

Curriculum Vitae
Robert David Gray

**Department of Applied Psychology
Arizona State University
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PRESENT POSITIONS

- *Associate Professor & Program Head* (2006-present)
Department of Applied Psychology
Arizona State University
Mesa, AZ
- *Research Psychologist* (2005-present)
Link Simulation & Training/Mesa Air Force Research Laboratory
6030 S. Kent St.
Mesa, AZ

EDUCATION

- York University, Toronto, ON., *PhD, Psychology*, 1998
- York University, Toronto, ON., *MA, Psychology*, 1995
- Queen's University, Kingston, ON., *BAH, Psychology*, 1993

PERSONAL AWARDS & SCHOLARSHIPS

- 1991 Gordon & Myrtle Adams Scholarship
- 1992 Ann Adamson Scholarship in Psychology
- 1993 Prince of Wales Prize for Best Academic Record (Honorable
Mention)
- 1993 Natural Sciences and Engineering Research Council of Canada

- (NSERC) Undergraduate Research Award
- 1993-1994 NSERC Graduate Scholarship
- 1993 York Scholarship
- 1995-1996 NSERC Graduate Scholarship
- 1995-1996 E. Lynn Kirshner Memorial Prize in Visual Science
- 1996 Faculty of Graduate Studies Scholarships & Grants Committee Thesis Prize
- 1996-1997 Dean of Graduate Studies' Academic Scholarship
- 1997 Institute For Space And Terrestrial Science (ISTS) Graduate Student Conference Travel Award
- 1997 Graduate Development Fund Award
- 1997-1998 American Psychological Foundation/Council of Graduate Departments of Psychology Graduate Research Scholarship in Psychology
- 1997-1998 E. Lynn Kirshner Memorial Prize in Visual Science
- 2002 Travel of Research Investigators to Potential Sponsors (TRIPS) Award (ASU)
- 2004-2005 Arizona State University East Researcher of the Year Award
- 2007 Distinguished Scientific Award for Early Career Contribution to Psychology, American Psychological Association (APA)
- 2007 APA Division 21 Earl Alluisi Award for Early Career Achievement in the Field of Applied Experimental & Engineering Psychology

GRANTS & FUNDING

Summary: \$1,238,052 in funding awarded since 2001.

- 2001-2003 Personal Research Fellowship, Nissan Technical Center North America, Inc: "*Perception & Cognition in Driving*" - \$137,000. Role: Principal Investigator.
- 2003-2008 National Science Foundation Early Career Development Award: "*CAREER: An Integrated Approach to Research on Collision Control*"- \$400,000. Role: Principal Investigator.
- 2005-2009 National Science Foundation, Information & Intelligent Systems,

Computer & Information Science & Engineering Program:
 “*Sensory Integration of Multimodal Human Computer Interfaces*”-
 \$481,052. Role: Principal Investigator.

- 2007 National Science Foundation, Major Research Instrumentation Program: “*MRI: Acquisition of an Advanced Driving Simulator for Safety Research and Education*”. \$170,000. Role: Principal Investigator.
- 2009-2010 Maricopa Association of Governments. “*Evaluation of the MAG Elderly Mobility Sign Project*”. \$50,000. Role: Co-Principal Investigator (w/ Simon Washington, ASU).

EDITORIAL & SERVICE ACTIVITIES

- Consulting Editor
Journal of Experimental Psychology: Human Perception and Performance
 American Psychological Association
- Editorial Board Member
Human Factors
 Human Factors & Ergonomics Society
- Ad-Hoc Journal Referee
Perception, Journal of Experimental Psychology: Applied, Vision Research, Ecological Psychology, Perception & Psychophysics, Journal of Vision, Experimental Brain Research, Psychological Science, Research Quarterly for Exercise and Sport, Applied Cognitive Psychology, Journal of Neurophysiology, Image and Vision Computing, International Journal of Sports Medicine, IEEE: Transactions on Haptics, Journal of Applied Social Psychology, International Journal of Sport and Exercise Psychology, Journal of Neuroscience Methods, Journal of Experimental Psychology: General
- Grant Proposal Referee
 - Human Perception and Cognition Program, Division of Behavioral & Cognitive Sciences, *National Science Foundation*.
 - Neurosciences Section, *The Wellcome Trust*.
 - *Research Grants Council of Hong Kong*
 - *French National Research Agency ANR-DFG: Franco-German Program in the Humanities and Social Sciences*.
- Grant Panelist
 - Human and Social Dynamics (HSD) FY2004 competition, *National Science Foundation*, June 15-16, 2004.

