



Jeffrey Hickman, Ph.D.

Human Factors, Practice Leader

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Background

Dr. Jeffrey Hickman has a B.S. in Psychology from the University of Florida and a Ph.D. in Clinical Psychology from the Virginia Polytechnic Institute and State University. His Ph.D. research focused on behavioral safety and safety in large-scale systems. After completing his Ph.D., Dr. Hickman was employed at the Virginia Tech Transportation Institute for 18 years. He has considerable experience assisting clients to understand human factors issues related to warnings, slips/trips/falls, occupational/industrial safety, and vehicle operator behavior.

Dr. Hickman's safety research and experience include human factors, behavior, fatigue, drowsiness, duty status, attention, glance patterns, electronic device use, regulations, drugs and alcohol, warnings, advanced driver assistance systems (ADAS), automated driving systems (ADS), and many other safety technologies. Dr. Hickman investigated the effects of visual displays and infotainment systems on driver attention. His research on driver distraction is often cited as a rationale for texting-while-driving bans but is also the primary source for the lawful use of a hands-free cell phone while driving. He has assisted organizations with developing distraction/cell phone policies and wrote a chapter on driver distraction in the National Safety Council's Motor Fleet Safety Manual 5th Edition.

Dr. Hickman supported studies evaluating various hours-of-service regulations and driver sleep patterns. These results have been used to support and/or propose new hours-of-service regulations. He led the development of the North American Fatigue Management Program. In addition, he was involved in several efforts to document effective safety management techniques heavy vehicle operations. His expertise is broadly defined as human factors occupational/industrial safety and health, including behavioral safety, safety culture, prompts, warnings, safety management techniques, education and training, personal protective equipment, and operator health.

Dr. Hickman is a current member of the SAE Truck and Bus Automation Safety Committee, SAE Driver Metrics Committee, Human Factors and Ergonomics Society (including the Forensics Professional, Safety, and Surface Transportation Committees), and the National Institute for Occupational Safety and Health Transportation, Warehousing and Utilities Council. He is the former chair of SAE Task Force: J3198 - Driver Drowsiness and Fatigue in the Safe Operation of Vehicles – Definition of Terms and Concepts. He has been the principal investigator or co-investigator on 65 research projects totaling over \$43 million. Dr. Hickman has delivered more than 130 professional presentations and published over 100 peer-reviewed publications and technical reports.

Products, Contexts, and Environments

- **Led the development of the North American Fatigue Management Program.**
- **Worked with Various Advanced Driver Assistance Systems**
 - Lane departure warning
 - Forward collision warning
 - Pedestrian warning system
 - Automatic emergency braking
 - Electronic stability control
- **Experience with Various Onboard Safety Systems/Telematics**
 - Lytx
 - SmartDrive
 - Samsara
 - Netradyne
 - Geotab
 - Omnitrac
- **Wrote the original chapter on driver distraction in the National Safety Council's Motor Fleet Safety Manual 5th Edition.**
- **Warnings, design, evaluation, and research**
- **Informed national and state policy on hours of service and electronic device use.**
- **Evaluated Various Hours-of-Service Regulations for the Federal Motor Carrier Safety Administration**
 - 11th hour of driving
 - 30-minute break requirement
 - 2-night provision in the 34-hour restart
- **Created a guidelines document for Transport Canada on Limiting Driver Distraction from video displays in vehicles.**
- **Developed a Defensive Driving Program for snowplow operators.**
- **Member of a working group at the National District Attorneys Association to develop a work product on driver distraction.**
- **Surface Vehicles**
 - Heavy and light-duty trucks
 - Motorcoaches
 - Passenger vehicles
 - Motorcycles
 - Transit buses
- **Above-ground and below-ground mining**

- **Taught the SAE class, Driver Distraction from Electronic Devices: Insights and Implications.**
- **Awards from:**
 - Federal Motor Carrier Safety Administration
 - National Highway Traffic Safety Administration
 - Federal Highway Administration
 - Mine Health and Safety Administration
 - National Transportation Research Center, Inc.
 - National Institute for Occupational Safety and Health
 - National Science Foundation
 - Transport Canada
 - National Surface Transportation Center for Safety Excellence
 - Transportation Research Board
 - National Safety Council
 - Canadian Council of Motor Transport Administrators
 - American Automobile Association Foundation for Traffic Safety

Professional Experience

- **Rimkus** **2021 – Present**
 - Human Factors, Practice Leader
 - Special Consultant
- **Virginia Tech Transportation Institute** **2003 – 2021**
 - Research Scientist/Program Leader (2009-2021)
 - Senior Research Associate (2006-2009)
 - Research Associate (2003-2006)

