

# CURRICULUM VITAE

William J. Horrey

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## EDUCATION

- 2005      **Ph. D. Psychology**  
*Thesis:* The distracted driver: Modeling the impact of information bandwidth, in-vehicle task priority, and spatial-separation on driver performance and attention allocation  
(Advisor: Christopher D. Wickens)  
University of Illinois at Urbana-Champaign
- 2002      **M.A. in Psychology**  
*Thesis:* Driving and side task performance: The effects of display clutter, separation, and modality (Advisor: Christopher D. Wickens)  
University of Illinois at Urbana-Champaign
- 1999      **B.Sc. in Psychology (Honors)**  
*Thesis:* Vision enhancement in automobiles: The effects of display type on perception-response time (Advisor: Jeff K. Caird)  
University of Calgary, AB, Canada

## AWARDS AND HONORS

- 2008      LMRIS Best Paper Award  
Liberty Mutual Research Institute for Safety
- 2007      LMRIS Best Paper Award  
Liberty Mutual Research Institute for Safety
- 2003      Honda Outstanding Student Paper Award  
2<sup>nd</sup> International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design
- 2002      List of Outstanding Teachers  
Campus-wide Student Evaluations; Fall & Spring semesters
- 1999      Academic Achievement Award  
Department of Psychology, University of Calgary
- 1998-1999      Undergraduate Merit Award  
University of Calgary

## RESEARCH INTERESTS

Transportation Human Factors, Models of Selective and Divided Attention, Visual Attention, Automation, Human Information Processing, Driver Distraction, Workload and Situation Awareness.

## TEACHING EXPERIENCE

2002                    **Teaching Assistant** (Fall, Spring)  
"Human Factors in Human-Machine Systems"  
Instructor: Prof. Esa Rantanen, University of Illinois

## RESEARCH EXPERIENCE

2005-Present        **Research Scientist**  
Center for Behavioral Sciences, Liberty Mutual Research Institute for Safety

2000-2005           **Graduate Research Assistant** (with Chris Wickens, Dan Simons, and Arthur Kramer)  
Beckman Institute for Advanced Science and Technology

1999-2000           **Research Assistant** (with Jeff Caird)  
Cognitive Ergonomics Research Laboratory, University of Calgary

1999                   **Research Specialist** (with Peter Hancock, Tom Smith, and Herbert Pick)  
Human Factors Research Laboratory, University of Minnesota

## PUBLICATIONS AND MANUSCRIPTS

- Horrey, W.J., Lesch, M.F. & Garabet, A. (in press). Dissociation between driving performance and drivers' subjective estimates of performance and workload in dual-task situations. *Journal of Safety Research*.
- Horrey, W.J., Lesch, M.F. & Melton, D.F. (in press). Perception and management of distraction due to in-vehicle tasks while driving. *Professional Safety*.
- Lehto, M.R., Lesch, M.F. & Horrey, W.J. (in press). Warnings and automation. In S. Nof (Ed.), *Handbook of Automation*.
- Zhou, R., Horrey, W.J., & Yu, R. (in press). The effect of conformity tendency on pedestrians' road-crossing intentions in China: An application of the Theory of Planned Behavior. *Accident Analysis & Prevention*.
- Horrey, W.J. (2009). On allocating the eyes: Visual attention and in-vehicle technologies. In C. Castro (Ed.), *Human Factors of Visual and Cognitive Performance in Driving* (pp. 151-166). Boca Raton, FL: CRC Press.
- Horrey, W.J. & Lesch, M.F. (2009). Driver-initiated distractions: Examining strategic adaptation for in-vehicle task initiation. *Accident Analysis & Prevention*, 41(1), 115-122.
- Horrey, W.J., Lesch, M.F., & Garabet, A. (2008). Assessing the awareness of performance decrements in distracted drivers. *Accident Analysis & Prevention*, 40(2), 675-682.
- Wickens, C.D. & Horrey, W.J. (2008). Models of attention, distraction and highway hazard avoidance. In M.A. Regan, J.D. Lee & K.L. Young (Eds.), *Driver Distraction: Theory, Effects and Mitigation*. Orlando, FL: CRC Press.
- Horrey, W.J. & Simons, D.J. (2007). Examining cognitive interference and adaptive safety behaviours in tactical vehicle control. *Ergonomics*, 50(8), 1340-1350.