- Award Committee
 - *Jerome H. Ely* Human Factors Award, Human Factors & Ergonomics Society, 2007.
- Member, Maricopa Association of Governments Surface Transportation Safety Committee (2009-)

TEACHING EXPERIENCE

- 2001-present Department of Applied Psychology
Arizona State University East, Mesa AZ

Courses:
Sensation & Perception
Physiological Psychology
*Human Factors in Sports**
*Human Factors in Transportation**
Methods in Applied Psychology
Advanced Visual Perception
-Mean Student Evaluation Score= 4.85/5
*taught both in-class and online
- 2000 Course Instructor
University of Massachusetts, Boston, MA
Psychology 255 – *Perception*

ACADEMIC WORK HISTORY

- 1993 (Summer) *Research Assistant*
- Visual & Auditory Neuroscience Laboratory
Queen's University (Supervisor: Dr. Barrie Frost)
- 1993-1998 *Research Assistant*
- Human Performance Laboratory
Institute for Space & Terrestrial Science, Toronto, CAN
(Supervisor: Dr. David Regan)
- 1995-1998 *Teaching Assistant*
- York University
- 1999-2001 *Scientific Consultant*
- Human Performance Laboratory
Centre for Research in Earth and Space Technology
Toronto, CAN

- 1998-2000 *Post-Doctoral Research Associate*
- Cambridge Basic Research
Nissan Research & Development Inc.
- 2000-2001 *Research Scientist*
- Cambridge Basic Research
Nissan Technical Center North America Inc.
- 2000-2003 *Visiting Scientist*
- School of Electrical & Computer Engineering
Purdue University, West Lafayette, IN
- 2002-2003 *Consultant (unpaid)*
- Human Interface Lab
Motorola Labs, Motorola Inc.
Phoenix, AZ
- 2001-2006 *Assistant Professor*
- Department of Applied Psychology
 - Arizona State University
 - Mesa, AZ

BOOKS

Gibb, R., Gray, R., & Scharff, L. (2010). *Visual Perception in Aviation*. Ashgate Publishing Ltd. In press/under contract.

PEER-REVIEWED JOURNAL ARTICLES

**Summary: 47 Articles Published or In Press
(8 single-authored, 24 first-authored)**

1. Regan, D., Hamstra, S. J., Kaushal, S., Vincent, A., Gray, R., & Beverley, K. I. (1995). Visual processing of an object's motion in three dimensions for a stationary or a moving observer. *Perception*, 24, 87-103.
2. Regan, D., Gray, R., & Hamstra, S. J. (1996). Evidence for a neural mechanism that encodes angles. *Vision Research*, 36, 323-330.
3. Gray, R. & Regan, D. (1996). Cyclopean motion produced by oscillations of size, disparity and location. *Vision Research*, 36, 655-665.
4. Gray, R. & Regan, D. (1996). Accuracy of reproducing angles: Is a right angle special ? *Perception*, 25, 531-542.
5. Gray, R. & Regan, D. (1997). Vernier step acuity and bisection acuity for

- texture-defined form. *Vision Research*, 37, 1713-1723.
6. Gray, R. & Regan, D. (1998). Accuracy of estimating time to collision using binocular and monocular information. *Vision Research*, 38, 499-512.
 7. Gray, R. & Regan, D. (1998). Spatial frequency discrimination and detection for texture-defined gratings. *Vision Research*, 38, 2601-2617.
 8. Gray, R. & Regan, D. (1999). Motion in depth: Adequate and inadequate simulation. *Perception & Psychophysics*, 61, 236-245.
 9. Gray, R. & Regan, D. (1999). Adapting to expansion increases perceived time to collision. *Vision Research*, 39, 3602-3607.
 10. Gray, R. & Regan, D. (1999). Do monocular estimates of time to collision necessarily involve perceived distance ? *Perception*, 28, 1257 - 1264.
 11. Gray, R. & Regan, D. (2000). Estimating time to collision with a rotating nonspherical object. *Vision Research*, 40, 49-63.
 12. Regan, D. & Gray, R. (2000). Visually-guided collision avoidance and collision achievement. *Trends in Cognitive Neuroscience*, 4, 99-107.
 13. Gray, R. (2000). Attentional modulation of motion-in-depth processing. *Vision Research*, 40, 1041-1050.
 14. Gray, R. & Regan, D. (2000). Risky driving behavior: a consequence of motion adaptation for visually guided action. *Journal of Experimental Psychology: Human Perception and Performance*, 26, 1721-1732.
 15. Gray, R. & Regan, D. (2000). Simulated self-motion alters perceived time to collision. *Current Biology*. 10, 587-590.
 16. Steeves, J. K. E., Gray, R., Regan, D. & Steinbach, M. J. (2000). Accuracy of estimating time to collision using only monocular information in unilaterally enucleated observers and monocularly viewing normal controls. *Vision Research*, 40, 83-89.
 17. Regan, D. & Gray, R. (2001). Hitting what one wants to hit and missing what one wants to miss. *Vision Research*, 41, 3321-3329.
 18. Gray, R. & Thornton, I. M. (2001). Exploring the link between time to collision and representational momentum. *Perception*, 30, 1007-1017.
 19. Gray, R. & Tan, H. Z. (2002). Dynamic and predictive links between touch and vision. *Experimental Brain Research*, 145, 50-55.

