

Distracted Driving in 2016: A Q&A Session with Leading Distracted Driving Researchers

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Bio

Bryan Reimer, Ph.D. is the Associate Director of The New England University Transportation Center at MIT and a Research Scientist in the MIT AgeLab. His research seeks to develop theoretical and applied insight into driver behavior by fusing together traditional psychological methods with big data analytics in computer vision and predictive modeling. His work leverages laboratory experimentation, driving simulation, field testing, and naturalistic study to develop a comprehensive understanding of visual, physiological, and overall performance characteristics associated with how drivers respond to the increasing complexity of the modern operating environment. His work aims to find solutions to the next generation of human factors challenges associated with driver attention management, distraction, automation and the use of advanced driver assistance systems to maximize mobility and safety. He leads the Advanced Human Factors Evaluator for Attentional Demand (AHEAD) consortium, an academic-industry partnership aimed at developing the next generation of driver attention measurement tools, and the Advanced Vehicle Technology (AVT) consortium, an academic-industry partnership focused on developing an understanding of driver use of vehicle technologies including production level automated driving systems. His work is supported by a number of automotive manufacturers, suppliers, insurance, and global technology companies. He is an author of over 150 technical contributions in transportation and related human factors areas. He holds a Ph.D. in Industrial and Manufacturing Engineering, a MS in Manufacturing Engineering, and a BS in Industrial Engineering from the University of Rhode Island.

Key Reading Material on Voice Interfaces and Related Topics

- Dobres, J., Chahine, N., Reimer, B., Gould, D., Mehler, B. & Coughlin, J.F. (in press). Utilising psychophysical techniques to investigate the effects of age, typeface design, size and display polarity on glance legibility. *Ergonomics*.
<http://www.tandfonline.com/doi/full/10.1080/00140139.2014.940000>
- Mehler, B., Kidd, D., Reimer, B., Reagan, I., Dobres, J. & McCartt, A. (in press). Multi-modal assessment of on-road demand of voice and manual phone calling and voice navigation entry across two embedded vehicle systems. *Ergonomics*.
<http://www.tandfonline.com/doi/abs/10.1080/00140139.2015.1081412#.VujKy9CMIns>
- Dobres, J., Reimer, B., Mehler, B., Foley, J., Ebe, K., Seppelt B. & Angell, L. (2016). The Influence of Driver's Age on Glance Allocations during Single-Task Driving and Voice vs. Visual-Manual Radio Tuning, (No. 2016-01-0171). SAE Technical paper. (No link)
- Mehler, B., Reimer, B., Dobres, B., Foley, J. & Ebe, K. (2016). Additional Findings on the Multi-Modal Demands of "Voice-Command" Interfaces, (No. 2016-01-0073). SAE Technical paper. (No link)
- Reimer, B., Mehler, B. & Coughlin, J.F. (2016). Reductions in self-reported stress and anticipatory heart rate with the use of a semi-automated parallel parking system. *Applied Ergonomics*, 52, pp. 120-127. DOI: 10.1016/j.apergo.2015.07.008. <http://dx.doi.org/10.1016/j.apergo.2015.07.008>
- Dobres, J., Reimer, B., Parikh, L., Wean, E. & Chahine, N. (2015). The Incredible Shrinking Letter: How Font Size Affects The Legibility of Text Viewed in Brief Glances. Proceedings of the 8th International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design. Snowbird, UT. pp. 435-441. <http://drivingassessment.uiowa.edu/sites/default/files/DA2015/papers/065.pdf>