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- Horrey, W.J. & Wickens, C.D. (2007). In-vehicle glance duration: Distributions, tails and model of crash risk. *Transportation Research Record, 2018*, 22-28.
- Kramer, A.F., Cassavaugh, N., Horrey, W.J., Becic, E., & Mayhugh, J. (2007). Influence of age and proximity warning devices on collision avoidance in simulated driving. *Human Factors, 49*(5), 935-949.
- Horrey, W.J. & Wickens, C.D. (2006). Examining the impact of cell phone conversations on driving using meta-analytic techniques. *Human Factors, 48*(1), 196-205.
- Horrey, W.J., Wickens, C.D., & Consalus, K.P. (2006). Modeling drivers' visual attention allocation while interacting with in-vehicle technologies. *Journal of Experimental Psychology: Applied, 12*(2), 67-78.
- Horrey, W.J., Wickens, C.D., Strauss, R., Kirlik, A., & Stewart, T.R. (2006). Supporting situation assessment through attention guidance and diagnostic aiding: The benefits and costs of display enhancement on judgment skill. In A. Kirlik (Ed.), *Adaptive Perspectives on Human-Technology Interaction: Methods and Models for Cognitive Engineering and Human-Computer Interaction* (pp. 55-70). Oxford: University Press.
- Caird, J.K., Edwards, C.J., Creaser, J.I. & Horrey, W.J. (2005). Older driver failures of attention at intersections: Using change blindness methods to assess turn decision accuracy. *Human Factors, 47*(2), 235-249.
- Horrey, W.J. & Wickens, C.D. (2004). Driving and side task performance: The effects of display clutter, separation, and modality. *Human Factors, 46*(4), 611-624.
- Wickens, C.D., Goh, J., Helleburg, J., Horrey, W.J., & Talleur, D.A. (2003). Attentional models of multi-task pilot performance using advanced display technology. *Human Factors, 45*(3), 360-380.
- Caird, J.K., Horrey, W.J., & Edwards, C.J. (2001). Effects of conformal and non-conformal vision enhancement systems on older driver performance. *Transportation Research Record, 1759*, 38-45.
- Balkin, T.J., Horrey, W.J., Graeber, R.C., Czeisler, C.A., & Dinges, D.F. (in preparation). The challenges and opportunities of technological approaches to fatigue management.
- Caird, J.K. & Horrey, W.J. (in preparation). Twelve common questions about driving simulation. In D. Fisher, M. Rizzo, J.D. Lee, & J.K. Caird (Eds.), *Handbook of Driving Simulation for Engineering, Medicine, and Psychology*.
- Caird, J.K., Fisher, D.F., Pollatsek, A., Pradhan, A., & Horrey, W.J. (in preparation). Eye movements and driving simulators. In D. Fisher, M. Rizzo, J.D. Lee, & J.K. Caird (Eds.), *Handbook of Driving Simulation for Engineering, Medicine, and Psychology*.
- Horrey, W.J., Lesch, M.F., Kramer, A.F., & Melton, D.F. (in review). Examining the effects of a computer-based training module on drivers' willingness to engage in distracting activities while driving.
- Kidd, D.G. & Horrey, W.J. (in review). Do drivers' perceptions of distracted driving become more accurate over time?
- Noy, Y.I., Horrey, W.J., Popkin, S.M., Folkard, S., Courtney, T.K., & Howarth, H.D. (in preparation). Future directions in fatigue and safety research.

Wang, Y., Zhang, W., Lesch, M.F., Horrey, W.J., Chen, C., & Wu, S. (in preparation). Changing drivers' attitudes towards cell phone use through participative simulation testing and feedback.

#### PEER-REVIEWED PROCEEDINGS AND PRESENTATIONS

Horrey, W.J., Zhou, R., & Yu, R. (accepted). Using the theory of planned behavior to examine pedestrians' road-crossing intentions in China. *17<sup>th</sup> Triennial Congress of the International Ergonomics Association*.

Kidd, D. & Horrey, W.J. (2009). Do drivers' estimates of distraction become calibrated to their actual distracted driving performance with greater exposure? *Proceedings of the 88<sup>th</sup> Annual Meeting of the Transportation Research Board*. Washington, DC: National Academy of Sciences.