20. Gray, R. (2002). "Markov at the Bat": A model of cognitive processing in baseball batters. *Psychological Science*, *13*, 543-548.
21. Gray, R. (2002). Behavior of college baseball players in a virtual batting task. *Journal of Experimental Psychology: Human Perception and Performance*, *28*, 1131-1148.
22. Tan, H. Z., Gray, R., Young, J. J., & Traylor, R. (2003). A haptic back display for attentional and directional cueing. *Haptics-e: The Electronic Journal of Haptics Research*, Vol. 3, No. 1, June 11, 2003.
23. Gray, R., Macuga, K. M., & Regan, D. (2004). Long range interactions between object motion and self-motion in the perception of movement in depth. *Vision Research*, *44*, 179-195.
24. Gray, R. (2004). Attending to the execution of a complex sensorimotor skill: Expertise differences, choking and slumps. *Journal of Experimental Psychology: Applied*, *10*, 42-54.
25. Salvucci, D. & Gray, R. (2004). A two-point visual control model of steering. *Perception*, *33*, 1233-1248.
26. Gray, R. & Regan, D. (2005). Perceptual processes used by drivers during overtaking in a driving simulator. *Human Factors*, *47*, 394-417.
27. Gray, R. & Sieffert, R. (2005). Different strategies for using motion in depth information in catching. *Journal of Experimental Psychology: Human Perception and Performance*, *31*, 1004-1022.
28. Gray, R., Regan, D. Castaneda, B., & Sieffert, R. (2006). Role of feedback in the accuracy of perceived direction of motion in depth and control of interceptive action. *Vision Research*, *46*, 1676-1694.
29. Gray, R. & Regan, D. (2006). Unconfounding the direction of motion, time to passage and rotation rate of an approaching object. *Vision Research*, *46*, 2388-2402.
30. Rushton, S. K. & Gray, R. (2006). Hoyle's observations were right on the ball. *Nature*, *443*, 506.
31. Castaneda, B. & Gray, R. (2007). Effects of focus of attention on baseball batting performance in players of different skill level. *Journal of Sport & Exercise Psychology*, *29*, 59-76.
32. Gray, R. & Regan, D. (2007). Glare susceptibility test results correlate with temporal safety margin when executing turns across approaching vehicles in simulated low-sun conditions. *Ophthalmic and Physiological Optics*, *27*, 440-450.

33. Gray, R., Beilock, S. L., & Carr, T. M. (2007) "As soon as the bat met the ball, I knew it was gone": Outcome prediction, hindsight bias, and the representation and control of action in novice and expert baseball players. *Psychological Bulletin & Review*, *14*, 669-675.
34. Jones, C., Gray, R., Spence, C., & Tan, H. Z. (2008). Directing visual attention with spatially informative and noninformative haptic cues. *Experimental Brain Research*, *186*, 659-669.
35. Scott, J. J. & Gray, R. (2008). Comparison of visual, auditory and tactile warnings for rear-end collision prevention in driving. *Human Factors*, *50*, 264-275.
36. Gray, R., Geri, G.A., Akhtar, S.C. & Covas, C.M. (2008). The role of visual occlusion in altitude maintenance during simulated flight. *Journal of Experimental Psychology: Human Perception and Performance*, *34*, 475-488.
37. Gray, R. (2008). Multisensory information in the control of complex motor actions. *Current Directions in Psychological Science*, *17*, 244-248.
38. Gibb, R., Schvaneveldt, R. S., & Gray, R. (2008). Visual misperception in aviation: Glide path performance in a black hole environment. *Human Factors*, *50*, 699-711.
39. Regan, D. & Gray, R. (2009). Some unresolved questions in stereopsis, dynamic stereopsis and stereomotion. *Spatial Vision*, *22*, 1-43.
40. Mohebbi, R., Gray, R., & Tan, H. Z. (2009). Driver reaction time to tactile and auditory rear-end collision warnings while talking on a cell phone. *Human Factors*, *51*, 102-110.
41. Lee, D. N., Bootsma, R. J., Frost, B. J., Land, M., Regan, D., & Gray, R. (2009). Lee's 1976 paper. *Perception*, *38*, 837 – 858.
42. Gray, R. (2009). A model of motor inhibition for a complex skill: baseball batting. *Journal of Experimental Psychology: Applied*, *15*, 91-105.
43. Gray, R., Mohebbi, R., & Tan, H. Z. (2009). The spatial resolution of crossmodal attention: implications for multimodal interfaces. *ACM Transactions on Applied Perception (TAP)*, *4*, 1-14.
44. Gray, R. (2009). How do batters use visual, auditory, and tactile information about the success of a baseball swing? *Research Quarterly for Exercise & Sport*, *80*, 1-11.

45. Straughn, S., Gray, R., & Tan, H. Z. (2009). To go or not to go: Stimulus-response compatibility and pedestrian collision warnings in driving. *IEEE Transactions on Haptics*. In press.
46. Gray, R. (2009). Expert baseball batters have greater sensitivity in making swing decisions. *Research Quarterly for Exercise & Sport*. In press.
47. Branaghan, R. & Gray, R. (2009). Non-conscious activation of an elderly stereotype leads to safer driving behavior. *Perceptual and Motor Skills*. In press.
48. Scott, S. & Gray, R. (2009). Switching tools: Perceptual-motor recalibration to weight changes. *Experimental Brain Research*. Submitted.
49. Mohd Rosli, R, Jones, C. M., Tan, H. Z., Proctor, R. W., & Gray, R. (2009). A study of visual spotlight effect using tactile cueing. *ACM Transactions on Applied Perception*. Submitted.