Education

- **Psychology, B.S.:** University of Florida (1997)
- **Clinical Psychology, M.S.:** Virginia Polytechnic Institute and State University (2002)
- **Clinical Psychology, Ph.D.:** Virginia Polytechnic Institute and State University (2005)

Committees/Memberships

- **Human Factors and Ergonomics Society:** Member (2022-Present)
 - Forensics Professional, Safety, and Surface Transportation Committees
- **SAE International:** Member (2019-Present)
- **SAE Truck and Bus Automation Safety Committee:** Member (2021-present)
- **SAE Driver Metrics Committee:** Member (2019-present)
- **NORA Transportation, Warehousing and Utilities Council:** Member (2013-present)
- **Virginia Tech Commission on Research** (2020-2021)
- **Partnership of Automated Vehicle Academic Advisory Council:** Member (2020-2021)
- **Partnership of Automated Vehicle Freight/Trucking Group:** Member (2020-2021)

- **SAE Task Force: J3198 - Driver Drowsiness and Fatigue in the Safe Operation of Vehicles – Definition of Terms and Concepts:** Chair (2019-2020)
- **Transportation Research Board ANB70 Health and Wellness subcommittee:** Chair (2010-2018)
- **Transportation Research Board ANB70 Truck and Bus Safety:** Member (2013-2018)

Publications

- Hickman, J.S., Shah, R., Soccolich, S., Hammond, R., and Jupe, J. (2024). **Cell phone conversations while driving a heavy vehicle: risk as a function of event type.** In Proceedings of the 9th International Conference on Driver Distraction and Inattention, pp. 74-77.
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- Hickman, J.S., Han, S., Soccolich, S., and Guo, F. (2023). **Effect of the Length of Medical Certification on Safety.** Washington, DC: Federal Motor Carrier Safety Administration.
- Hickman, J.S., and Camden, M.C. (under Agency review). **Development of Driver Training Material and Fleet Management Guidelines aimed at Mitigating Driver Distraction in the Motor Carrier Industry in Canada.** Ottawa, ON: Transport Canada.
- Camden, M.C., Hickman, J.S., Soccolich, S.A., Miller, A., and Hanowski, R.J. (under Agency review). **Phase I: Crash Risky by Commercial Motor Vehicle Driver Schedules.** Washington, DC: Federal Motor Carrier Safety Administration.
- Winkowski, C., Sarkar, A., Hickman, J.S., and Abbott, L. (in press). **Residual Network Based Driver Gaze Classification in Naturalistic Driving Studies.** Transportation Research Record.
- Glenn, T.L., Mabry, J.E., and Hickman, J.S. (2022). **A Catalog of Health and Wellness Programs for Commercial Drivers.** (Report No. 22-UI-120). National Surface Transportation Safety Center for Excellence.
- Mabry, J.E., Glenn, T.L., Soccolich, S., Hickman, J.S., and Durmer, J. (2022). **Safety Benefits of a Carrier-Implemented Sleep Apnea Program for Commercial Motor Vehicle Drivers.** (Report No. 22-UI-111). National Surface Transportation Safety Center for Excellence.
- Sundharam, V., Sarkar, A., Svetovidov, A., Hickman, J.S., and Abbott, A. (2022). **Characterization, detection, and segmentation of work zone scenes from naturalistic driving data.** Transportation Research Record.
- Krum, A.J., Miller, A., Sarkar, A., Soccolich, S., Engstrom, J., Hanowski, R.J., Grove, K., and Hickman, J. (2021). **Naturalistic Driving Data Baseline for Highly Automated Commercial Motor Vehicle On-Highway Applications.** (Contract No. DTMC7517F00058; TO DTMC7517F00058). Washington, D.C.: Federal Motor Carrier Safety Administration, USDOT.
- Camden, M.C., Hickman, J.S., and Hanowski, R.J. (2022). **Reversing poor safety records: Identifying best practices to improve fleet safety.** *Safety*, 8(2), 15p.
- Sarkar, A., Hickman, J.S., McDonald, A., Huang, W., Vogelpohl, T., and Markula, G. (2021). **Steering or braking avoidance response in SHRP2 rear-end crashes and near-crashes: A decision tree approach.** *Accident analysis and Prevention*, 154, 106055.
- Sarkar, A., Alambeigi, H., McDonald, A., Markula, A., and Hickman, J. (2021). **Role of peripheral vision in brake reaction time during safety critical events.** Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 65(1), 695-699.