Horrey, W.J. & Lesch, M.F. (2008). Factors related to drivers' self-reported willingness to engage in distracting in-vehicle activities. *Proceedings of the Human Factors and Ergonomics Society 52<sup>nd</sup> Annual Meeting* (pp. 1546-1550). Santa Monica, CA: Human Factors and Ergonomics Society.

Horrey, W.J. & Lesch, M.F. (2008). Adaptive task management for driver-initiated distractions. *Proceedings of the 4<sup>th</sup> International Conference on Traffic and Transport Psychology*.

Garabet, A., Horrey, W.J., & Lesch, M.F. (2007). Does exposure to distraction in an experimental setting impact driver perceptions of cell phone ease of use and safety? *Proceedings of the Fourth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Stevenson, Washington*, 387-393.

Horrey, W.J., Lesch, M.F., & Garabet, A. (2007). The awareness of performance decrements due to distraction in younger and older drivers. *Proceedings of the Fourth International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Stevenson, Washington*, 54-60.

Horrey, W.J. & Wickens, C.D. (2007). In-vehicle glance duration: Distributions, tails and a model of crash risk. *Proceedings of the 86<sup>th</sup> Annual Meeting of the Transportation Research Board*. Washington, DC: National Academy of Sciences.

Horrey, W.J., Simons, D.J., Buschmann, E.G., & Zinter, K.M. (2006). Assessing interference from mental workload using a naturalistic simulated driving task: A pilot study. *Proceedings of the Human Factors and Ergonomics Society 48<sup>th</sup> Annual Meeting* (pp. 2003-2007). Santa Monica, CA: Human Factors and Ergonomics Society.

Kramer, A.F., Cassavaugh, N.D., Horrey, W.J., Becic, E., Mayhugh, J., & Kurokawa, K. (2005). Examination of the efficacy of proximity warning devices for young and older drivers. *Proceedings of the Third International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Rockport, Maine*.

Horrey, W.J. & Wickens, C.D. (2004). Cell phones and driving performance: A meta-analysis. *Proceedings of the Human Factors and Ergonomics Society 48<sup>th</sup> Annual Meeting* (pp. 2304-2308). Santa Monica, CA: Human Factors and Ergonomics Society.

Horrey, W.J. & Wickens, C.D. (2004). Focal and ambient visual contributions and driver visual scanning in lane keeping and hazard detection. *Proceedings of the Human Factors and Ergonomics Society 48<sup>th</sup> Annual Meeting* (pp. 2325-2329). Santa Monica, CA: Human Factors and Ergonomics Society.

Kramer, A.F., Cassavaugh, N., Mayhugh, J., Horrey, W.J., & Becic, E. (2004). Detecting and responding to critical events during automobile driving: Aging, expertise, and detection aids. *Proceedings of the Cognitive Aging Conference 2004, Atlanta, Georgia* (p. 95).

