

Professor NICHOLAS J. WARD*
Mechanical and Industrial Engineering
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HIGHER EDUCATION

1993 PhD, Psychology (Human Factors), Queen's University, Kingston, Ontario
1990 MA, Psychology (Organizational Psychology), Queen's University, Kingston, Ontario
1987 BA (Honours), Psychology, Simon Fraser University, Burnaby, BC

EMPLOYMENT

November 2007 to present: Professor (with Tenure), Montana State University, USA, Department of Mechanical and Industrial Engineering; Director, Center for Health and Safety Culture, Western Transportation Institute.

Teaching: Graduate and undergraduate courses in human factors of work and product design, usability engineering/testing, and system safety analysis. Research: Cognitive task analysis, design, and evaluation of ecological interfaces for intelligent systems; Development of diagnostic and support systems for cognitively impaired (alcohol) and at risk drivers (novice teen drivers, rural drivers); Validation of driving simulators for affective, cognitive, and behavioural fidelity; Use of psychosocial models to define and transform traffic safety culture. Administration: Director of WTI Advanced Driving Simulator Facility (Develop funding strategies, Manage operations budget; Build collaboration teams; Facilitate student learning; Network with external partners and funding agencies); Director of Industrial and Management Engineering (IME) Graduate Program (Develop, document, and manage application process, create strategies and policies for graduate program). Service: Member, Montana State University Institutional Review Board (IRB); Chair, University Efficiency Committee (OpenMSU); Chair-elect University Graduate Council.

In this role, I have accomplished a complete revision of the policies and procedures for the IE graduate program including the development of new recruitment strategies that has increased the quality of incoming students. As part of this strategy, I was successful in gaining approval for the first seamless master's program at this University. With my research, I am internationally recognized as one of the leading pioneers in applying safety culture to the public health issue of traffic fatalities. Through my joint appointment at the Western Transportation Institute, I engage in research collaborations with faculty across campus. I have also establishing the WTI driving simulator to be recognized as one of the most advanced driving simulator facilities in North America. The combination of my teaching and research has led to the growth of a strong and sustainable program for human factors that is unique to Engineering colleges in this country. In fact, I am currently in the process of leveraging this success by developing joint graduate programs with the Department of Psychology (Engineering Psychology) and the School of Art (Interaction Design). In my service duties, I was instrumental as Chair of OpenMSU in identifying and developing new projects to enhance university mission support functions.

* Eligible to work in EU, Canada, and USA.

Home Address: 477 Golden Trout Way, Bozeman, Montana, USA 59715.

January 2001 to November 2007: Associate Research Professor, University of Minnesota, USA, Department of Mechanical Engineering.

Research: Cognitive task analysis, system design, and evaluation of ecological interfaces for intelligent systems; Development of diagnostic and support systems for cognitively impaired (alcohol) and at risk drivers (novice teen drivers, older drivers). Administration: Director of HumanFIRST Program - a human factors research facility (6 full-time and 6 part-time research staff) operating an advanced driving simulator (Hire and manage staff, Develop and direct facility strategy, Develop and operate business model, Manage operations budget). Service: Member of Graduate Boards in Cognitive Science, Mechanical Engineering, and Kinesiology.

In this role, I was responsible as director for relocating and reconstituting the previous lab located in the Department of Kinesiology prior to the Department of Mechanical Engineering accompanied by securing approval for a new driving simulator. This required managing the installation of the new lab facility and developing a business model and development strategy. With this new facility, I recruited, hired, and managed a diverse range of interdisciplinary staff and was successful in building significant collaborative relationships both within and outside the university including industry. As a result, our applied research on the design and evaluation of intelligent transportation systems lead to changes in policy and practice within the state Department of Transportation as well as systems integrated into vehicle models marketed and sold by Nissan in both Japan and North America. In my administration roles, I participated in the strategic planning of graduate programs in several disciplines including the development of an interdisciplinary PHD option in Human Factors based on courses integrate across several departments.

March 1996 to 2001: Tenured faculty (Lecturer), University of Leeds, England, School of Psychology; Principal Scientist, Institute for Transport Studies.

Teaching: Graduate and undergraduate courses related to human factors and research methods in psychology. Research: Evaluation metrics and methods for intelligent transportation systems (usability engineering); Development of diagnostic and support systems for cognitively impaired (drugs) and at risk drivers (older drivers); Administration: Director of [Leeds Advanced Driving Simulator](#) (Develop development strategies, Manage operations budget; Build collaboration teams; Facilitate student learning; Network with external partners and funding agencies); Director of the Postgraduate Program in Psychology (Develop, document, and manage application process, create strategies and policies for graduate program).

In this role, I positioned myself strategically as the collaboration linkage between psychology and other applied sciences to support interdisciplinary research in traffic safety. In so doing, I was successful to develop and direct several international consortia comprised on multidisciplinary institutions to coordinate research on driver impairment. In my administration roles, I accomplished the restricting and new policies for the graduate program including the development of a new graduate degree program (MSc. Human Factors). In addition, my leadership was critical to the operational success and sustainability of the driving simulator facility.

January 1993 to February 1996: Research Fellow, Human Sciences and Advanced Technology (HUSAT) Research Institute, Human Sciences, [Loughborough University of Technology](#).

Teaching: Undergraduate courses related to human factors, product design and evaluation. Research: Evaluation metrics and methods for intelligent transportation systems; Development of diagnostic and support systems for cognitively impaired (fatigue) drivers.

In this role, I was instrumental in the introduction of psychology to many engineering courses at the university and provided leadership in several key international projects on traffic safety including industry sponsored research on the development of intelligent transportation systems.

RESEARCH**Research Projects**

The majority of my research has focused on the road transportation system. Given that the World Health Organization expects that traffic crashes will become the third leading cause of fatalities and disability by the year 2020, research to improve traffic safety has significant social value. Toward this goal, my transportation research has combined basic and applied cognitive psychology with systems engineering to analyse crash factors, specify support functions, and design interfaces for Intelligent Transportation Systems (ITS). This research has made extensive use of driving simulators and instrumented vehicles for developing system prototypes and evaluating system deployment. Most recently, my research has led the new field of safety culture applied to driving behaviour and society's reaction to traffic safety as a public health issue.

As shown in Table 1, I have secured more than 12 million dollars in research funding from a range of international sources during my academic career. This includes funding from government agencies (EU Commission, MnDOT, FHWA, NHTSA, and NSF), public organizations (Murdock Charitable Trust), and industry (Nissan, GM, Ford, Jaguar, Renault, and DriveCAM).

Table 1. Summary of Research Funding.