- Sarkar, A., Krum, A., Hanowksi, R., and Hickman, J. (2021). **Responsibility Sensitive Safety Analysis of Truck Following in US Highway**. Advances in Human Aspects of Transportation, 270, 8 pages.
- Camden, M.C., Hickman, J.S., Soccolich, S.A., and Toliver, J. (2021). **Evaluation of an automatic, individual computer-based driver education and training program**. Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine.
- Camden, M.C., Hickman, J.S., Hanowski, R.J., and Walker, M. (2021). **Critical issues for large truck safety**. In R. Vickerman (Ed.), International Encyclopedia of Transportation (1st ed.). Amsterdam: Elsevier.
- Papakis, I., Sarkar, A., Svetovidov, A., Hickman, J. S., and Lynn Abbott, A. (2021). **Convolutional neural network-based in-vehicle occupant detection and classification method using second strategic highway research program cabin images**. Transportation Research Record. <https://doi.org/10.1177/0361198121998698>.
- Camden, M. C., Soccolich, S. A., Hickman, J. S., Rossi-Alvarez, A., and Hanowski, R. J. (2020). **Commercial motor vehicle crash risk by time of day** (Report No. 20-UI-097). National Surface Transportation Safety Center for Excellence.
- SAE. (2020). **Driver Drowsiness and Fatigue in the Safe Operation of Vehicles - Definition of Terms and Concepts**. J3198. SAE International. Dr. Hickman was lead author.
- Camden, M.C., Medina-Flintsch, A., Hickman, J.S., Feng, X., and Hanowski, R.J. (2020). **Developing a web-based return-on-investment calculator for truck safety technologies**. Report. No. 20-UT-096. National Surface Transportation Safety Center for Excellence.
- Filtness, A.J., Hickman, J.S., Mabry, J.E., Glenn, L., Huiying, M., Camden, M., and Hanowski, R.J. (2020). **Associations between Caffeine Use, Driving and Health Behaviours in Truck Drivers**. Safety Science, 126, 104664.
- Camden, M.C. and Hickman, J.S. (2020). **Enhancing fleet safety with research-proven technologies**. Liquid Recycling, 2, 21-23.
- Camden, M.C., Hickman, J.S., Tidwell, S., Soccolich, S.A., Hammond, R., and Hanowski, R.J. (2020). **Defensive Driving for Snowplow Operators**. Project No. 1031541/CR18-01. St. Paul, MN: Clear Roads Pooled Fund.
- Glenn, T.L., Camden, M.C., and Hickman, J.S. (2020). **Alcohol and Drug Testing: Information Guidelines for Occupational Drivers**. Report #20-UI-094. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
- Hickman, J.S., Mabry, J.E., Glenn, L., Guo, F., Mao, H., Hanowski, R.J., Whiteman, J., and Herbert, W. (2020). **Commercial Driver Safety Risk Factors (CDSRF)**. Report# FMCSA-RRR-17-014. Washington, DC: Federal Motor Carrier Safety Administration.
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- Camden, M.C., Soccolich, S.A., Hickman, J.S., Walker, M., and Hanowski, R.J. (2020). Report# 20-UI-093. **Examining the Relationship between CMV Driver Retention and Safety**. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
- Camden, M.C., Tidwell, S., Golusky, M., Hammond, R., Soccolich, S.A., Hickman, J.S., and Hanowski, R.J., (2020). **Sharing the Road with Heavy Vehicles: Hands-On Demonstrations with Teen Drivers**. Itasca, IL: National Safety Council.

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- Mabry, J.E., Hickman, J.S., and Glenn, T.L. (2020). Report#20-UI-085. **Pre-Employment Screening Best Practices in the Commercial Motor Vehicle Industry**. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
- Gopalswamy, S., Saripalli, S., Shell, D., Hickman, J.S., and Hsu, Y-C. (2020). **Formalizing Human Machine Communication in the Context of Autonomous Vehicles**. Washington, DC: United States Department of Transportation, Office of the Secretary of Transportation.
- Camden, M.C., Medina-Flintsch, A., Hickman, J.S., and Hanowski, R.J. (2020). **Large Truck Technology Return-on-Investment Calculator: User Guide and Instruction Manual**. Report#20-UI-081. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
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- Dunn, N., Soccolich, S., and Hickman, J. (2020). **Commercial Motor Vehicle Driver Risk Based on Age and Driving Experience**. Report#20-UI-079. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
- Glen, T.L., Mabry, J.E., Soccolich, S.A., and Hickman, J.S. (2020). **Undiagnosed Obstructive Sleep Apnea in Commercial Motor Vehicle Drivers: Application of STOP-Bang**. Report#20-UI-077. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
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- Camden, M.C., Soccolich, S.A., Hickman, J.S., and Hanowski, R.J. (2019). **Identifying equipment factors associated with snowplow operator fatigue**. *Safety*, 5, 62. DOI:10.3390/safety5030062.
- Camden, M.C., Hickman, J.S., Soccolich, S.A., and Hanowski, R.J. (2019). **Reducing risky driving: Assessing the impacts of an automatically-assigned, targeted web-based instruction program**. *Journal of Safety Research*, 70, 105-115.
- Camden, M.C., Hickman, J.S., and Hanowski, R.J. (2019). **Effective Strategies to Improve Safety: Case Studies of Commercial Motor Carrier Safety Advancement**. Report#19-UI-072. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
- Mabry, J.E., Glenn, T.L., and Hickman, J.S. (2019). **Commercial Motor Vehicle Operator Fatigue Detection Technology Catalogue and Review**. Report#19-UI-069. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
- Hickman, J.S., Hanowski, R.J., Price, J., and Mabry, J.E. (2019). **10th International Conference on Managing Fatigue: Managing Fatigue to Improve Safety, Wellness, and Effectiveness**. *Accident Analysis and Prevention*, 126, 1-2.
- Camden, M.C., Medina-Flintsch, A., Hickman, J.S., Bryce, J., Flintsch, G., and Hanowski, R.J. (2019). **Prevalence of operator fatigue in winter maintenance operations**. *Accident Analysis and Prevention*, 126, 47-53. DOI: <https://doi.org/10.1016/j.aap.2018.01.009>.

