

Erin M. Harley, Ph.D.
Managing Scientist

Professional Profile

Dr. Erin M. Harley is a Managing Scientist in Exponent's Human Factors practice. Dr. Harley focuses on the perceptual, cognitive, and performance issues relating to human behavior and applies her expertise to analyses of accidents and injuries. She investigates visibility, lighting, reaction time, eyewitness memory, hindsight bias, driver behavior, perceptions and reactions of skiers and snowboarders, and warning design and compliance. Dr. Harley has conducted research related to visual perception, hindsight bias (the "knew-it-all-along" effect), perceptual abilities in medical professionals, warning compliance, driver gear-shifting behaviors and errors, and skier perception and reaction. She has analyzed human factors issues in product liability, medical malpractice, transportation (e.g., automobile, motorcycle, and bicycle accidents), and premises liability cases including medical personnel errors, driver errors, ski accidents, and falls, among others. In addition, Dr. Harley applies her expertise in perception, bias, and memory to issues surrounding eyewitness testimony in criminal cases, and hindsight bias and memory distortion in medical malpractice litigation.

Prior to joining Exponent, Dr. Harley completed a Ph.D. in cognitive psychology at the University of Washington and worked as a post-doctoral research fellow at the University of California, Los Angeles. During that time she used both behavioral and neuroimaging techniques to conduct research on how humans process, interpret, and remember the visual environment, and how such interpretations affect human performance on real-world tasks. In 2005, Dr. Harley's unique research on hindsight bias earned her an invitation to speak at the International Hindsight Workshop in Leipzig, Germany with other leading researchers in the field.

Academic Credentials and Professional Honors

Post-Doctoral Fellow, University of California, Los Angeles, 2003–2006
Ph.D., Cognitive Psychology, University of Washington, 2003
B.A., Psychology, Boston University, 1997

University of Washington Social Sciences Dissertation Fellowship, 2002–2003; Outstanding Northwest Cognition and Memory (NOWCAM) Presentation, 2000; Fellowship for participation in the McDonnell Foundation's Summer Institute in Cognitive Neuroscience at Dartmouth College, 2000

Publications

Harley E, Scher I, Stepan L, Young D, Shealy J. Reaction times of skiers and snowboarders. *Journal of ASTM International* 2010; 7(9) (Paper ID JAI102829).

Shealy J, Scher I, Stepan L, Harley E. Jumper kinematics on terrain park jumps: Relationship between takeoff speed and distance traveled. *Journal of ASTM International* 2010; 7(10) (Paper ID JAI102885).

Heckman GM, Harley EM, Scher IS, Young DE. Helmet use in sledding: Do users comply with manufacturer warnings? *Human Factors and Ergonomics Society Annual Meeting Proceedings, Forensics Professional* 2010; 733–737.

Harley EM, Pope WB, Villablanca JP, Mumford J, Suh R, Mazziotta JC, Enzmann D, Engel SA. Engagement of fusiform cortex and disengagement of lateral occipital cortex in the acquisition of radiological expertise. *Cerebral Cortex* 2009; 19:2746–2754.

Scher IS, Harley EM, Richards D, Thomas R. Likelihood of brain injury in motorcycle accidents: A comparison of novelty and DOT-approved helmets. *SAE Paper 2009-01-0248*, Society of Automotive Engineers, 2009.

Heckman GM, Jackson GW, Keefer RE, Ray R, Harley EM, Young DE. Mechanisms of automatic transmission console shift selection and driver egress. *Society of Automotive Engineers 2009 World Congress*, April 2009. Paper judged to be among the most outstanding SAE Technical Papers of 2009 and thus further published in the *SAE International Journal of Engines*, Volume 2, September 15, 2009.

Harley EM, Trachtman D, Heckman GM, Young DE. Driver gear-shifting behaviors and errors. *Human Factors and Ergonomics Society Annual Meeting Proceedings* 2008; 52(23):1898–1902.

Harley EM. Hindsight bias in legal decision making. *Social Cognition* 2007; 25(1):38–57.

Bernstein DM, Harley EM. Fluency misattribution and visual hindsight bias. *Memory* 2007; 15(5):548–560.

Huntley-Fenner G, Harley E, Trachtman D, Young D. ANSI Z535.6 and conspicuity: A test of the new state of the art format for instructions. *Human Factors and Ergonomics Society Annual Meeting Proceedings, Product Design* 2007; 1029–1033.

Heckman GM, Bouvier SE, Carr VA, Harley EM, Cardinal KS, Engel SA. Nonlinearities in rapid event-related fMRI explained by stimulus scaling. *NeuroImage* 2007; 34:651–660.

Harley EM, Young DE. Driver reaction time: One size does not fit all. *American Bar Association Automobile Law Committee Newsletter*, Summer 2006; 4–9.

Loftus GR, Harley EM. Why is it easier to identify someone close than far away? *Psychonomic Bulletin & Review* 2005; 12(1):43–65.

Harley EM, Carlsen KA, Loftus GR. The “saw-it-all-along” effect: Demonstrations of visual hindsight bias. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 2004; 30(5):960–968.

Harley EM, Dillon AM, Loftus GR. Why is it difficult to see in the fog? How contrast affects visual perception and visual memory. *Psychonomic Bulletin and Review* 2004; 11(2):197–231.

Loftus GR, Harley EM. How different spatial-frequency components contribute to visual information acquisition. *Journal of Experimental Psychology: Human Perception and Performance* 2004; 30(1):104–118.

Harley EM, Loftus GR. MATLAB and graphical user interfaces: Tools for experimental management. *Behavior Research Methods, Instruments, and Computers* 2000; 32(2):290–296.