Account	Title (topic)	Source	Role	Start	End	Budget
School of Psychology, UNIVERSITY OF LEEDS (ENGLAND)						
440007	Evaluation of Brake Light System (PAMELA)	UK DOT	PI	8/1/1997	7/31/1998	\$ 100,000
440723	Research into Vision and Safety	NISSAN	PI	3/1/1998	2/28/1999	\$ 10,000
441744	Conception and Evaluation of Roadside Testing Instruments to Formalise Impairment Evidence in	EEC	PI	1/1/1999	6/30/2000	\$ 200,000
444036	Driver Impairment	Royal Soci	PI	5/1/1977	4/30/1998	\$ 20,000
446592	Human Implications of New Technologies	EEC	Sub	1/1/1997	12/31/1998	\$ 30,000
44xxxx	Impaired Motorists Methods of Roadside Testing and Liscensing	EEC	PI	6/24/1905	6/27/1905	\$ 1,000,000
Department of Mechanical Engineering, UNIVERSITY OF MINNESOTA (USA)						
530-6602	Comparing cognitive and driving impairment from distraction and alcohol	MnDOT	PI	03/01/03	01/31/05	\$187,000
530-6538	Developing an ecological interface based on haptic feedback to convey risk	Nissan	PI	04/01/02	03/31/05	\$1,761,927
530-6645	Evaluation of an interface for a lane departure warning system	UIOWA	Sub	09/01/04	06/29/05	\$245,275
530-6681	Measuring driver workload and behavioral adaptation to automated speed and headway control	Nissan	PI	09/16/05	03/31/06	\$189,998
530-6583	Design of a decision support system based on cognitive analysis of intersection gap acceptance	MnDOT	PI	01/01/03	06/30/06	\$488,421
530-6664	Comparing differences in risk perception and safety culture between rural and urban drivers	MnDOT	PI	07/01/05	11/30/06	\$188,804
530-6680	Measuing cognitive and motorcycle riding impairment as a function of alcohol level	NHTSA	Co-PI	09/16/05	04/15/07	\$576,540
530-6685	Evaluating a new menu system based on a cognitive task analysis	MnDOT	Co-PI	02/01/06	05/30/07	\$139,984
530-6786	Identifying behavioral indicators of alcohol impairment for vehicle detection systems	NISSAN	Sub	02/01/08	05/31/08	\$64,959
530-6724	Designing a system mobile system to alert novices to risks while driving	UTC	Co-PI	10/02/06	09/29/08	\$94,000
530-6737	Comparing differences in risk perception and safety culture between young and older drivers	LRRB	PI	10/02/06	09/29/08	\$119,000
530-6707	Field development and evaluation of decision support sytem for gap acceptance at intersections	FHWA	Co-PI	06/22/06	06/30/11	\$3,250,000
530-6790	Design and evaluation of intuitive icons to communicate vehicle fuel and battery levels	GM	Co-PI	04/10/08	10/10/08	\$115,765
530-6764	Use of video feedback on risky driving events to improve novice driver risk perception	UIOWA	Sub	07/15/06	02/28/09	\$51,000
Department of Mechanical and Industrial Engineering, MONTANA STATE UNIVERSITY (USA)						
4W2004	Evaluation of vehicle-based measure to differentiate sober and alcohol driving periods.	UIOWA	Sub	10/25/07	10/01/08	\$40,000
4W2008	Examination of video feedback to improve risk perception in rural ambulance drivers	UTC	PI	11/15/07	07/31/09	\$168,500
4W2350	Development of framework to analyzedata from naturalistic field study	SHRP 2	Sub	09/01/08	08/27/09	\$11,386
4W2461	Evaluation of cognitive and behavioral changes in novice drivers in response to risk training	NHTSA	PI	07/01/08	09/15/09	\$199,789
4W2062	Development of instrumented vehicles fleet for naturalistic studies of driving	Murdock	Co-PI	11/20/08	12/30/11	\$534,500
4W3048	White paper on traffic safety culture to support US national strategy for road safety	FHWA	PI	04/01/10	12/30/10	\$27,000
4W3215	Development of a speed enforcement system for work zones to alert drivers, workers and police	FHWA	PI	06/01/10	12/31/12	\$820,000
4W3074	Design review of an interface for a novice driver feedback system to improve risk perception	DRIVCAM	PI	02/02/10	12/12/10	\$11,500
4W3381	Interface metrics for Intellidrive (Modality preference and effects of concurrent warning informatior	NHTSA	PI	12/12/10	12/31/11	\$265,000
4W2629	Making driving simulators more useful for behavioral and engineering research	FHWA	PI	03/01/09	08/31/12	\$312,000
4W3706	Modeling the validity and transfer of eye scanning patterns for hazard perception in virtual reality.	NSF	Co-PI	08/01/11	08/30/14	\$499,610
4W3800	Human factors guidelines for connected vehicle applications	NHTSA	PI	09/23/11	09/22/13	\$483,000
4W4066	Measuring Minnesota's Traffic Safety Culture	MnDOT	PI	07/01/12	06/30/14	\$235,000

SERVICE

Memberships in Professional Societies

Member, Engineering and Physical Sciences Research Council, 2012 to present.

Fellow of Institute of Ergonomics and Human Factors, 1993 to present.

Member of Human Factors and Ergonomics Society (HFES), 1991 to 2010.

Service ActivitiesProfessional Committees

Founding Member: National Academy of Science, Transportation Research Board (TRB) Roadway Safety Cultures Subcommittee AN000(1), 2012 to present.

Member of scientific committee, the International Congress on Traffic and Transport Psychology (IAAP), 2004 to present.

National Academy of Science, Transportation Research Board (TRB) Committee on Simulation and Measurement of Vehicle and Operator Performance (AND30), 2002 to 2012.

National Academy of Science, Transportation Research Board (TRB), Committee on Vehicle User Characteristics (AND10), 2002 to 2012.

Visiting Academic Appointments

Visiting Professor, Department of Mechanical Engineering, University of Minnesota, 2008 to 2012.

Visiting Principal Scientist, Institute for Transport Studies (ITS), University of Leeds, 2000 to 2007.

Adjunct Assistant Professor, Department of Psychology, University of Minnesota, 2003 – 2006.

University, College, Department Committees

Member, Research Committee, College of Engineering, 2014 – present.

Chair-Elect, University Graduate Council, Montana State University, 2012 to 2013.

President Invitation, Committee Chair (OpenMSU): To review and propose methods to improve university operational effectiveness and employee job satisfaction, Montana State University, 2011 to present.

Search Committee Chair, Program of Industrial Engineering, Department of Mechanical and Industrial Engineering, Montana State University, 2010, 2011, 2012.

President Invitation, Member, Working group to define standing University Research Council, Montana State University, 2010 to 2011.

Coordinator, Industrial and Management Engineering Graduate Program, Department of Mechanical and Industrial Engineering, Montana State University, 2010 to present.

Member, Promotion and Tenure Committee, Department of Mechanical and Industrial Engineering, Montana State University, 2010 to present.

Member, College of Engineering, Graduate Program Committee, Montana State University, 2009 to present.

Committee member, Institutional Review Board (IRB), Montana State University, 2008 to present.

Faculty Member, Human Factors and Ergonomics graduate minor program, University of Minnesota, 2007.

Faculty Associate Member, Centre for Cognitive Sciences, University of Minnesota, 2004 to 2007.

Affiliate Member, graduate faculty in the field of Industrial and Systems Engineering, University of Minnesota, 2006 to 2009.

Affiliate Member, graduate faculty in the field of Psychology, University of Minnesota, 2005 to 2007.

Associate Member, graduate faculty in the field of Mechanical Engineering, University of Minnesota, 2002 to 2007.

Associate Member, graduate faculty in the field of Kinesiology, University of Minnesota, 2001 to 2004.

Director of Postgraduate Studies, School of Psychology, University of Leeds, 1996 to 1999.

Member of Research Committee, School of Psychology, University of Leeds, 1996 to 2001.

Conference Chair Positions

Panel session organizer and host (on behalf of Traffic Safety Culture Subcommittee), Panel Session 311: Traffic Safety Culture (TSC): Are we on the same page? Transportation Research Board (TRB) 92nd Annual Meeting. Washington, DC (July 13 to July 17).

Panel session organizer and host (on behalf of Traffic Safety Culture Subcommittee), Panel Session 372: Traffic Safety Culture: Just wishful thinking? Transportation Research Board (TRB) 92nd Annual Meeting. Washington, DC (July 13 to July 17).

Member of organizing committee, National Traffic Safety Culture Conference, Organized by the Traffic Safety Culture Subcommittee of National Transportation Research Board (TRB), Washington, DC, (August, 2013).

Member of organizing committee, Improving Roadway Safety Programs through University-Agency Partnerships, Organized by the National Transportation Research Board (TRB) and National Research Council (NRC), Washington, DC, November 2-3, 2011.

Founder and Chair of Organizing Committee, National Summit for Rural Traffic Safety Culture, 2009 to present.

Member of Scientific Committee, Driving Simulation Conference - Europe, 2004 to 2010.