BOOK CHAPTERS

Summary: 7 Chapters Published or In Press

1. Regan, D., Gray, R. Portfors, C. V., Hamstra, S. J., Vincent, A., Hong, X. H. & Kohly, R. (1998). Catching, hitting and collision avoidance. In Harris, L. & Jenkin, M.(Eds.). *Vision and Action*. New York: Cambridge University Press.
2. Gray, R. & Regan, D. (2004). The use of binocular time to contact information. In Hecht, H. & Savelsbergh, G. J. P. (Eds.). *Theories of Time-to-Contact. Advances in Psychology, 135. pp. 303-325*. Amsterdam: Elsevier.
3. Regan, D. & Gray, R. (2004). A step by step approach to research on time to contact and time to passage. In Hecht, H. & Savelsbergh, G. J. P. (Eds.). *Theories of Time-to-Contact. Advances in Psychology, 135. pp. 173-228*. Amsterdam: Elsevier.
4. Gray, R. (2005). Vision in flying, driving and sports. In Harris, L. & Jenkin, M. (Eds.). *Seeing Spatial Form. pp. 121-151*. Oxford University Press.
5. Gray, R. (2005). The use and misuse of visual information for “go/no-go” decisions in driving. Hennessy, D. & Wiesenthal, D. (Eds.). *Contemporary Issues in Traffic Research and Road User Safety. pp. 125-133*. New York: Nova Science Publishers.
6. Beilock, S. L., & Gray, R. (2007). Why do athletes “choke” under pressure? G. Tenenbaum and B. Eklund (Eds.), *Handbook of Sport Psychology, 3rd Ed. pp. 425-444*. New Jersey: John Wiley & Sons.

7. Gray, R. (2009). Intercepting moving objects: Fundamental principles learned from baseball. *Reviews of Human Factors and Ergonomics, Volume 5*. Human Factors & Ergonomics Society. In press.

PEER-REVIEWED CONFERENCE PAPERS

Summary: 23 Conference Papers Published or In Press

1. Gray, R. & Regan, D. (1999). Estimating time to collision with a rotating nonspherical object. *Studies in Perception and Action 10*, 100-103. International Conference on Perception and Action. Edinburgh, Scotland, Aug 7-14, 1999
2. Gray, R. (2001). Perceptual and cognitive strategies used by baseball batters. *Proceedings of the International Society of Sports Psychology 10th World Congress of Sport Psychology*, 22-24.
3. Tan, H. Z., Gray, R. & Young, J. J. (2001). Haptic cueing of a visual change detection task: Implications for multi-modal interfaces. In *Usability Evaluation and Interface Design: Cognitive Engineering, Intelligent Agents and Virtual Reality (Vol. 1 of the Proceedings of the 9th International Conference on Human-Computer Interaction)*, M. J. Smith, G. Salvendy, D. Harris, and R. J. Koubek (Eds.), Mahwah, NJ: Lawrence Erlbaum Associates, pp. 678-682, 2001.
4. Gray, R., Tan, H. Z. & Young, J. J. (2003). Do multimodal signals need to come from the same place? Crossmodal attentional links between proximal and distal surfaces. *Proceedings of the 4th IEEE International Conference on Multimodal Interfaces*, IEEE CS Press.
5. Young, J. J., Tan, H. Z. & Gray, R. (2003). Validity of haptic cues and its effect on priming visual spatial attention. *Proceedings of the 11th International Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, IEEE Computer Society, Los Angeles, CA, Mar. 22-23, pp. 166-170, 2003.
6. Lebiere, C., Gray, R., Salvucci, D., & West, R. (2003). Choice and learning under uncertainty: A case study in baseball batting. *Proceedings of 2003 Cognitive Science Conference*. Mahwah, NJ: Lawrence Erlbaum Associates.
7. Gurascio-Howard, L. & Gray, R. (2004). Using kinematics to assess software usability and ergonomic risk factors. *Proceedings of the Human Factors and Ergonomics Society 48th Annual Meeting*..
8. Young, J. J., Tan, H. Z. & Gray, R. (2005). Directing visual attention with spatially informative and noninformative haptic cues. *Proceedings of the 10th International Conference on Human-Computer Interaction*.