- Wickens, C.D., Alexander, A.L., Horrey, W.J., Nunes, A., & Hardy, T.J. (2004). Traffic and flight guidance depiction on a synthetic vision system display: The effects of clutter on performance and visual attention allocation. *Proceedings of the Human Factors and Ergonomics Society 48<sup>th</sup> Annual Meeting* (pp. 218-222). Santa Monica, CA: Human Factors and Ergonomics Society.
- Caird, J.K., Edwards, C.J., Creaser, J.I. & Horrey, W.J. (2003). Older driver failures of attention at intersections: Using change blindness methods to assess turn decision accuracy. *Proceedings of the 82<sup>nd</sup> Annual Meeting of the Transportation Research Board*. Washington, DC: National Academy of Sciences.
- Horrey, W.J., Alexander, A.L., & Wickens, C.D. (2003). Does workload modulate the effects of in-vehicle display location on concurrent driving and side task performance? *Driving Simulation Conference North America 2003 Proceedings, Dearborn, Michigan* (ISSN 1546-5071).
- Horrey, W.J. & Wickens, C.D. (2003). Multiple resource modeling of task interference in vehicle control, hazard awareness and in-vehicle task performance. *Proceedings of the Second International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Park City, Utah*, 7-12.
- Horrey, W.J., Wickens, C.D., & Alexander, A.L. (2003). The effects of head-up display clutter and in-vehicle display separation on concurrent driving performance. *Proceedings of the Human Factors and Ergonomics Society 47<sup>th</sup> Annual Meeting* (pp. 1880-1884). Santa Monica, CA: Human Factors and Ergonomics Society.
- McCarley, J.S., Wickens, C.D., Goh, J., & Horrey, W.J. (2002). A computational model of attention/situation awareness. *Proceedings of the Human Factors and Ergonomics Society 46<sup>th</sup> Annual Meeting*. Santa Monica, CA: Human Factors and Ergonomics Society.
- Horrey, W.J. & Wickens, C.D. (2001). Supporting situation assessment through attention guidance: A cost-benefit and depth of processing analysis. *Proceedings of the Human Factors and Ergonomics Society 45<sup>th</sup> Annual Meeting* (pp. 316- 320). Santa Monica, CA: Human Factors and Ergonomics Society.
- Caird, J.K., Edwards, C.J., Creaser, J., Scialfa, C.T., & Horrey, W.J. (2001). The effect of time constraints on older and younger driver decisions to turn at intersections using a modified change blindness paradigm. *Proceedings of Driving Assessment 2001: International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design*.
- Caird, J.K., Horrey, W.J., & Edwards, C.J. (2001). The effects of conformal and non-conformal vision enhancement systems on older driver performance. *Proceedings of the 80<sup>th</sup> Annual Meeting of the Transportation Research Board* (Paper 01-0479). Washington, DC: National Academy of Sciences.
- Horrey, W.J., Caird, J.K., & Chugh, J.S. (2000). Vision enhancement in automobiles: The effects of display type on perception-response time. *Proceedings of the IEA 2000/HFES 2000 Congress* (p. 3-380). Santa Monica, CA: Human Factors and Ergonomics Society.

## PAPERS AND TECHNICAL REPORTS

- Lesch, M.F., Horrey, W.J. & Lehto, M. (2008). *Automated Warning Systems* (Internal Report TM 08-05). Hopkinton, MA: Liberty Mutual Research Institute for Safety.
- Horrey, W.J., Lesch, M.F., Kramer, A.F., and Melton, D.F. (2008). *Can a Computer-Based Training Module Reduce Driver Willingness to Engage in Distracting Activities?* (Internal Report TM 08-03). Hopkinton, MA: Liberty Mutual Research Institute for Safety.

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- Horrey, W.J. (2007). *Telematics and In-Vehicle Technologies: Implications for Drivers' Visual Scanning Behavior* (Internal Report TM 07-04). Hopkinton, MA: Liberty Mutual Research Institute for Safety.
- Horrey, W.J. & Lesch, M.F. (2007). *Perception and Management of Distraction Due to In-Vehicle Tasks While Driving* (Internal Report TM 07-05). Hopkinton, MA: Liberty Mutual Research Institute for Safety.
- Horrey, W.J. & Y.I. Noy (2007). *Transportation Human Factors Research at the Liberty Mutual Research Institute for Safety: 2007 and Beyond* (Internal Report TM 07-01). Hopkinton, MA: Liberty Mutual Research Institute for Safety.
- Horrey, W.J., Simons, D.J., Lleras, A., & Scott, D.L. IV (2007). *Estimates of Crash Avoidance: Discrepancies between Drivers' Judgments and Actual Performance* (Technical Report HFD-0701). Savoy, IL: University of Illinois, Human Factors Division.
- Horrey, W.J. & Melton, D. (2006). *Drivers' Judgments About Safety Thresholds: Discrepancies Between Perception and Reality* (Internal Report TM06-01). Hopkinton, MA: Liberty Mutual Research Institute for Safety.
- Horrey, W.J. & Pransky, G.S. (2006). *Assessing the Crash Risk for Adult Drivers with Attention Deficit Hyperactivity Disorder* (Internal Report TM06-04). Hopkinton, MA: Liberty Mutual Research Institute for Safety.
- Horrey, W.J., Pransky, G.S., Huang, Y-h., Smith, G., & Melton, D. (2006). *Issues Surrounding an Aging Workforce in the Commercial Transport Industry* (Internal Report TM06-08). Hopkinton, MA: Liberty Mutual Research Institute for Safety.
- Horrey, W.J., Simmons, L. & Teare, P. (2005). *An Overview of the Liberty Mutual Safety Research Vehicle* (Internal Report TM05-18). Hopkinton, MA: Liberty Mutual Research Institute for Safety.
- Horrey, W.J., Wickens, C.D., & Consalus, K.P. (2005). *The Distracted Driver: Modeling the Impact Information Bandwidth, In-Vehicle Task Priority, and Spatial-Separation on Driver Performance and Attention Allocation* (Technical Report AHFD-05-11/GM-05-2). Savoy, IL: University of Illinois, Aviation Human Factors Division.
- Horrey, W.J. & Wickens, C.D. (2004). *The Impact of Cell Phone Conversations on Driving: A Meta-Analytic Approach* (Technical Report AHFD-04-2/GM-04-1). Savoy, IL: University of Illinois, Aviation Human Factors Division.
- Wickens, C.D., Alexander, A.L., Thomas, L.C., Horrey, W.J., Nunes, A., & Hardy, T.J. (2004). *Traffic and Flight Guidance Depiction on a Synthetic Vision System Display: The Effects of Clutter on Performance and Visual Attention Allocation* (Technical Report AHFD-04-10/NASA(HPM)-04-1). Savoy, IL: University of Illinois, Aviation Human Factors Division.
- Horrey, W.J., Alexander, A.L., & Wickens, C.D. (2003). *Does Workload Modulate the Effects of In-Vehicle Display Location on Concurrent Driving and Side Task Performance?* (Technical Report AHFD-03-1/GM-03-1). Savoy, IL: University of Illinois, Aviation Human Factors Division.
- Caird, J.K., Edwards, C.J., Creaser, J.I. & Horrey, W.J. (2002). *Contributing factors to accidents at intersections for older drivers* (Rep. No. TP13939E). Montreal, Canada: Transport Development Centre, Transport Canada.
- Horrey, W.J. & Wickens, C.D. (2002). *Driving and Side Task Performance: The Effects of Display Clutter, Separation, and Modality* (Technical Report ARL-02-13/GM-02-2). Savoy, IL: University of Illinois, Aviation Human Factors Division.