Member of Review Committee, International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, 2001 to present.

Journal (and Research) Review

Editorial Advisory Board, Accident Analysis and Prevention, 1996 to 2012.

Editorial Board, Transportation Research Part F: Traffic Psychology and Behaviour, 2004 to present.

Committee member of the Biobehavioural and Behavioural Process IRG for Study Section 2 of the National Institute of Health, 2004.

TEACHING

Courses Taught

The central theme of my teaching is the integration and application of psychology and social sciences with the systems engineering process to support the analysis, design and evaluation of innovative and usable systems. I have integrated my research with my teaching to ensure that the course content is current, relevant, and engaging for students.

Table 2. Teaching Contributions Listed by University, Course Title, Teaching Format, and Instruction Year.¹

Title	Format	Year
<i>Montana State University, USA</i>		
Engineering Probability and Statistics II (EIND454)	Undergraduate, Lecture	2010 – present
Usability Engineering (EIND510)*	Graduate, Seminar	2009 – present
Human Factors of Safety in Complex Systems (EIND513)*	Graduate, Seminar	2009 – present
Interaction Design (EIND410/411)*	Undergraduate, Lecture, Lab	2008 – present
Work Analysis and Design (EIND313)	Undergraduate, Lecture	2008 – present
<i>University of Minnesota, USA²</i>		
Design Project (ME4054)	Undergraduate, Laboratory	2006 – 2007
Human Factors and Work Analysis (IE5511)	Undergraduate, Guest Lecture	2006 – 2007
Human Factors Psychology (HumF5722)	Graduate, Guest Seminar	2003 – 2007
Occupational Injury Prevention (PubH8210)	Graduate, Guest Seminar	2003 – 2007
<i>University of Leeds, England</i>		
Safety of New Technology in Transport (EPSRC)*	Graduate, Seminar	1999 – 2000
Human Factors Issues of New Technology*	Undergraduate (3), Lecture	1996 – 2000
Human Factors Issues of New Technology*	Undergraduate (3), Practical	1996 – 2000
Introduction to Human Factors*	Undergraduate (2), Lecture	1996 – 2000

¹ Note: Newly courses developed are marked by an *

² Note that there was no formal teaching requirement during my appointment at the University of Minnesota (2001 – 2007), but I did volunteer to provide guest lectures and seminars across a range of engineering-related course.

Introduction to Human Factors*	Undergraduate (2), Practical	1996 – 2000
Cognitive Psychology	Undergraduate (2), Lecture	1996 – 1997
Cognitive Psychology	Undergraduate (2), Practical	1998 – 2000
Research Methods	Undergraduate (2), Lecture	1998 – 2000
Psychometrics	Undergraduate (2), Tutorial	1998 – 2000
Learning and Motivation	Undergraduate (2), Tutorial	1998 – 2000
Introduction to Cognitive Psychology	Undergraduate (1), Lecture	1998 – 2000
Introduction to Cognitive Psychology	Undergraduate (1), Practical	1998 – 2000
<i>Loughborough University, England</i>		
Introduction to Human Factors*	Graduate (MSc), Lecture	1994 – 1996
Human Factors in Transport Safety*	Graduate (MSc), Lecture	1995 – 1996
Human Factors and transportation Technology*	Graduate (MSc), Seminar	1993 – 1996

Graduate Student Advising

My research has always included the support and supervision of students from a range of academic departments. In this regard, Table 3 shows that I have successfully supervised 15 postgraduate degree students including 3 Doctoral theses.

Table 3. History of Primary Supervision of Graduate Students Listed by University, Candidate Name, Discipline, Thesis Title, and Completion Year.

Name (Current employment if known)	Discipline (Degree)	Thesis Title/Topic	Year
<i>Montana State University, USA</i>			
Amanda Jorgenson	Industrial Engineering (MS)	na	current
Pawan Kumar	Industrial Engineering (MS)	na	current
Faisal Ahmed	Industrial Engineering (MS)	na	current
Wali Kishor	Industrial Engineering (MS)	Understanding the Relationship culture between physicians and nurses and its effects on nurse job satisfaction and perceived medical error	current
Derek Grotheer	Industrial Engineering (MS)	Aesthetic design for emotion and credibility	current
Jessie Mueller	Industrial Engineering (PHD)	Validation of emotion responses to VR (working title)	current
Naren Sreedharan	Industrial Engineering (MSc)	Emergency evacuation planning tracking tool	2011
Lenore Page	Industrial Engineering	Road User-Centred Design Terms:	2011

	(MSc)	Relating Traffic Safety to the Design Culture of State Departments of Transportation	
Shaun Durkee (Technical Planner, Scientific Materials Corp)	Industrial Engineering (MSc)	The effect of simulation attributes on driver perception and behaviour	2010
<i>University of Minnesota, USA</i>			
Richard Hoglund (Researcher, ITS Institute, UMN)	Mechanical Engineering (MSc)	Driver support systems for teen drivers (working title).	2009
Shawn Brovold (Product Development Engineer, Ford Motor Co.)	Mechanical Engineering (MSc)	Developing a driving support system to mitigate behavioural risk patterns among teen drivers.	2006
Matt Bevilaqua (Financial Software Developer, Bloomberg Financial)	Mechanical Engineering (MSc)	Vehicle positioning system using RFID technology and its use in the design of a read-end collision avoidance system.	2006
Amit Chohan (Product Development Engineer, Seagate Technology)	Mechanical Engineering (MSc)	Active deceleration control: Design, implementation, and evaluation of control algorithms to improve driver performance and safety.	2004
<i>University of Leeds, England</i>			
Frank Lai (Research Fellow, University of Leeds)	Transportation Studies (PhD)	Driver attentional demand to dual-task performance.	2005
Lily Read (Medical Adviser and Principal Scientist, Department for Transport)	Psychology (PhD)	Driving competence in healthy and demented elderly drivers.	2001
Steve Wright	Computer Science (PhD)	Supporting intelligent traffic in the Leeds driving simulator.	2000
Andrea Ryan	Transportation Studies (MPhil)	The role of decision-making theory in an analysis of driver response to park-and-ride.	2000
<i>Loughborough University, England</i>			
Mark Humphreys (Principal Ergonomist, Jaguar Cars)	Human Sciences (MSc.)	A field study of behavioural adaptation with an Autonomous Intelligent Cruise Control System.	1995
Phil Lindsay	Human Sciences (MSc.)	The effects of head-up displays for automotive applications on driver situational awareness.	1995

Jeremy Sutherland	Human Sciences (MSc.)	Risk probability vs. risk severity: An evaluation of two risk information displays on driver behaviour.	1995
Linda Bossi (Major, Defence and Civil Institute of Environmental Medicine)	Human Sciences (MSc.)	The effect of enhanced image head-up displays on driver peripheral visual performance	1993
Peter Crone	Human Sciences (MSc.)	The effects of background complexity and field dependence on head up display legibility.	1993

PUBLICATIONS

Journal Publications

Under Review or Preparation

Ward, N.J., Page, L., & Boyle, L. The effect of human versus engineering centric safety planning cultures on state traffic safety performance. *Accident Analysis and Prevention*.

Ward, N.J., Boyle, L., Bush, M., & Gascon, J. Psychophysical evidence of self-paced risk exposure by drivers: Revisiting Taylor's study. *Human Factors*.

Published

I have published in national and international journals including high impact journals in my field such as *Ergonomics*, *Accident Analysis and Prevention*, and *Journal of Safety Research*.

Nagler, M. & Ward, N.J. (2014). Lonely Highways: The role of social capital in rural traffic safety. *Eastern Economic Journal*. (<http://www.palgrave-journals.com/eej/journal/vaop/ncurrent/abs/eej201460a.html>).

Ward, N.J. & Özkan, T. (2014). Special Edition "Traffic Safety Culture", *Transportation Research Part F: Traffic Psychology and Behavior*, Volume 26, Part B (pp. 291 – 378).

