARSP Conference*.
- C.17 Fridman, L., Toyoda, H., Seaman, S., Seppelt, B., Angell, L., **Lee, J.**, Mehler, B., and Reimer, B. (2017). What can be predicted from six seconds of driver glances?, *2017 CHI Conference on Human Factors in Computing Systems (2805-2813)*, ACM. **[Best Paper Award]**
- C.16 McWilliams, T., **Lee, J.**, Mehler, B., and Reimer, B. (2017). Revisiting radio tuning: A secondary analysis comparing glance behavior across five vehicles, *Human Factors and Ergonomics Society 61th Annual Meeting*.
- C.15 Seaman, S., **Lee, J.**, Seppelt, B., Angell, L., Mehler, B., and Reimer, B. (2017). It's all in the timing: Using the Attend algorithm to assess texting in the NEST naturalistic driving database, *9th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design*.
- C.14 Donmez, B., Mehler, A., **Lee, J.**, Mehler, B., and Reimer, B. (2017). The relation between the driver behavior questionnaire, demographics, and driving history, *9th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design*.

- C.13 **Lee, J.**, Sawyer, B. D., Mehler, B., Angell, L., Seppelt, B. D., Fridman, L., and Reimer, B. (2017). Linking the detection response tasks and the AttenD buffer through assessing Human-Machine Interface workload, *Transportation Research Board 96th Annual Meeting*
- C.12 Reimer, B., Pettinato, A., Seppelt, B., Fridman, L., **Lee, J.**, Park, J., Iagnemma, K., and Mehler, B. (2016). Behavioral impact of drivers' roles in automated driving, *International Conference on Automotive User Interfaces and Interactive Vehicular Applications*.
- C.11 Seaman, S., **Lee, J.**, Angell, L., Mehler, B., Seppelt, B., and Reimer, B. (2016). Exploring generalizability of field experiment radio tasks with naturalistic driving data: A comparison with SHRP2 NEST, *International Conference on Automotive User Interfaces and Interactive Vehicular Applications*.
- C.10 Domeyer, J., Seaman, S., Angell, L., **Lee, J.**, Reimer, B., and Donmez, B. (2016). SHRP2 NEST Database: Exploring conditions of secondary task engagement in naturalistic trip data, *International Conference on Automotive User Interfaces and Interactive Vehicular Applications*.
- C.9 **Lee, J.**, Mehler, B., Reimer, B., and Coughlin J. F. (2016). Sensation seeking and drivers' glance behavior while engaging in a secondary task, *Human Factors and Ergonomics Society 60th Annual Meeting*.
- C.8 Lee, J. Y., **Lee, J.**, and Lee, J. D. (2016). A visual search model for in-vehicle interfaces, *Human Factors and Ergonomics Society 60th Annual Meeting*.
- C.7 Sawyer, B. D., **Lee, J.**, Dobres, J., Mehler, B., Coughlin, J. F., and Reimer, B. (2016). Effects of a voice interface on mirror check decrements in older and younger multitasking drivers, *Human Factors and Ergonomics Society 60th Annual Meeting*.
- C.6 Munoz, M., **Lee, J.**, Reimer, B., Mehler, B., and Victor, T. (2015). Analysis of drivers' head and eye movement correspondence: Predicting drivers' glance location using head rotation data, *8th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design*, 203-209.
[Honda Outstanding Student Paper Award 1st Place]
- C.5 Sinelnikova, A., **Lee, J.**, Reimer, B., Mehler, B., and Coughlin, J. F. (2015). Predicting secondary task involvement and differences in task modality using field highway driving data, *8th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design*, 393-399.
[Honda Outstanding Student Paper Award 2nd Place]
- C.4 **Lee, J.**, Reimer, B., Mehler, B., Angell, L., Seppelt, B. D., and Coughlin J. F. (2015). Analyses of glance patterns of older and younger drivers during a visual-manual HMI interaction, *In Proceedings of Transportation Research Board 94th Annual Meeting*, No. 15-4781.
- C.3 **Lee, J.**, Lee, J. D., and Salvucci, D. D. (2013). A saliency-based search model: Application of the saliency map for driver-vehicle interfaces, *In Proceedings of Human Factors and Ergonomics Society 57th Annual Meeting*, 57(1), 1933-1937.