9. Castaneda, B. & Gray, R. (2005). Effects of attention on performance in baseball batting. *Studies in Perception and Action, VII*.
10. Proctor, R. W., Tan, H. Z., Vu, K. L., Gray, R. & Spence, C. (2005). Implications of compatibility and cuing effects for multimodal interfaces. *Proceedings of the 11th International Conference on Human-Computer Interaction*.
11. Gray, R. (2006). Expertise differences in attentional control between and within baseball batters. *Proceedings of the Human Factors and Ergonomics Society 50th Annual Meeting*, 1652-1655.
12. Gibb, R. & Gray, R. (2006). The terrain orientation theory for visual guidance of approach and landing. *Proceedings of the Human Factors and Ergonomics Society 50th Annual Meeting*, 1661-1665.
13. Jones, C. M., Young, J. J., Gray, R. Spence, C., & Tan, H. Z. (2007). An eyetracker study of the haptic cuing of visual attention. *Proceedings of the World Haptics Conference*.
14. Gray, R. (2007). Predicting the effects of disability glare on driving performance. *Driver Assessment 2007 Proceedings*. University of Iowa Public Policy Center.
15. Scott, J. J. & Gray, R. (2007). Comparison of driver brake reactions times to multimodal rear-end collision warnings. *Driver Assessment 2007 Proceedings*. Iowa City, IA.: University of Iowa Public Policy Center.
*Co-winner of the Honda Outstanding Student Paper Award
16. Mohebbi, R. & Gray, R. (2007). Perceptual-motor control strategies for left-turn execution. *Driver Assessment 2007 Proceedings*. Iowa City, IA.: University of Iowa Public Policy Center.
*Co-winner of the Honda Outstanding Student Paper Award
17. Gray, R. (2007). 2D vs. 3D visual cues for altitude maintenance in low-altitude flight. *Proceedings of the Human Factors and Ergonomics Society 51st Annual Meeting*.
18. Kuzel, M., Heller, M. F., Gray, R., Straughn, S., & DiJorio, S. (2008). Perception and cognition during walking while concurrently using a cell phone. *Contemporary Ergonomics 2008, Taylor & Francis Books Ltd*.
19. Branaghan, R. & Gray, R. (2008). Non-conscious activation of an elderly stereotype leads to safer driving behavior. *Proceedings of the Human Factors and Ergonomics Society 52nd Annual Meeting*.

20. Branaghan, R. & Gray, R. (2008). Thinking Old Leads to Driving Slow: Non-Conscious Primes and Driving Behavior. *Proceedings of the American Psychological Society Annual Meeting*.
21. Kuzel, M.J., Heller, M.F., Sala, J.B., Ciccarelli, L., & Gray, R. (2008). A review of real-world collisions involving distracted pedestrians. *Proceedings of the Annual Occupational Ergonomics and Safety Conference*.
22. Gray, R. & Branaghan, R. (2009). Changing driver behavior through unconscious stereotype activation. *Driver Assessment 2009 Proceedings*. Iowa City, IA.: University of Iowa Public Policy Center.
23. Tan, H. Z., Gray, R., Spence, C., Jones, C. M., & Rosli, R. M. (2009). Haptic cueing of visual spatial attention and evidence of spotlight effect. (invited paper for special session on Haptics), *Proceedings of SPIE-IS&T Electronic Imaging, Human Vision and Electronic Imaging XIV*, B. E. Rogowitz & T. N. Pappas (Eds.), SPIE Vol. 7240-72400I, San Jose, CA, 12 pp., Jan. 18–22, 2009.

PUBLISHED CONFERENCE ABSTRACTS

Summary: 37 Abstracts Published or In Press

1. Gray, R. & Regan, D. (1995). Cyclopean motion produced by oscillations of size, disparity and location. *Investigative Ophthalmology & Visual Science (Suppl.)*, 36, S369. Presented at Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Ft. Lauderdale, Fla., 1995.
2. Regan, D. & Gray, R. (1995). Evidence for a neural mechanism that encodes angles. *Investigative Ophthalmology & Visual Science (Suppl.)*, 36, S369. Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., 1995.
3. Gray, R. & Regan, D. (1996). Estimates of time to collision based on binocular and monocular visual information. *Investigative Ophthalmology & Visual Science (Suppl.)*, 37, S652. Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., 1996.
4. Gray, R. & Regan, D. (1997). Vernier step acuity and bisection acuity for texture-defined boundaries. *Investigative Ophthalmology & Visual Science (Suppl.)*, 38, S635. Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., 1997.
5. Gray, R. & Regan, D. (1998). The relevance of heading and motion-in-depth data collected using constant-sized dot displays. *Investigative Ophthalmology & Visual Science (Suppl.)*, 39, S892. Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., 1998.

6. Regan, D. & Gray, R. (1998). Estimating the direction of motion and time of arrival of an approaching object. *Perception, 27 (Suppl), 46*. Presented at European Conference on Visual Perception (ECVP), Oxford, UK, 1998.
7. Gray, R. & Regan, D. (1999). Estimating time to collision with a rotating nonspherical object. *Investigative Ophthalmology & Visual Science (Suppl.)*, 40, S800. Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., 1999.
8. Steeves, J. K. E., Gray, R., Regan, D. & Steinbach, M. J. (1999). Accuracy of estimating time to collision using only monocular information in unilaterally enucleated observers and monocularly viewing normal controls. *Investigative Ophthalmology & Visual Science (Suppl.)*, 40, S800. Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., 1999.
9. Boer, E. R. & Gray, R. (1999) A statistical process model of movement in depth detection. *Perception, 28(Suppl), 4*. Presented at European Conference on Visual Perception (ECVP) Trieste, Italy, Aug 22-25, 1999.
10. Gray, R. & Regan, D. (1999). Adaptation to expansion and perceived time to collision: psychophysical and driving-simulator observations. *Perception, 28 (Suppl), 15*. Presented at European Conference on Visual Perception (ECVP) Trieste, Italy, Aug 22-25, 1999.
11. Gray, R. & Thornton, I. M. (1999). Exploring the link between time to collision and representational momentum. *Abstracts of the Psychonomic Society, 4, 61*. Presented at the Meeting of the Psychonomic Society, Los Angeles, CA. Nov 18-21, 1999.
12. McCulloch, K.C., Gray, R. & Thornton, I, M. (2000). Incidental effects of attention on face processing. *Investigative Ophthalmology & Visual Science 41(Suppl.)*, S1180 . Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., 2000.
13. Gray, R. (2000). Attentional tunnel vision for motion. *Perception, 29 (Suppl)*, 74. Presented at European Conference on Visual Perception (ECVP) Groningen, Netherlands, Aug 27-31, 2000.
14. Gray, R. & Tan, H. (2000). Dynamic spatial mapping between vision and touch. *Abstracts of the Psychonomic Society, 5, 38* . Presented at the Meeting of the Psychonomic Society, New Orleans, LA, Nov 16-19, 2000.
15. Macuga, K., Gray, R. & Regan, D. (2001). How do we deal with moving objects when we are moving? *Investigative Ophthalmology & Visual Science (Suppl.)*, 42, S928. Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., April 29-May 4, 2001.
16. Gray, R. (2001). Processing of motion in depth in unattended visual fields: why you should pay attention to what's coming. *Investigative Ophthalmology &*