(<http://www.sciencedirect.com/science/journal/13698478/26/part/PB>).

Ward, N.J. & Özkan, T. (2014). In consideration of traffic safety culture, *Transportation Research Part F: Traffic Psychology and Behavior*, 26(B), 291 – 292.

Ward, N. J., Otto, J., & Linkenbach, J. (2014). A Primer for Traffic Safety Culture. *ITE Journal Institute of Transportation Engineers*, 84(5), 41-47.

Ward, N.J. & Özkan, T. (in press). In consideration of traffic safety culture. *Transportation Research Part F: Traffic Psychology and Behaviour*.

Otto, J, Ward, N.J., Swinford, S., & Linkenbach, J. (in press). Engaging Worksite Bystanders to Reduce Risky Driving. *Transportation Research Part F: Traffic Psychology and Behaviour*.

Ward, N.J., Otto, J., & Lindenbach, J. (2014). A primer for traffic safety culture. *ITE Journal*, May, 41 – 47. <http://www.ite.org/membersonly/itejournal/pdf/2014/JB14EA41.pdf>

Ward, N.J., Mueller, J., & Velasquez, M. (2013). Response interference under near-concurrent presentation of safety and non-safety information. *Transportation Research Part F: Traffic Psychology and Behaviour*, 21, 253 – 266.

Hofman, G.M., Summers, C.G., Ward, N.J., Bhargava, E., Rakauskas, M.E., & Holleschau, A.M. (2012). Use of a Driving Simulator to Assess Performance under Adverse Weather Conditions in Adults with Albinism. *Perception and Motor Skills*, 114, 679 – 692.

Lee, J.D., McGehee, D.V., Brown, J.L., Richard, C.M., Omar, A., Ward, N.J., Hallmark, S., & Lee, J. (2011). Matching simulator characteristics to highway design problems, *Transportation Research Record*, 2248, 53 – 60.

Sanddal, T.L., Sanddal, N.D., Ward, N.J., & Stanley, L. (2010). Ambulance crash characteristics in the US defined by the popular press: A retrospective analysis. *Emergency Medicine International Journal*. vol. 2010, Article ID 525979, 7 pages.

Stanley, L. & Ward, N.J. (2010). An evaluation of a cooperative avoidance warning system. *International Journal of Vehicle Safety*, 5, 86 – 99.

Creaser, J., Ward, N.J., Rakauskas, M.E., Shankwitz, C., & Boer, E. (2009). Effects of alcohol impairment on motorcycle riding skills. *Accident Analysis and Prevention*, 41, 906 – 913.

Rakauskas, M.E., Ward, N.J., & Gerberich, S. (2009). Identification of differences between rural and urban safety cultures. *Accident Analysis and Prevention*. 41, 931 – 937.

Rakauskas, M.E., Ward, N.J., Boer, E., Bernat, E., Cadwallader, M., Patrick, C. (2008). Combined effects of alcohol and distraction on driving performance. *Accident Analysis and Prevention*, 40, 1742 – 1749.

Kuge, N., Yamamura, T., Boer, E.R., Ward, N.J., & Manser, M.P. (2007). Study on driver's car following abilities based on an active haptic support function. *SAE Transactions Journal of Passenger Cars - Electronic and Electrical Systems*, 115(7), 157 – 169.

Brovold, S., Ward, N., Donath, M., Simons, S., Shankwitz, N. (2007). In-vehicle Technology to Correct Teen Driving Behaviour: Addressing Patterns of Risk. *Journal of Safety Research*, 38, 413 – 422.

Creaser, J.I., Rakauskas, M.E., Ward, N.J., Laberge, J.C., & Donath, M. (2007). Concept evaluation of intersection decision support (IDS) systems to support drivers' gap acceptance decisions at rural stop-controlled intersections. *Transportation Research Part F: Traffic Psychology*, 10, 208 – 228.

- Laberge, J.C., Creaser, J.I., Rakauskas, M.E., Ward, N.J. (2006). Design of an Intersection Decision Support (IDS) Interface to Reduce Crashes at Rural Stop-Controlled Intersections. *Transportation Research Part C: Emerging Technologies*, 14, 39 – 56.
- Smith, P., Waterman, M & Ward, N. J. (2006). Driving aggression in forensic and non-forensic populations; relationships to self-reported levels of aggression, anger, and impulsivity. *British Journal of Psychology*, 97, 387 – 403.
- Boer, E.R., Ward, N.J., Manser, M.P., & Kuge, N. (2006). Driver-model-based assessment of behavioural adaptation. *Transaction of Society of Engineers of Japan*, 37, 21 – 26.
- Ward, N.J., Shankwitz, C., Gorgestani, A., Donath, M., de Waard, D., & Boer, E. (2006). Bus Rapid Transit and bus driver stress. *Ergonomics*, 49, 832-859.
- Alexander, L., Cheng, P., Donath, M., Gorgestani, A., Menon, A., Newstrom, B, Shankwitz, C., Ward, N., & Starr, R., (2006). Rural expressway intersection surveillance for an Intersection Decision Support System. *Transportation Research Record*, 1944, 26 – 34.
- Lawton, R. & Ward, N.J. (2005). A systems analysis of a fatal train crash. *Journal of Accident Analysis and Prevention*, 37, 235-244.
- Rakauskas, M., Gugerty, L., & Ward, N.J. (2004). Effects of Cell Phone Conversation on Driving Performance with Naturalistic Conversations. *Journal of Safety Research*, 35, 453-464.
- Laberge, J. & Ward, N.J. (2004). Cannabis and driving: Research needs and policy issues. *Journal of Drug Issues*, 34(4), 971-990.
- Ward, N. J., Gorgestani, A., Shankwitz, C., & Donath, M. (2004). A preliminary demonstration study of the usability of a vision enhancement system for state patrol vehicles. *Journal of Intelligent Transportation Systems*, 8, 169-185.
- Bernat, E., Cadwallader, M., Rakauskas, M., Ward, N.J, Collins, P., & Patrick, C., (2004). Effects of intoxication on attention allocation in a naturalistic driving environment. *Psychophysiology*, 41, S40.
- Wright, S., Ward, N.J., & Cohn, A.G. (2002). Enhanced presence in driving simulators using autonomous traffic with virtual personalities. *Presence*, 11(6), 578-590.
- Parkes, A.M., Ward, N.J., & Vaughan, G. (2001). A Human Factors evaluation of a novel display and control concept for in-vehicle audio systems: A case study. *International Journal of Vehicle Design*, 26, 339-352.
- Ward, N.J. & Parkes, A.M. (2001). Special edition on car phone design (Preface). *International Journal of Vehicle Design*, 26, 1-3.
- Parkes, A.M. & Ward, N.J. (2001). Case study: A safety and usability evaluation of two different car phone designs. *International Journal of Vehicle Design*, 25, 12-29.

Ward, N. J. (2000). Automation of task processes: An example of Intelligent Transportation Systems. *Human Factors and Ergonomics in Manufacturing*, 10, 395-408.

Read, N.L., Ward, N.J., Parkes, A.M. (2000). The role of dynamic tests in assessing the fitness to drive of healthy and cognitively impaired elderly. *Journal of Traffic Medicine*, 28 (2S), 34-35.

Ward, N.J. & Beusmans, J. (1998). Simulation of accident risk displays in motorway driving with traffic. *Ergonomics*, 41, 1478-1499.

Ward, N.J. & Hirst, S.J. (1998). An exploratory investigation of information attributes of reverse/parking aids. *International Journal of Vehicle Design*, 19, 41-49.

Ward, N.J. & Hirst, S.J. (1997). The philosophy and function of in-vehicle information systems. *Behaviour and Information Technology*, 16, 88-97.