- C.2 **Lee, J.**, Lee, J. D., and Salvucci, D. D. (2012). Evaluating the distraction potential of connected vehicles, *In Proceedings of the International Conference on Automotive User Interfaces and Interactive Vehicular Applications*, 33-40.
[Intel Outstanding Student Paper Award 1st Place]
- C.1 **Lee, J.**, Seppelt, B. D., and Lee, J. D. (2011). Computational model of drivers' visual attention for assessing simulator fidelity, *In Proceedings of Transportation Research Board 90th Annual Meeting*, No. 11-3962.

TECHNICAL REPORTS

- T.8 **Lee, J.**, Lee, J. D., and Domeyer, J. (2022). Understanding Override in Vehicle Automation, *Report submitted to Toyota CSRC, University of Wisconsin-Madison, Madison, WI.*
- T.7 Brown, J. L., Prendez, D. M., **Lee, J.**, Romo, A., Campbell, J. L., Hutton, J., ... and Torbic, D. (2022). Human factors guidelines for road systems 2021 update, Volum 1: Updated and new chapters (NCHRP Project 17-80), *Report submitted to NCHRP, Battelle, Seattle, WA.*
- T.6 Lee, J. D., Kamaraj, A. V., Alsaid, A., Liu, S.-Y., Price, M., and **Lee, J.** (2021). Observable and directable algorithms to promote user communication with vehicle automation, *Report submitted to Toyota CSRC, University of Wisconsin-Madison, Madison, WI.*
- T.5 **Lee, J.**, Schroeder, J. L., Richard, C. M., Campbell, J. L., Brown, J. L., Hoekstra-Atwood, L., Magee, K., and Prendez, D. M. (2021). Principles and guidance for presenting drivers with dynamic information on active traffic management (03-124), *Report submitted to NCHRP, Battelle, Seattle, WA.*
- T.4 Richard, C. M., **Lee, J.**, Brown, J. L., and Landgraf, A. (2020). Analysis of SHRP2 speeding data (DOT HS 812 858), *Report submitted to NHTSA, Battelle, Seattle, WA.*
- T.3 Richard, C. M., Thomas, F. D., Blomberg, R. D., Brown, J. L., Wright, T., Graham, L., **Lee, J.**, and Landgraf, A. (2019). Characteristics and predictors of occasional seat belt use using SHRP 2 Data (No. DOT HS 812 840)., *Report submitted to NHTSA, Battelle, Seattle, WA.*
- T.2 Richard, C. M., Brown, J. L., **Lee, J.**, Hoover, C., Campbell, J. L., Milton, J., and van Schalkwyk, I. (2016). SHRP2 implementation assistance program concept to countermeasure-Research to deployment using the SHRP 2 safety data (NDS): Influence of roadway design features on episodic speeding in Washington State (Phase 2 Report), *Report submitted to the Strategic Highway Research Program 2 (SHRP2) Transportation Research Board of the National Academies, Battelle, Seattle, WA.*
- T.1 Mehler, B., Reimer, B., McAnulty, H., Dobres, J., **Lee, J.**, and Coughlin, J. F. (2015). Assessing the demands of voice based in-vehicle interfaces - Phase II experiment 2 - 2014 Mercedes CLA (2014t), *MIT AgeLab Technical Report 2015-8 (November 10, 2015). Massachusetts Institute of Technology, Cambridge, MA.*

BOOK CHAPTERS

- B.2 Campbell, J. L., Venkatraman, V., Hoekstra-Atwood, L., **Lee, J.**, and Richard, C. M. (2020). HMI design for automated, connected, and intelligent vehicles, In *Handbook of Human Factors for automated, connected, and intelligent vehicles*.
- B.1 **Lee, J.**, Venkatraman, V., Campbell, J. L., and Richard, C. (2019). Workload and attention management in automated vehicles, In *Human performance in automated and autonomous systems: Current theory and methods*. CRC Press.