- Lee, C., Reimer, B., Mehler, B. & Coughlin, J.F. (2015). User Acceptance of Voice Interfaces in the Automobile. Proceedings of the 59th Annual Meeting of the Human Factors and Ergonomics Society. Los Angeles, CA. pp. 1641-1645. (No link)
- McWilliams, T., Reimer, B., Mehler, B., Dobres, J. & Coughlin, J.F. (2015). Effects of age and smartphone experience on driver behavior during address entry: a comparison between a Samsung Galaxy and Apple iPhone. Proceedings of the 7th International Conference on Automotive User Interfaces and Interactive Vehicle Applications (AutomotiveUI '15), Nottingham, UK. DOI: 10.1145/2799250.2799275. <http://dx.doi.org/10.1145/2799250.2799275>
- McWilliams, T., Reimer, B., Mehler, B., Dobres, J. & McAnulty H. (2015). A Secondary Assessment of the Impact of Voice Interface Turn Delays on Driver Attention and Arousal in Field Conditions: A Consideration of 4 Vehicle Systems and a Smartphone. Proceedings of the 8th International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design. Snowbird, UT. pp. 414-420. <http://drivingassessment.uiowa.edu/sites/default/files/DA2015/papers/062.pdf>
- Mehler, B., Reimer, B., Dobres, J., McAnulty, H., & Coughlin, J.F. (2015). Assessing the Demands of Voice Based In-Vehicle Interfaces - Phase II Experiment 1 - 2014 Chevrolet Impala (2014b). MIT AgeLab Technical Report 2015-6A (November 30, 2015). Massachusetts Institute of Technology, Cambridge, MA. To be posted in early April at <http://agelab.mit.edu/2016-publications>
- Mehler, B., Reimer, B., McAnulty, H., Dobres, J., Lee, J. & 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 28, 2015). Massachusetts Institute of Technology, Cambridge, MA. To be posted in early April at <http://agelab.mit.edu/2016-publications>
- Mehler, B., Reimer, B., Dobres, J., & Coughlin, J.F. (2015). Assessing the Demands of Voice Based In-Vehicle Interfaces - Phase II Experiment 3 - 2015 Toyota Corolla (2015b). MIT AgeLab Technical Report 2015-14 (November 28, 2015). Massachusetts Institute of Technology, Cambridge, MA. To be posted in early April at <http://agelab.mit.edu/2016-publications>
- Muñoz, M., Reimer, B. & Mehler, B. (2015). Exploring new qualitative methods to support a quantitative analysis of glance behavior. Proceedings of the 7th International Conference on Automotive User Interfaces and Interactive Vehicle Applications (AutomotiveUI '15), Nottingham, UK. DOI: 10.1145/2799250.2799278. <http://dl.acm.org/citation.cfm?doid=2799250.2799278>
- Reimer, B., Mehler, B., Dobres, J., & Coughlin, J.F. (2015). Assessing the Demands of Voice Based In-Vehicle Interfaces - Phase II Experiment 4 – An Exploratory Study of Driver Behavior With and Without Assistive Cruise Control (ACC) (2015a). MIT AgeLab Technical Report 2015-15 (December 10, 2015 Update). Massachusetts Institute of Technology, Cambridge, MA. – will be posted in early April at <http://agelab.mit.edu/2016-publications>
- Reimer, B., Mehler, B., Reagan, I., Kidd, D. & Dobres, J. (2015). Multi-modal demands of a smartphone used to place calls and enter addresses during highway driving relative to two embedded systems. Insurance Institute for Highway Safety, Arlington, VA. <http://www.iihs.org/frontend/iihs/documents/masterfiledocs.ashx?id=2088>
- Samost, A., Perlman, D., Domel, A.G., Reimer, B., Mehler, B., Mehler, A., Dobres, J. & McWilliams, T. (2015). Comparing the Relative Impact of Smartwatch and Smartphone Use While Driving on Workload, Attention, and Driving Performance. Proceedings of the 59th Annual Meeting of the Human Factors and Ergonomics Society. Los Angeles, CA. pp. 1602-1606. [Surface Transportation Technical Group Student Paper Award Finalist]. (No link)
- Sinelnikova, A., Lee, J., Reimer, B., Mehler, B. & Coughlin, J.F. (2015). Predicting Secondary Task Involvement and Differences in Task Modality Using Field Highway Driving Data. Proceedings of the 8th International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle

Design. Snowbird, UT. pp. 393-399. [Honda Outstanding Student Paper Award 2nd Place].
<http://drivingassessment.uiowa.edu/sites/default/files/DA2015/papers/059.pdf>

- Beckers, N., Schreiner, S., Bertrand, P., Reimer, B., Mehler, B., Munger, D. & Dobres, J. (2014). Comparing the Demands of Destination Entry using Google Glass and the Samsung Galaxy S4. Proceedings of the 58th Annual Meeting of the Human Factors and Ergonomics Society. Chicago, IL. pp. 2156-2160. <http://pro.sagepub.com/content/58/1/2156.full.pdf+html>
- Mehler, B. & Reimer, B. (2014). Further Evaluation of the Effects of a Production Level “Voice-Command” Interface on Driver Behavior: Replication and a Consideration of the Significance of Training Method. MIT AgeLab White Paper No. 2014-7. Massachusetts Institute of Technology, Cambridge, MA. [http://web.mit.edu/reimer/www/pdfs/MIT_AgeLab_White_Paper_2014-7_\(Voice_Interfaces_Study_II\).pdf](http://web.mit.edu/reimer/www/pdfs/MIT_AgeLab_White_Paper_2014-7_(Voice_Interfaces_Study_II).pdf)
- Mehler, B., Reimer, B., Dobres, J., McAnulty, Mehler, A., Munger, D. & Coughlin, J.F. (2014). Further Evaluation of the Effects of a Production Level “Voice-Command” Interface on Driver Behavior: Replication and a Consideration of the Significance of Training Method. MIT AgeLab Technical Report No. 2014-2. Massachusetts Institute of Technology, Cambridge, MA. http://web.mit.edu/reimer/www/pdfs/MIT_AgeLab_Technical_Report_2014-2_%28Voice_Interfaces_Study_II%29.pdf
- Munger, D., Mehler, B., Reimer, B., Dobres, J., Pettinato, A., Pugh, B., & Coughlin, J.F. (2014). A Simulation Study Examining Smartphone Destination Entry while Driving. Proceedings of the 6th International Conference on Automotive User Interfaces and Interactive Vehicle Applications (AutomotiveUI '14), Seattle, WA. DOI: 10.1145/2667317.2667349. <http://dl.acm.org/citation.cfm?doid=2667317.2667349>
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- Reimer, B., Mehler, B., Dobres, J., McAnulty, H., Mehler, A., Munger, D., & Rumpold, A. (2014). Effects of an ‘Expert Mode’ Voice Command System on Task Performance, Glance Behavior & Driver Physiology. Proceedings of the 6th International Conference on Automotive User Interfaces and Interactive Vehicle Applications (AutomotiveUI '14), Seattle, WA. <http://dl.acm.org/citation.cfm?doid=2667317.2667320>
- Reimer, B. & Mehler, B. (2013). The Effects of a Production Level “Voice-Command” Interface on Driver Behavior: Summary Findings on Reported Workload, Physiology, Visual Attention, and Driving Performance. MIT AgeLab White Paper No. 2013-18A. Massachusetts Institute of Technology, Cambridge, MA. [http://web.mit.edu/reimer/www/pdfs/MIT_AgeLab_White_Paper_2013-18A_\(Voice_Interfaces\).pdf](http://web.mit.edu/reimer/www/pdfs/MIT_AgeLab_White_Paper_2013-18A_(Voice_Interfaces).pdf)
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