Ward, N.J. & Hirst, S.J. (1996). Design considerations for a Blind Spot Detector. *International Journal of Vehicle Design*, 17, 198-207.

Ward, N.J. & Wilde, G.J.S. (1996). Driver approach behaviour at railway crossings before and after enhancement of lateral sight distances: An experimental investigation of a risk perception and compensation hypothesis. *Journal of Safety Research (Special Edition)*, 22, 63-75.

Ward, N.J., Parkes, A.M., Crone, P. (1995). The effect of background scene complexity and field dependence on the legibility of Head-Up Displays. *Human Factors*, 37, 735-745.

Parkes, A.M., Ward, N.J., & Bossi, L.L.M. (1995). The potential of vision enhancement systems to improve driver safety. *Le Travail Humain*, 58, 151-169.

Ward, N.J. & Wilde, G.J.S (1995). Field observation of advance warning/advisory signage for passive railway crossings with restricted lateral sightline visibility: An experimental investigation. *Accident Analysis and Prevention*, 27, 185-197.

Ward, N.J. & Wilde, G.J.S. (1995b). A comparison of vehicle approach speed and braking between day and night-time periods at an automated railway crossing. *Safety Science*, 19, 31-44.

Ward, N.J. & Parkes, A.M. (1994). Head-Up Displays and their automotive application: An overview of the Human Factors issues. *Accident Analysis and Prevention*, 26, 703-718.

Ward, N.J. (1992). Railway crossings with obstructed visibility: Perceived danger and driving behaviour. *International Journal of Psychology*, 27, 500.

Ward, N.J. (1991). Occupational suitability bias for full-time and part-time employment in sex-typed jobs. *Sex Roles*, 25, 81-89.

Book Chapters

Ward, N.J., Linkenbach, J., Otto, J., Swinford, S, & Keller, S. (in press). Road Safety Culture. In A. Smiley. R.E. Dewar, & P.L. Olson (Eds.) *Human Factors and Traffic Safety*. Lawyers & Judges Publishing, Tucson, AZ.

Creaser, J. (2011). Alcohol Research in Driving Simulators. In D.L. Fisher, M. Rizzo, J. Caird, & J. Lee (Eds.) *Handbook of Driving Simulation for Engineering, Medicine, and Psychology*. CRC Press (Taylor & Francis), New York, NY.

Ward, N.J., (2007). The culture of traffic safety in rural America. *Improving Traffic Safety Culture in the US: The Journey Forward*. AAA Foundation for Traffic Safety (<http://66.132.139.69/uploads/aaasafety.pdf>).

Boer, E.R., Manser, M.P., Ward, N.J., & Kuge, N. (2006) Impact of an ecologically valid haptic driver support on visual sampling and multi-tasking strategies. In A.G. Gale, I.D. Brown, C.M. Haslegrave, & S.P. Taylor (Eds.), *Vision in Vehicles XI*. Elsevier Science Publishers: Amsterdam (accepted for publication).

Boer, E.R., Ward, N.J., Manser, M.P., & Kuge, N. (2005). Driver model based assessment of behavioural adaptation. Society of Automotive Engineers, Japan. JSAE Technical Paper 2005-08-0307.

Rakauskas, M., Ward, N., Gorjestani, A., Shankwitz, C., Donath, M. (2005). Evaluation of a DGPS driver assistive system for snowploughs and emergency vehicles. *Traffic and Transport Psychology*, Amsterdam, The Netherlands: Elsevier.

Stapleton, L., Ward, N.J., & Parkes, A.M. (1998). Automotive Contact Analogue Head-Up-Display Images and Distance Estimation. In A.G. Gale (Ed.) *Vision in Vehicles 6*, Amsterdam, The Netherlands: Elsevier Press.

Ward, N.J. & Fairleigh, S. (1997) Acceptance of driver status monitoring systems: Individual differences in subjective fatigue. In T. Rothengatter and E. Vaya (Eds.) *Traffic and Transport Psychology*. Amsterdam, The Netherlands: Paragon Press.

Bossi, L.L.M., Ward, N.J., Parkes, A.M., & Howarth. P.A. (1997). The effect of vision enhancement systems on driver peripheral visual performance. In I. Noy (Ed.) *Ergonomics of IVHS*, Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.

Ward, N.J., Stapleton, L, & Parkes, A.M. (1996). Night-time gap acceptance and time-to-coincidence judgements based on visible wavelength and infra-red imaging. In A.G. Gale (Ed.) *Vision in Vehicles 5*, Amsterdam, The Netherlands: Elsevier Press.

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Ward, N.J., Fairleigh, S., & Humphreys, M. (1995). The effect of task automatisations in the automotive context: A field study of an Autonomous Intelligent Cruise Control system. In D.J. Garland and M.R. Endsley (Eds.) *Experimental Analysis and Measurement of Situation Awareness*, Florida, US: Embry-Riddle Aeronautical University Press.

Conference and Proceedings

[Ward, N.J. \(2013\). More than distraction: The effects of “extraction” and “insertion” by vehicle automation. 2013 Governors Highway Safety Association Annual Meeting, San Diego, CA \(August 25 – 28\).](#)

Stoner, H.A., Romano, R.A., & Ward, N.J. (2013). Challenges in developing scenarios to assess driver performance relative to information display content. Road Safety and Simulation International Conference, Rome, Italy (October 22 – 25).

Ward, N.J. (2013). The Psychology of Intelligent Vehicles and Traffic Safety. 121st Annual Convention of the American Psychological Association. Honolulu, Hawaii (July 31 to August 4).

Nagler, M. & Ward, N.J. (2013). Lonely Highways: Rural Traffic Safety and the Role of Social Capital. Western Economic Association International Conference, Seattle, WA (June 28 – July 2).

Ward, N.J. (2013). An overview of Traffic Safety Culture: Top Ten Tenants. Transportation Research Board (TRB) 92nd Annual Meeting. Washington, DC (July 13 to July 17).

Galarus, D., Hayden, L., & Ward, N.J. (2012). Augmented Speed Enforcement (aSE) Smart Drums (sDrums) from a technical perspective: Part 2 – Pilot Deployment. 2012 National Rural Intelligent Transportation System (ITS) Conference, Biloxi, MS (Sept 16 – 19).

Boer, E., Lee, J. & Ward, N.J. (2012). Structuring data to compare driver behaviour across driving simulators. Human Factors and Ergonomics Society 56th Annual Meeting (Oct 22 - 26), Boston, MA (Oct 22 – 26).

Ward, N.J. (2012). Culture as a new paradigm in traffic safety. 5th International Conference on Traffic and Transport Psychology. Groningen, The Netherlands (August 29 – 31).

Ward, N.J., Durkee, S., & Stanley, L. (2012). An Objective Evaluation of an Education-Based Distracted and Drowsy Driving Intervention for Rural Teen Drivers. 5th International Conference on Traffic and Transport Psychology. Groningen, The Netherlands (August 29 – 31).

Durkee, S. & Ward, N.J. (2011). Effect of Driving Simulation Parameters Related to Ego-Motion on Speed Perception. 6th International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design. Lake Tahoe, CA (June 27 – 30).

Ward, N.W. (2011). Towards Zero Deaths (TZD) in Rural America – The Challenges are Real. 2011 National Summit on Rural Traffic Safety Culture, Big Sky, MT (July 11).

Ward, N.W. & Chrysler, S. (2011). Human Factors I: Take me home country roads – Defining and Solving Rural Crash Issues (Workshop). Transportation Research Board (TRB) 90th Annual Meeting, Washington, DC (January 23 – 27).

Ward, N.W. (2010). An overview of rural traffic safety culture. 2010 National Summit on Rural Traffic Safety Culture, Big Sky, MT (July 12).

Ward, N.W. (2009). Traffic safety culture introduction. 2009 National Summit on Rural Traffic Safety Culture, Big Sky, MT, (June 22).