- Visual Science (Suppl.)*, 42, S944. Presented at ARVO Annual Meeting, Ft. Lauderdale, Fla., April 29-May 4, 2001.
17. Gray, R. (2001). How do baseball batters use “where” and “when” information? *Journal of Vision*, 1(3), 132a. Presented at Vision Science Society Annual Meeting, Sarasota, Fla., May 4-9, 2001.
 18. Macuga, K., Gray, R. & Regan, D. (2001). Judging the direction of object motion-in-depth during simulated self-motion. *Journal of Vision*, 1(3), 303a. Presented at Vision Science Society Annual Meeting, Sarasota, Fla., May 4-9, 2001.
 19. Gray, R. (2001). Markov at the bat: a model of cognitive processing in baseball batters. *Abstracts of the Psychonomic Society*, 6, 95. Presented at the Annual Meeting of the Psychonomic Society, Orlando, FL, Nov 16-19, 2001.
 20. Gray, R. (2003). What should you pay attention to during visually guided action? *Abstracts of the Psychonomic Society*, 8, 104. Presented at the Annual Meeting of the Psychonomic Society, Vancouver, BC, Nov 6-9, 2003.
 21. Gray, R. & Tan, H. Z. (2003). Combination of visual and tactile information about moving objects. *Journal of Vision*, 3, 75a. Presented at the Fall Vision Meeting, Tucson AZ.
 22. Sieffert, R. S. & Gray, R. (2003). Combination of binocular and monocular visual information in ball catching. *Journal of Vision*, 3, 23a. Presented at the Fall Vision Meeting, Tucson AZ.
 23. Gray, R., Geri, G.A., Akhtar, S.C. & Covas, C.M. (2004). The contribution of 3-D object height and density to altitude maintenance in low-altitude flight. *Journal of Vision*, 4, 843a. Presented at Vision Science Society Annual Meeting, Sarasota, Fla., 2004.
 24. Gray, R. (2004). Skilled performance in baseball batting: understanding successes and failures. *Journal of Sport & Exercise Psychology*, 26: S82-S82 Suppl. S. Presented at the annual meeting of the *North American Society for the Psychology of Sport and Physical Activity (NASPSPA)*, Vancouver, BC, June 10-13, 2004.
 25. Gray, R., Castaneda, B., Sieffert, R. S., & Regan, D. M. (2005). Comparing the relative accuracy of perception and action in ball catching. *Journal of Vision*, 5, 336a. Presented at the Annual Meeting of Vision Sciences Society, May 6-11, 2005.
 26. Gray, R., Beilock, S. L., & Carr, T. M. (2005). “As soon as the bat met the ball, I knew it was gone”: Outcome prediction, hindsight bias, and the representation and control of action in novice and expert baseball players. *Abstracts of the Psychonomic Society*, 10, 43 .

27. Castaneda, B. and Gray, R. (2005). Attentional control in novice and expert baseball batters. *Abstracts of the Psychonomic Society, 10*, 137.
28. Gray, R. & Regan, D. M. (2006). Unconfounding the Time to Passage, Direction of Motion and Rotation Rate of an Approaching Object: Different Early Visual Processing in Expert Baseball Players and Nonplayers. *Journal of Vision, 6*, 633a. Presented at the Annual Meeting of Vision Sciences Society, May 5-10, 2006.
29. Beilock, S. L., Gray, R., & Carr, T. M. (2006). "As soon as the bat met the ball, I knew it was gone": Outcome prediction, hindsight bias, and the representation and control of action in novice and expert baseball players. *Journal of Sport & Exercise Psychology, 28S*. Presented at the annual meeting of the *North American Society for the Psychology of Sport and Physical Activity (NASPSPA)*, Denver, CO, June 1-3, 2006.
30. Gray, R. & Regan, D. M. (2006). Blinded by the light: the effects of glare on driving performance. *Abstracts of the Psychonomic Society, 11*, 4.
31. Tan, H. Z. & Gray, R. (2006). The crossmodal spotlight of attention. *Abstracts of the Psychonomic Society, 11*, 14.
32. Scott, S. & Gray, R. (2007). Specificity of practice in baseball batting. *Journal of Sport & Exercise Psychology, 29S*. Presented at the annual meeting of the *North American Society for the Psychology of Sport and Physical Activity (NASPSPA)*, San Diego, CA, June 7-9, 2007.
33. Gray, R. & Beilock, S. (2007). Expertise, execution, and attentional spillover in novice and expert golfer putting. *Journal of Sport & Exercise Psychology, 29S*, . Presented at the annual meeting of the *North American Society for the Psychology of Sport and Physical Activity (NASPSPA)*, San Diego, CA, June 7-9, 2007.
34. Gray, R. (2008). Using multisensory information about the success of a baseball swing. Presented at the *2008 American Psychological Association Convention*.
35. Tripathi, P., Kahol, K., & Gray, R. (2008). Humans increasingly rely more on haptics in 3D shape perception with higher degrees of visual-haptic conflict. Presented at the *2008 International Multisensory Research Forum*.
36. Gray, R. (2009). Designing effective collision warnings for drivers. Invited paper presented at the 21st annual convention of the *Association for Psychological Science*. May 22-25, 2009.
37. Gray (2009). Binocular information for the control of action. Invited paper to be presented at the *2009 American Psychological Association Convention*.