PATENT

- P.3 Szczerba, J. F., Mathieu, R., Rajavenkatanarayanan, A., **Lee, J.**, Rheem, H., Lee, J. D. (filed). Application No. 18/326,270, Displaying automated driving system status for vehicle occupant awareness
- P.2 Delgado, A. M. M., Reimer, B. L., **Lee, J.**, Angell, L. S., Seppelt B. D., Mehler, B. L., and Coughlin, J. F. (2020). United States Patent No. 20180053103, Systems and methods for providing visual allocation management. Retrieved from <http://www.freepatentsonline.com/y2018/0053103.html>
- P.1 Seppelt B. D., **Lee, J.**, Angell, L. S., Reimer, B. L., Mehler, B. L., and Coughlin, J. F. (2020). United States Patent No. 10525984, Systems and methods for using an attention buffer to improve resource allocation management. Retrieved from <http://www.freepatentsonline.com/10525984.html>

ADVISING

- 2022-2023 **Thomas McWilliams**, TUFTS UNIVERSITY, Medford, MA.
○ Doctoral dissertation committee
- 2022-2023 **Shruti Amre**, MICHIGAN TECHNOLOGY UNIVERSITY, Houghton, MI.
○ Doctoral dissertation committee
- 2021-Current **Hansol Rheem, Ph.D.**, UNIVERSITY OF WISCONSIN-MADISON, Madison, WI.
○ Advisor for a post-doctoral research fellow
- 2021-2022 **John Douglas**, UNIVERSITY OF WISCONSIN-MADISON, Madison, WI.
○ Research mentor for an undergraduate researcher
- 2021-2022 **Madeline Koenig**, UNIVERSITY OF WISCONSIN-MADISON, Madison, WI.
○ Research mentor for an undergraduate researcher
- 2021-2022 **Jessica Lee**, UNIVERSITY OF WISCONSIN-MADISON, Madison, WI.
○ Research mentor an undergraduate researcher
- 2020-2021 **Sydney Tong**, UNIVERSITY OF WISCONSIN-MADISON, Madison, WI.
○ Research mentor for an Undergraduate Research Scholar (URS) program
- 2020-2021 **Josalin Kumm**, UNIVERSITY OF WISCONSIN-MADISON, Madison, WI.
○ Research mentor for an Undergraduate Research Scholar (URS) program; Mentee received Research Experience for Undergraduates fellowship (funded by NSF)

- 2015 **Alina Sinelnikova**, MIT, Cambridge, MA.
- Co-advisor for visiting master student; advised a part of the master thesis and a conference paper; resulted in a coauthored paper with fellow as first author and received Honda Outstanding Student Paper Award (2nd Place) from 8th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design
- 2015 **Mauricio Munoz**, MIT, Cambridge, MA.
- Co-advisor for visiting master student; advised a part of the master thesis and a conference paper; resulted in a coauthored paper with fellow as first author and received Honda Outstanding Student Paper Award (1st Place) from 8th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design

PROFESSIONAL SERVICES

Diversity

2022 AutoUI conference - Diversity co-chair

Journal reviewer

Accident Analysis and Prevention

Human Factors: The Journal of the Human Factors and Ergonomics Society

Transportation Research Part F: Traffic Psychology and Behaviour

Advances in Mechanical Engineering

ACM CHI (Human-Computer Interactions)

Transportation Research Board

Journal of Transportation Safety and Security

IEEE Transactions on Intelligent Transportation Systems

Service

Human Factors and Ergonomics Society - Human-AI-Robot Teaming (HART) Technical Group Committee

Human Factors and Ergonomics Society 2021 - Surface Transportation Technical Group Best Student Paper Award Review Committee

Human Factors and Ergonomics Society 2020 - Chapanis Best Student Paper Award Committee

AutoUI 2019 - Program Committee (Associate Chair)

Human Factors and Ergonomics Society 2018 - Surface Transportation Technical Group Best Student Paper Awards Review Committee

Driving Assessment 2017 - Scientific Review Committee

Driving Assessment 2015 - Scientific Review Committee

Human Factors and Ergonomics Society 2015 - Perception and Performance Technical Group Best Student Paper Awards Review Committee

Human Factors and Ergonomics Society 2015 - Cognitive Engineering and Decision Making Technical Group Best Student Paper Awards Review Committee