Rakauskas, M.E., Ward, N.W. (2009). Differences between urban and rural traffic safety culture. 2009 National Summit on Rural Traffic Safety Culture, Big Sky, MT, (June 22).

Creaser, J., Rakauskas, M.E., Manser, M., & Ward, N.W. (2009). Evaluating design options for a dynamic traffic sign. Proceedings of the 5th International Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Big Sky, Montana (June 23-24).

Rakauskas, M.E., Ward, N.W. (2009). Retrieving 511 traveller information on a mobile phone: Implications for driving performance and interactive voice response menu design. 88th Annual Meeting of the Transportation Research Board, Washington, DC, USA (January 11-15).

Creaser, J., Shaffer, B., & Ward, N.J., (2008). The effects of alcohol on motorcycle riding skills and recent crash trends. 2008 Toward Zero Deaths Conference, Duluth, MN, USA (October 28-29).

Rakauskas, M.E., & Ward, N.W. (2008). Can Improved IVR Menu Design Help to Alleviate Driver Distraction While Driving and Accessing 511 Traveller Information? Human Factors and Ergonomics Society 52nd Annual Meeting, New York, NY, USA (September 22-26).

Rakauskas, M.E., & Ward, N.W. (2008). Driving behaviour of rural and urban residents: Interactions between safety cultures and environmental factors. The Fourth International Conference on Traffic & Transport Psychology, Washington, DC, USA (August 31 - September 4).

Ward, N.J. (2008) A pilot study to determine the feasibility of wide-scale deployment of electronic driving and crash measuring devices in ambulances in rural areas, National Rural ITS Conference, Anchorage, AK (September 2-5).

Ward, N.J. (2008) Project overview of EMS naturalistic studies and evaluation of driver feedback. Rural and Frontier EMS and Trauma Summit at the Lake, Coeur D'Alene, ID, USA (May 21-23).

McGehee, D., Anton, D, Fethke, N., Meyers, A. Boer, E., Manser, M, Ward, N. (2007). The use of EMG in immersive driving simulation for crash avoidance research: lessons learned. Driving Simulation Conference-- North America, Iowa City, IA (September 12-14).

- McGehee, D. Lee, J, Rakauskas, M., Ward, N., Wilson, B. (2007). The effect of lateral drift and curve speed warnings on driver response. Proceedings of the 51st annual Human Factors and Ergonomics Society meeting, Baltimore, MD (October 1-5).
- Laberge, J., Ward, N.J., Rakauskas, M. & Creaser, J. (2007). A comparison of work domain and task analysis for identifying information requirements: A case study of rural intersection decision support systems. Proceedings of the 51st Annual Human Factors and Ergonomics Society Meeting, Baltimore, MD (October 1-5).
- Rakauskas, M.E., & Ward, N.J. (2007). Identifying fatality factors of rural and urban safety cultures. Proceedings of The 4th International Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design. Stevenson, Washington (July 9-12).
- Alexander, L., Cheng, P., Donath, M., Gorgestani, A., Menon, A., Newstrom, B, Shankwitz, C., Ward, N., & Starr, R., (2007). Gap acceptance analysis for a rural unsignalized intersection. Proceedings of 86th Annual Meeting of the Transportation Research Board, Washington, DC (January 21-25).
- Starr, R.A., Arnebeck, R., Donath, M., Shankwitz, C., & Ward, N.J. (2006). Stop sign gap assistance for cooperative intersection collision avoidance systems (CICAS). Proceedings of 13th World Congress and Exhibition on Intelligent Transportation Systems and Services, London, England (October 8-12).
- Starr, R.A., Arnebeck, R., Donath, M., Shankwitz, C., & Ward, N.J. (2006). Rural expressway intersection surveillance for an Intersection Decision Support System. Proceedings of 85th Annual Meeting of the Transportation Research Board, Washington, DC (January 22-26).
- Boer, E.R., Manser, M.P., Ward, N.J., & Kuge, N. (2006). Impact of an ecologically valid haptic driver support on visual sampling and multi-tasking strategies. Vision in Vehicles Eleventh Annual International Conference, Dublin, Ireland (July 27-29).
- Boer, E.R., de Bruin, J., Abbink, D., Ward, N.J., & Manser, M. (2006). Are drivers with small feet or long legs at greater risk of rear end collisions? Proceedings of the 50th Annual Human Factors and Ergonomics Society Meeting. San Francisco, FL (October 16-20).
- Kuge, N., Boer, E.R., Yamamura, T., Ward, N.J., & Manser, M. (2006). Study on driver's car following abilities based on an active haptic support function (SAE 06AE-168). Proceedings of the SAE 2006 World Congress, Detroit, Michigan (April 3-6).
- Alexander, L., Cheng, P., Donath, M., Gorgestani, A., Menon, A., Newstrom, B, Shankwitz, C., Ward, N., & Starr, R., (2006). Rural expressway intersection surveillance for an Intersection Decision Support System. Proceedings of 85th Annual Meeting of the Transportation Research Board, Washington, DC (January 22-26).
- Rakauskas, M., & Ward, N.J. (2005). Behavioural effects of driver distraction and alcohol impairment. Proceedings of the 49th Annual Human Factors and Ergonomics Society Meeting, Orlando, FL (September 26-30).

Laberge, J., Ward, N.J., Rakauskas, M., & Creaser, J. (2005). Rural stop-controlled intersection decision support systems. Proceedings of the 49th Annual Human Factors and Ergonomics Society Meeting. Orlando, FL (September 26-30).

Manser, M.P., Ward, N.J., Kuge, N., & Boer, E.R. (2005). Driver behavioural adaptation in response to a novel haptic driver support system. Proceedings of the 49th Annual Human Factors and Ergonomics Society Meeting, Orlando, FL (September 26-30).

Boer, E.R., Ward, N.J., Manser, M.P., Yamamura, T., & Kuge, N. (2005). Driver performance assessment with a car following model. Proceedings of the 3rd International Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Rockport, Maine (June 27-30).

Boer, E.R., Rakauskas, M.E., Ward, N.J., Goodrich, M.A. (2005). Steering Entropy Revisited. Proceedings of the 3rd International Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design, Rockport, Maine (June 27-30).

Rakauskas, M.E., Ward, N.J., Bernat, E.M., Cadwallader, M., Patrick, C.J., de Waard, D. (2005). Psychophysiological measures of driver distraction and workload while intoxicated. Poster presented at the 3rd International Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design. Rockport, Maine (June 27-30).

Boer, E.R., Ward, N.J., Manser, M.P., & Kuge, N. (2005). Driver-model-based assessment of behavioural adaptation, JSAE Annual Conference, Yokohama, Japan (May 18-20).

Ward, N.J. (2005). Review of crash risk and driving performance of drivers with Clinical Mental and personality disorders. 84th Annual Meeting of the Transportation Research Board, Washington, DC (January 9-13).

Manser, M.P., Ward, N.J., Harder, K., Bloomfield, J., & Chihak, B. (2004). Driving simulation sickness and usability: A case study and proposal for future collaborations. 83rd Annual Meeting of the Transportation Research Board, Washington, DC (January 11-15).

Kuge, N., Ward, N.J., Manser, M.P., & Boer, E.R. (2004). A study on quantification of driver workload in car followings, Proceedings of IEEE Conference, Yokohama, Japan (September).

Manser, M.P., Ward, N.J., Kuge, N., & Boer, E.R. (2004). Influence of a driver support system on situation awareness in information processing in response to lead vehicle braking. 48th Annual Human Factors and Ergonomics Society Meeting, New Orleans, Louisiana (September 20-24).

Ward, N.J., Shankwitz, C., Gorgestani, A., Donath, M., de Waard, D., & Boer, E. (2004). Bus Rapid Transit (BRT) in Minnesota: Lane support system. Proceedings of the 3rd International Conference on Traffic and Transport Psychology, Nottingham, England (September 5-9).