38. Kuzel, M., Heller, M. F., Gray, R. & Neuman, B. (2009). Performance deficits resulting from multitasking in an office environment. To be presented at the *IEA Conference*.

UNPUBLISHED CONFERENCE PAPERS

1. Gray, R. (2001). Perceptual-motor and cognitive strategies used by baseball batters. Presented at the *International Conference on Perception and Action*, Storrs, Connecticut, June 25-29, 2001.
2. Gray, R. (2003). Vision in driving, flying and sports. Presented at *Visual Processing of Spatial Form Defined by Luminance, Colour, Motion, Texture and Binocular Disparity: Conference to Celebrate the Career of David Martin Regan*, Toronto, ON, June 18-21, 2003.
3. Wood, C., Gray, R., Young, J. & Summers, J. (2003). Inattention blindness while driving. Presented at the *Second International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design*, Park City UT, July 21-24, 2003.
4. Gray, R. (2004). Perception and decision making of drivers during overtaking. Presented at the *Western Psychological Association's 84th Annual Convention*, Phoenix, AZ, April 22-25 2004.
5. Gray, R. (2004). Attention, perception and skill execution in baseball batting. Invited paper presented at the Tenth Annual Meeting of the *Cognitive Science Association for Interdisciplinary Learning (CSAIL), Symposium on Attention and Expertise in Sensorimotor Skills*, Hood River, Oregon, July 22-26, 2004.
6. Schroeder, C. & Gray, R. (2005). Effects of incentive on action representation: A study of gender dyads performance in simple compatibility tasks. Presented at the *Thirteenth Annual Interdisciplinary Conference*, Jackson Hole WY, Jan 30-Feb 4, 2005.
7. Castaneda, B. and Gray, R. (2005). The effects of attention and expertise in a motor-skill task. Presented at the *Annual Meeting of the Rocky Mountain Psychological Association*, April 14-16, 2005.
8. Gray, R. (2006). Visual-motor control in baseball batting. Invited paper presented at the *North American Meeting of the International Society for Ecological Psychology*, June 22-24, 2006.
9. Gray, R. (2006). Haptic information in driving and sports. Invited paper presented at the Annual Meeting of the *Tactile Research Group*, Houston TX, November 16, 2006.

10. Gray (2008). Vision in Driving, Flying & Sport. Invited award paper presented at the *Annual Meeting of APA Division 21 (Applied Experimental and Engineering Psychology)*.
11. Gray (2008). Vision in Driving, Flying & Sport. Invited paper presented at the *2008 Western Psychological Association (WPA) Convention*.
12. Gray, R., Mohebbi, R., & Tan, H. Z. (2009). Multisensory Rear-End Collision Warnings During Cell Phone Use. Paper to be presented at *The Eye and the Auto International Conference*, September 16-18, 2009

SELECTED MEDIA COVERAGE

- “Staring at the road can interfere with drivers’ ability to pass safely, says research study” *American Psychological Association Press Release*, December 24, 2000
- “Driving on long straight-aways can trick the brain, study finds” *The Dallas Morning News*, December 25, 2000
- “Passing perceptions, and perils” *The Washington Post*, January 1, 2001; Page A09
- “Brain: Take your eyes off the road” *Nature Science Update*, January 5, 2001
- “Motion illusions present driving hazard” *Reuters Health*, January 8, 2001
- “A dose of reality” *ASU Research Magazine*, Winter 2004
- “Crash course in visual perception and motor control” *National Science Foundation Discoveries*, March, 2006.
- “East valley faces deadly traffic trend” *East Valley Tribune*, February 2007.
- “Going, going, gone! The psychology of baseball” *APS Observer*, April 2007.
- “A shake may prevent a crash” *ScienceNOW Daily News*, May 2009.
- “Feeling the road: tactile warning systems for drivers” *APS Observer*. 2009. In press.