- Hickman, J.S., Camden, M.C., Klauer, S.G., and Hanowski, R.J. (2019). **Guidelines on Limiting Distraction from Visual Displays (VDs) in Vehicles**. Ottawa, ON: Transport Canada.
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- Hickman, J.S., Scopatz, B., Lantz, B., Bergoffen, G., Wu, Y., Camden, M.C., Mao, H., Guo, F., and Hanowski, R.J. (2018). **Phase II: Crash Risk by Driver Schedule**. Task 3 Letter Report: Average Duty Status, Duty Period, and Status of the Hours-of-Service Rule Change by Driver. Washington, D.C: Federal Motor Carrier Safety Administration.
- Hickman, J.S., Levy, F., Burks, S., Viscelli, S., and Lee, J. (2018). **Effect of Automated Truck on the Truck Driver Workforce**. National Science Foundation (Grant# 1744348): Arlington, VA. <https://www.vtti.vt.edu/atw/files/NSF%20Workshop%20Truck%20Driver%20Final%20Report.pdf>.
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- Hickman, J.S., Bocanegra, J., and Hanowski, R.J. (2018). **A Synthetic Approach to Compare the Large Truck Crash Causation Study and Naturalistic Driving Data**. *Accident Analysis and Prevention*. 112, 11-14.
- Camden, M.C., Hickman, J.S., Soccolich, S.A., and Hanowski, R.J. (2017). **Identification and Recommendations for Correction of Equipment Factors Causing Fatigue in Snowplow Operations (Report No. CR 15-02)**. St. Paul, MN: Clear Roads Pooled Fund and the Minnesota Department of Transportation.
- Soccolich, S.A., Hickman, J.S., and Hanowski, R.J. (2017). **Fatigue and Distraction in Occupational Light Vehicle Drivers**. Report#16-UI-057. Blacksburg, VA: The National Surface Transportation Safety Center for Excellence.
- Camden, M.C., Medina-Flitch, A., Hickman, J.S., Miller, A.M., and Hanowski, R.J. (2017). **Leveraging Large Truck Technology and Engineering to Realize Safety Gains: Automatic Emergency Braking Systems**. Washington D.C.: AAA Foundation for Traffic Safety.
- Camden, M.C., Medina-Flitch, A., Hickman, J.S., Miller, A.M., and Hanowski, R.J. (2017). **Leveraging Large Truck Technology and Engineering to Realize Safety Gains: Lane Departure Warning Systems**. Washington D.C.: AAA Foundation for Traffic Safety.
- Camden, M.C., Medina-Flitch, A., Hickman, J.S., Miller, A.M., and Hanowski, R.J. (2017). **Leveraging Large Truck Technology and Engineering to Realize Safety Gains: Air Disc Brakes**. Washington D.C.: AAA Foundation for Traffic Safety.
- Camden, M.C., Medina-Flitch, A., Hickman, J.S., Miller, A.M., and Hanowski, R.J. (2017). **Leveraging Large Truck Technology and Engineering to Realize Safety Gains: Video-Based Onboard Safety Monitoring Systems**. Washington D.C.: AAA Foundation for Traffic Safety.
- Camden, M.C., Hickman, J.S., Hanowski, R.J., and Williams, A.K. (2017). **Pilot testing a naturalistic driving study to investigate winter maintenance operator fatigue during winter emergencies**. *Safety*, 3(3), 19. <https://doi.org/10.3390/safety3030019>

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