Manser, M.P., Ward, N.J., Kuge, N., & Boer, E.R. (2004). The influence of distraction on driver behaviour and safety in critical response events: From theoretical construct to driver training application. Proceedings of the 3rd International Conference on Traffic and Transport Psychology (ICTTP), Nottingham, UK (September 5-9).

- Laberge, J., Ward, N.J, Manser, M., Karatekin, C., & Yonas, A. (2004). driving skill amongst ADHD teen drivers: Preliminary research. Proceedings of the 3rd International Conference on Traffic and Transport Psychology (ICTTP), Nottingham, UK (September 5-9).
- Rakauskas, M.E., & Ward, N.J. (2004). Evaluation of a DGPS Driver Assistive System for Snowploughs and Emergency Vehicles. Proceedings of the 3rd International Conference on Traffic and Transport Psychology (ICTTP), Nottingham, UK (September 5-9).
- Capo, S., Follin, E., Gallée, G., Ward, N., Easterlund, P., & Longhurst, G. (2004). Real-time eye movement analysis into driving simulators. 8th Driving Simulator Conference, Paris, France (September 8-10).
- Bernat, E., Cadwallader, M., Rakauskas, M., Ward, N.J, Collins, P., & Patrick, C., (2004). Effects of intoxication on attention allocation in a naturalistic driving environment. 44th Annual Meeting of the Society for Psychophysiological Research, Santa Fe, Mexico (October 20-24).
- Nookala, M., Rakauskas, M., Ward, N.J., & Estochen, B. (2003) Intelligent Vehicle Initiative - Specialty vehicle platform results from Minnesota's field operational test (Paper Number 1026). Proceeding from the 10th World Congress and Exhibition on Intelligent Transport Systems and Services, Madrid, Spain (November 16-20).
- Boer, E.R., Yamamura, T., Egami, M., Kuge, N., Ward, N.J., Manser, M., & Lee, J. (2003). The Cybernetics of Car-Following: A Reality Check for Different Driving Simulators. Vision in Vehicles X, Granada, Spain (September 6-10).
- Ward, N., Manser, M., de Waard, D., Kuge, N., & Boer, E. (2003). Quantifying car following performance as a metric for primary and secondary (distraction) task load: Part A - Modification of task parameters. Human Factors and Ergonomics Society 47th Annual Meeting. Denver, Colorado (Oct 13-17).
- Boer, E.R., Ward, N.J., Yamamura, T., Egami, M., Kuge, N., Manser, M., & Lee, J. (2003). Differences in Car Following Across Driving Simulators: the Plague of Explicatory Factors. 2003 Driving Simulator Conference (North America), Dearborn, Michigan (October 8-10).
- Boer, E.R. & Ward, N.J. (2003). Event-based driver performance assessment. Proceedings of the 2nd International Symposium on Driving Assessment, Training, and Vehicle Design, Park City, Utah (July 21-24).
- Ward, N.J. & Brookhuis, K. (2001). Recent European projects on driver impairment. International Symposium on Human Factors in Driving Assessment, Training and Vehicle Design, Aspen, Colorado (August 14-17).
- Read, N.L., Ward, N.J. & Parkes, A.M, (2001). Time-to-Contact and Collision Detection estimations as measures of driving safety in old and dementia drivers. Driving Assessment, Aspen, Colorado (August 14-17).
- Wright, S., Cohn, A.G. & Ward, N.J. (2000) DRIVERSIM: A probabilistic approach to realistic traffic generation. Driving Simulation Conference, Paris, France (September 6-7).

Ward, N.J. & Arron, K. (2000). Task automation and skill development in driving. XIVth Triennial Congress of the International Ergonomics Association and 44th Annual meeting of the Human Factors and Ergonomics Society, San Diego, CA, (July 29 - August 4)

Ward, N.J. & Smith, L. (2000). Shift work and driver fatigue. International Conference on Traffic and Transport Psychology, Berne, Switzerland (September 4-7).

Ward, N.J., Dye, L., Dobson, P., & Read, L. (2000). Effects of chronic cannabis use on time estimation, reproduction and perception. 15th International Conference on Alcohol, Drugs and Traffic Safety, Stockholm (May 22-26).

Wright, S., Fernando, T., Ward, N.J., & Cohn, A.G. (1998). A Framework for Supporting Intelligent Traffic within the Leeds Driving Simulator. ECAI '98 - Intelligent Virtual Environments Workshop, Brighton, UK (August 23-28).

Ward, N.J., Waterman, M. & Joint, M. (1998). The psychology of Road Rage violence in relation to traffic events. 24th International Congress of Applied Psychology, San Francisco (August 9-14).

Ward, N.J. & Beusmans, J. (1997). An evaluation of time headway and kinetic energy as risk information displayed to drivers. Proceedings of International Ergonomics Association 13th Triennial Congress, Tampere, Finland (June 29 - July 4).

Ward, N.J. (1997). Driver response to automated vehicle control. Proceedings of International Ergonomics Association 13th Triennial Congress, Tampere, Finland (June 29 - July 4).

Ward, N.J. (1997). Cognitive capture with automotive head-up displays. International Seminar: Human Factors in Road Traffic II, Braga, Portugal (April 9-11).

Ward, N.J. & Parkes, A.P. (1996). The impediment of driving simulator sickness: Prevalence, process, and proposals. International Conference on Traffic and Transport Psychology, Valencia, Spain (May 22-25).

Ward, N.J. & Fairleigh, S.H. (1996). The relationship between selective attention and arousal with the effects of fatigue. International Conference on Traffic and Transport Psychology, Valencia, Spain (May 22-25).

Ward, N.J., Humphreys, M., & Fairleigh, S.H. (1996). A field study of behavioural adaptation with an Autonomous Intelligent Cruise Control System. International Conference on Traffic and Transport Psychology, Valencia, Spain (May 22-25).

Fairleigh, S.H. & Ward, N.J. (1996). A protocol for the assessment of subjective sleepiness (poster). 40th Annual Meeting of the Human Factors and Ergonomics Society, Philadelphia, USA (Sept 2-6).

Fairleigh, S.H. & Ward, N.J. (1996). A protocol for the assessment of subjective sleepiness. International Conference on Traffic and Transport Psychology, Valencia, Spain (May 22-25).

Stapleton, L., Ward, N.J., & Parkes, A.M. (1995). Automotive Contact Analogue Head-Up-Display Images and Distance Estimation. Vision in Vehicles 6, Derby, England (September 13-16).

Ward, N.J., Parkes, A.M., & Lindsay, P. (1995). The effect of automotive Head-Up Displays on attention to critical events in traffic. International Conference on Experimental Analysis and Measurement of Situation Awareness, Daytona Beach, Florida (Nov. 1-3).

Ward, N.J., Fairleigh, S., & Humphreys, M. (1995). The effect of task automatisations in the automotive context: A field study of an Autonomous Intelligent Cruise Control system. International Conference on Experimental Analysis and Measurement of Situation Awareness, Daytona Beach, Florida (Nov 1-3).

Ward, N.J. & Hirst, S.J. (1994). Proposed design of a 3-stage blind spot detector. 27th International Symposium on Advanced Transportation Applications, Aachen, Germany (October 31 - November 4).

Hirst, S.J. & Ward, N.J. (1994). A parking aid interface based on a task analysis of driver manoeuvres. 27th International Symposium on Advanced Transportation Applications, Aachen, Germany (October 31 - November 4).

Bossi, L.L.M., Ward, N.J., & Parkes, A.M. (1994). The effect of enhanced image Head-Up Displays on driver peripheral visual performance. 12th Congress of the International Ergonomics Association, Toronto, Canada (August 15-19).

Ward, N.J., Parkes, A.M., Crone, P. (1994). The legibility of Head-Up Displays within the driving environment: The effect of background scene complexity. Vehicle and Navigation and Information Systems International Conference, Yokohama, Japan (August 31 - September 2).