PUBLISHED TECHNICAL REPORTS

- Gray, R. & Regan, D. (1999). Overtaking control strategies & the role of adaptation to expansion in overtaking road-accidents. *CBR TR99-4, Nissan Technical Center North America, Inc.*
- Rushton, S. K. & Gray, R. (1999). Cambridge Basic Research 1999 Annual Report. *CBR TR99-9, Nissan Technical Center North America, Inc.*

INVITED TALKS AND PRESENTATIONS

- Toron-Nihon Virtual Reality/Telepresence Conference*, University of Toronto, Toronto, ON. "Flight simulator displays: Some considerations when training collision avoidance skills and when displaying textured surfaces". March 19-20, 1998. With D. Regan.

- School of Kinesiology, Simon Fraser University, Burnaby, B.C.* "Binocular and Monocular Visual Information Available for the Timing of Motor Action". May 7, 1998.
- Harvard Vision Sciences Colloquium Series, Harvard University, Cambridge MA.* "Visual Processing of Impending Collisions". Nov 12, 1998.
- International Conference on Vision and Attention. York University, Canada.* "Attentional modulation of motion-in-depth processing revealed by a detection time paradigm." June 22-26, 1999.
- Queen's University, Dept. of Psychology, Kingston, ON.* "Putting Motion Aftereffects Into Action". Nov 15, 1999.
- Arizona State University, Dept. of Psychology, Tempe, AZ.* "Putting Motion Aftereffects Into Action". Nov 22, 1999.
- Air Force Research Laboratory, Williams Air Force Base, Mesa, AZ.* "Visual Processing of Information for Collision Avoidance: Implications for Flying and Driving". Nov 23, 1999.
- Massachusetts Institute of Technology Independent Activities Program, Cambridge, MA.* "Through the Eyes of a Tiger: Perception & Sport". Jan 20, 2000.
- Biomedical Engineering Department, Boston University, Boston, MA* "What can motion aftereffects teach us about action and attention?" Oct 18, 2000.
- Massachusetts Institute of Technology Independent Activities Program, Cambridge, MA.*
- "Vision & Action Workshop!" (co-organizer)
 - "Workshop Introduction: Visual Perception versus Perception for Action" Jan 8, 2001
 - "What can imaginary balls and impossible pitches teach us about baseball batting" Jan 9, 2001
- Center for Cognitive Science, Rutgers University, Piscataway, New Jersey* "What can motion aftereffects teach us about action and attention?" Jan 17, 2001.
- International Conference on Perception and Action, Storrs, Connecticut. Symposium:* "Interceptive Actions: Anticipating New Directions" (organizer) June 25-29, 2001
- Arizona State University East, Mesa, AZ* " Human-Machine Interface Issues in the Future Car: Attentional Management and Highway Hypnosis". April 16, 2001.
- Cognitive Systems and Behavior Seminar, Arizona State University, Tempe AZ* "Don't just do it –think about it: Cognitive Processing in the Control of Action" September 17, 2001.

Department of Psychology Colloquium Series, University of Arizona, Tucson AZ
 “Don’t just do it –think about it: Cognitive Processing in the Control of Action”
 October 19, 2001.

Institute for Cognitive Neuroscience, University College London, London UK
 “Interactions between motion and attention in the control of action”. March 15,
 2002.

Attention, Perception & Data Visualization Office of Naval Research Workshop,
 George Mason University, Fairfax, VA. “Modeling and Predicting Effects of
 Multimodal Support Systems on Complex Dynamic Tasks”. May 22-24, 2002.
 With D. Salvucci.

Cognitive and Perceptual Sciences Area Seminar Series, University of California
Santa Barbara, "To hit or not be hit: Visual motor control in baseball and
 driving". November 8, 2002.

Arizona Chapter of the Human Factors and Ergonomic Society, “Human factors in
 driving and sports”. May 21, 2003.

Human Factors in Psychology Program, Texas Tech University, “Vision in driving,
 flying, and sports”. February 26, 2008.

Time-to-Contact Estimation & Eye Movements International Workshop, University of
Mainz, Germany, “TTC on the Road: Driver Utilization & Development of
 Collision Warnings”. May 7 & 8, 2009.

The Mental Game of Golf, PGA Workshop, Orange Tree Resort, Scottsdale AZ,
 “Don't Choke: Practical Principles for Optimal Performance”. June 3, 2009.

THESES

Integration of Stereopsis and Motion Parallax in the Perception of Depth, BAH,
 Queen's University, 1993 (Supervisor: Dr. Barrie Frost).

Cyclopean Motion in Depth Produced by Oscillations of Size and Oscillations of
Disparity, MA, York University, 1995 (Supervisor Dr. David Regan).

Estimating Time to Collision Using Binocular and Monocular Information, PhD,
 York University, 1998 (Supervisor Dr. David Regan).

PROFESSIONAL MEMBERSHIPS

Member of the Psychonomic Society, Inc. (2002-)

Member of the Vision Sciences Society (2003-)

Member of the North American Society for the Psychology of Sport and Physical Activity (2003-)
Associate Member of the Human Factors & Ergonomics Society (2004-)
Webmaster for the Tactile Research Group (2004-)
Member of the American Psychological Association (2007-)
Member of Division 21 of APA (2007-)

EXTRACURRICULAR

Competed in several triathlons and marathons in Canada and USA since 1997
Toured Sweden with an amateur Canadian hockey club, Dec. 1985

REFERENCES

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