Conference Presentations and Published Abstracts

Harley EM, Scher IS, Young DE, Shealy J. Reaction time of skiers and snowboarders. Paper presented at the 18th International Symposium on Ski Trauma and Skiing Safety, Garmisch, Germany, April 2009.

Shealy J, Scher IS, Harley EM. Relationship between distances obtained while jumping versus takeoff speed and equipment used. Paper presented at the 18th International Symposium on Ski Trauma and Skiing Safety, Garmisch, Germany, April 2009.

Harley EM, Trachtman D, Heckman GM, Young ED. Driver gear-shifting behaviors and errors. Paper presented at the annual meeting of the Human Factors and Ergonomics Society, New York, NY, September 2008.

Harley EM, Scher IS. The effect of visibility on chosen speed of skiers and snowboarders. Paper presented at the 17th International Symposium on Ski Trauma and Skiing Safety, Aviemore, Scotland, May 2007.

Krauss DA, Lieberman DH, Harley EM, Grossman H, Scher I. An evaluation of perceptual experience of skiers using quantitative image processing. Paper presented at the 17th International Symposium on Ski Trauma and Skiing Safety, Aviemore, Scotland, May 2007.

Harley EM, Bouvier SE, Heckman GM, Engel SA. Figure-ground effects in V1 measured with functional MRI. Poster session presented at the annual meeting of the Vision Sciences Society, Sarasota, FL, May 2006.

Harley EM, Engel SA. Functional MRI can measure timing of neural response with high precision. Paper presented at the Annual Interdisciplinary Conference, Jackson Hole, WY, February 2006.

Harley EM, Carr VA, Viskontas IV, Cohen MS, Engel SA. Functional MRI can measure timing of transient increases in neural response with high precision. Poster session presented at the Annual Meeting of the Society for Neuroscience, Washington, DC, November 2005.

Bernstein DM, Harley EM, Ha A. When the past can and cannot be remembered accurately: Fluency misattribution and visual hindsight bias. Poster session presented at the annual meeting of the Psychonomic Society, Toronto, Canada, November 2005.

Harley EM, Pope WB, Villablanca P, Engel SA. Neural bases of perceptual expertise in radiologists. Poster session presented at the Annual Meeting of the Vision Sciences Society, Sarasota, FL, May 2005.

Heckman GM, Cardinal KS, Harley EM, Bouvier SE, Carr VA, Engel SA. Characterizing contrast response functions measured with rapid event-related fMRI. Poster session presented at the annual meeting of the Vision Sciences Society, Sarasota, FL, May 2005.

Cardinal KS, Harley EM, Heckman GM, Bouvier SE, Carr VA, Engel SA. Comparison of contrast response functions measured with rapid and spaced event-related fMRI designs. Poster session presented at the annual meeting of the Society for Neuroscience, San Diego, CA, October 2004.

Harley EM, Carlsen KA, Loftus GR. Hindsight is 20/20: Visual hindsight bias in celebrity-face identification. Paper presented at the Biennial Meeting of the Society for Applied Research in Memory and Cognition, Aberdeen, Scotland, July 2003.

Harley EM, Bernstein DM, Loftus GR. Visual hindsight bias in object and face recognition. Poster session presented at the annual meeting of the Psychonomic Society, Kansas City, MO, November 2002.

Harley EM, Loftus GR. Is hindsight 20/20?: Evidence for hindsight bias in visual perception. Paper presented at the Annual Interdisciplinary Conference, Jackson Hole, WY, February 2002.

Harley EM, Carlsen KA, Loftus GR. Is hindsight 20/20?: Evidence for hindsight bias in visual perception. Poster session presented at the annual meeting of the Psychonomic Society, Orlando, FL, November 2001.

Harley EM, Loftus GR. Visual hindsight bias: The “seen it all along” effect. Paper presented at the Annual Meeting of the Northwest Cognition and Memory Society, Vancouver, BC, Canada, May 2001.

Harley EM, Loftus GR. A universal contrast effect in information-acquisition tasks. Paper presented at the Annual Meeting of the Northwest Cognition and Memory Society, Bellingham, WA, May 2000.

Harley EM, Loftus GR. Stimulus degradation and memory. Paper presented at the Annual Interdisciplinary Conference, Jackson Hole, WY, January 2000.

Harley EM, Loftus GR. A constant effect of stimulus contrast across very different stimulus-task combinations. Paper presented at the Annual Meeting of the Psychonomic Society, Los Angeles, CA, November 1999.

Harley EM, Loftus GR. MATLAB and graphical user interfaces. Paper presented at the Annual Meeting of the Society for Computers in Psychology, Los Angeles, CA, November 1999.

Selected Invited Presentations

Harley EM. Bias and memory distortion. Invited teaching lecture at University of California, Los Angeles, CA, June 2007.

Harley EM. Mental imagery. Invited teaching lecture at University of California, Los Angeles, CA, January 2007.

Harley EM. Hindsight bias in non-verbal domains. Invited talk at the International Hindsight Workshop, Leipzig, Germany, July 2005.

Harley EM. Is hindsight 20/20?: Demonstrations of hindsight bias in visual identification tasks. Invited talk at University of California, Riverside, CA, October 2004.

Academic Appointments

- Lecturer, University of California, Los Angeles, Department of Psychology, 2007

Peer Reviewer

- *Journal of Experimental Psychology: Learning, Memory, & Cognition*
- *Human Factors and Ergonomics Society*

Professional Affiliations

- Society for Neuroscience, 2004–present
- Vision Sciences Society, 2003–present
- Human Factors and Ergonomics Society, 2006–present