- Horrey, W.J. & Wickens, C.D. (2001). *Supporting Battlefield Situation Assessment Through Attention Guidance and Diagnostic Aiding: A Cost-Benefit and Depth of Processing Analysis* (Technical Report ARL-01-16/FED-LAB-01-1). Savoy, IL: University of Illinois, Aviation Research Lab.
- Wickens, C.D., Helleburg, J., Goh, J., Xu, X., & Horrey, W.J. (2001). *Pilot Task Management: Testing an Attentional Expected Value Model of Visual Scanning* (Technical Report ARL-01-14/NASA-01-7). Savoy, IL: University of Illinois, Aviation Research Lab.
- Caird, J.K., Horrey, W.J., Chugh, J.S., & Edwards, C.J. (2000). *The Effects of Conformal and Non-Conformal Vision Enhancement Systems on Older Driver Performance* (Rep. No. TP 13422E). Montreal, Canada: Transportation Development Centre, Transport Canada.
- Caird, J.K., Horrey, W.J., & Edwards, C.J. (2000). *Contributing Factors to Accidents at Intersections by Older Drivers: Research and Development Plan* (Int. Rep.). Montreal, Canada: Transportation Development Centre, Transport Canada.

### **PROFESSIONAL AFFILIATIONS**

Associate Ergonomics Professional (BCPE Certificate Number 1502)  
Human Factors and Ergonomics Society  
Transportation Research Board  
American Psychological Association  
Association for Psychological Science

### **PROFESSIONAL ACTIVITY**

Chair, Surface Transportation Technical Group, HFES (2008- )

Program Chair / Review Coordinator, TRB 2009 Annual Meeting (*AND10 Committee*)

Committee: HFES Publications Committee (2007- )  
Transportation Research Board *AND10 Vehicle User Characteristics* (2006- )

Editorial: Associate Editor, *Human Factors Journal* (2008- )

Reviewer: *Accident Analysis and Prevention*  
*Applied Ergonomics*  
*Automatica*  
*Ergonomics*  
*Human Factors Journal*  
*IET Intelligent Transport Systems*  
*International Journal of Industrial Ergonomics*  
*Journal of Experimental Psychology: Applied*  
*Journal of Occupational and Environmental Hygiene*  
*Perception*  
*Psychological Science*  
*Transportation Research Record*