Ward, N.J. (1994). Driver response to improved lateral visibility: Evidence of "Risk Homeostasis Theory". (Symposium) 23rd International Association of Applied Psychology, Madrid, Spain (July 17-22).

Ward, N.J., Stapleton, L, & Parkes, A.M. (1994). Behavioural and cognitive impacts of night-time driving with HUD contact analogue infrared imaging. 14th ESV Conference, Munich, Germany (May 23-26).

Ward, N.J., Stapleton, L, & Parkes, A.M. (1993) Night-time gap acceptance and time-to-coincidence judgments based on visible wavelength and infrared imaging. Vision in Vehicles 5, Glasgow, Scotland (September 9-11).

Stapleton, L., Ward, N.J., & Parkes, A.M. Methodological problems associated with the use of eye movement measuring techniques in evaluation contact analogue Head-Up Displays. Vision in Vehicles 5, Glasgow, Scotland (September 9-11).

Ward, N.J., Holden, R., & Longman, S. (1992). An examination of the distribution of Principal Component loadings with varimax rotation. 100th Annual Convention of the American Psychological Association, Washington, DC. (August).

Ward, N.J. (1992). Perceptions of Railway crossings with obstructed visibility. 25th International Congress of Psychology, Belgium, Brussels (July).

Ward, N.J. (1991). Social influences on human error. 24th Annual Conference of the Human Factors Association of Canada, Vancouver, Canada (August).

Ward, N.J. (1991). Job satisfaction: Its relation to ergonomics. 74th Annual Conference of the Industrial Accident Analysis and Prevention Association, Toronto, Canada (April).

Ward, N.J. (1990). Ergonomics and the neglect of job satisfaction. 23rd Annual Conference of the Human Factors Association of Canada, Ottawa, Canada (September).

Burns, P.C., Kelloway, E.K., & Ward, N.J. (1990). A systematic approach to the investigation and improvement of signage in buildings. 23rd Annual Conference of the Human Factors Association of Canada, Ottawa, Canada (September).

Invited Presentations

Keynote Presentations

Ward, N.J. (2013). Safety Culture and the National TZD Strategy. 2013 AASHTO Subcommittee on Safety Management Meeting. San Diego, CA (Aug 28 – 30).

Ward, N.J. (2013). Driving Safety Culture Forward. Roadway Safety Culture Summit. Washington, DC (Aug 20 – 21).

Ward, N.J. (2013). Motorcycle safety and alcohol. International Motorcycle Safety Conference. Orlando, FL (Oct 16 – 17).

Ward, N.J. (2013). Our Traffic safety paradigm: What is stopping us? International Motorcycle Safety Conference. Orlando, FL (Oct 16 – 17).

Ward, N.J. (2013). Motorcycle safety and alcohol. 2014 Motorcycle Safety Forum. Des Moines, IA (April 25).

Ward, N.J. (2011). "[Transforming Traffic Safety Culture: A necessary condition for TZD](#)", Transportation Innovation Series of Research and Innovative Technology Administration (RITA), U.S. Department of Transportation (DOT), Washington, DC (Dec 21).

Ward, N.J., (2011). "Rural Highway Safety Culture", 2011 Highway Safety Summit. Hosted by Idaho Department of Transportation (IDT). Pocatello, ID (April 12).

Ward, N.J., (2011). "New Paradigms for Rural Highway Safety Culture", Montana Traffic Education Association (MTEA) Conference. Hosted by Montana Office of Public Instruction (OPI). Bozeman, MT (April 12).

Ward, N.J., (2011). "Rural Driver Behaviour and Safety Issues", 2011 Montana Annual County Road Supervisor (MARCS) Conference. Hosted by Montana Local Technical Assistance Program (LTAP). Great Falls, MT (March 26 – 29).

Ward, N.J. (2011). "How to advance traffic safety culture?", Invited luncheon discussant hosted by National Transportation Research Board (TRB), TRB 90th Annual Meeting, Washington, DC (Jan 24).

Ward, N.J., (2010). "[Traffic Safety Culture and the National Traffic Safety Strategy](#)". Toward Zero Deaths: A National Strategy on Highway Safety. A workshop for US transportation agency and stakeholders, Washington DC (August 25).

Ward, N.W. (2010). Overview of Rural Traffic Safety Culture. 2010 National Summit on Rural Traffic Safety Culture, Big Sky, MT, USA (June 22).

Ward, N.J. (2010). "The use of driving simulators for research and design". IEEE Spring Lecture Series, Bozeman, Montana (February 3).

Ward, N.J., (2006). "Traffic safety paradigms and the human factors" – Minnesota Department of Transportation Office of Traffic Safety Operations annual staff development and retreat, Stillwater, MN (May 23).

Ward, N.J. (2006). "The battle for zero traffic fatalities" – Toward Zero Death Conference, Duluth, MN (November 2-3).

Expert Panellist Presentation

Ward, N.J. (2013), Workshop Leader (*Traffic Safety Culture*), 5th International Conference on Urban Traffic Safety, Edmonton, Calgary (May 2).

Otto, J. & Ward, N.J. (2013). A Framework for the Positive use of Culture in Traffic Safety (Workshop). Transportation Research Board (TRB) 92nd Annual Meeting. Washington, DC (July 13 to July 17).

Ward, N.J. (2012). Evaluating the effectiveness of driver assistance systems. ITS American 2012 Annual Meeting, Washington, DC (May 21 – 23).

Ward, N.J. (2011). Understanding Traffic Safety Culture: Key to Improving Safety. Transportation Research Board (TRB) 90th Annual Meeting, Washington, DC (January 23 – 27).

Ward, N.J., Linkenbach, J., Keller, S., & Otto, J. (2010). White paper on traffic safety culture. Bozeman, MT: Western Transportation Institute, Montana State University (www.westerntransportationinstitute.org/documents/reports/4W3048_Final_Report.pdf).

Federal Motor Carrier Safety Administration (FMCSA) expert medical panel on medical and psychiatric disorders in commercial driving (July 9, 2008), Washington, DC (sponsored by FHCSA).

National Highway Traffic Safety Administration (NHTSA) Office of Behavioural Research five-year strategic planning committee on drug impaired driving (April 18, 2008), Washington, DC (sponsored by NHTSA).

NHTSA Office of Behavioural Research five-year strategic planning committee on motorcycle safety (April 2, 2008), Washington, DC (sponsored by NHTSA).

Human Factors Forum on Advanced Vehicle Safety Technology (January 25-26, 2007), Fall Church, VA (sponsored by NHTSA).

Other Presentations

Ward, N.J., (2009). "Traffic safety: the rural epidemic" – Bozeman Spring Engineering Program (March 6), Bozeman, MT (sponsored by MDT).

Ward, N.J., (2008). "Associated technologies for teen driver monitoring" – Workshop on Novice Teen Driver Monitoring (May 15), Washington, DC (sponsored by NHTSA).

Ward, N.J., (2007). "Intelligent technology for safe traffic" – Minnesota state senate committee hearing on Intelligent technology and traffic safety, Minnesota State Senate Transportation Committee, Policy and Budget Division (January 30), St. Paul, MN.

Ward, N.J., (2006). "Traffic safety culture" – Human Factors Workshop on Driver Behaviour and Safety (October 23-24), University of California, Berkeley, CA. (hosted by PATH for CALTRAN).

Ward, N.J., (2006). "A review of alcohol and traffic safety" – Human Factors Workshop on Driver Behaviour and Safety (October 23-24), University of California, Berkeley, CA. (hosted by PATH for CALTRAN).

Ward, N.J. (2006). "Behavioural markers of rural traffic fatality risk" – Summer Institute of Centre for Excellence in Rural Safety (July 24-25), Humphrey Institute, Minnesota, MN.

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