Justin M. Owens, Ph.D.
Curriculum Vitae

Home Address

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Work Address

Virginia Tech Transportation Institute
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Current Position

2008 – Present **Senior Research Associate**, Center for Vulnerable Road User Safety, Virginia Tech Transportation Institute, Blacksburg, VA

Education

Ph.D.: Cognitive Science, Brown University, Providence, RI, 2008
- Dissertation: "Anticipatory control of human locomotion requires visuo-spatial attentional resources."
- Preliminary Exam: "Levels of control: A framework for investigating perception and action."

M.S.: Applied Psychology, Human Factors, Clemson University, Clemson, SC, 2003
- Master's Thesis: "Augmented Cognition: Developing and testing a physiology-based task adaptation system"

B.A.: Psychology, Franklin & Marshall College, Lancaster, PA, 2001
- Honors Thesis: "The effects of age and distraction on reaction time in a driving simulator."
- Departmental Honors in Psychology
- Cum Laude

Peer-Reviewed Publications

Owens, J.M., McLaughlin, S.B., & Sudweeks, J. (2011). Driver performance while text messaging using handheld and in-vehicle systems. *Accident Analysis and Prevention, 43*, 939-947, doi:10.1016/j.aap.2010.11.019.

Owens, J.M., McLaughlin, S.B., & Sudweeks, J. (2010). On-Road comparison of driving performance measures when using handheld and voice-control interfaces for

mobile phones and portable music players. *SAE Int. J. Passenger Cars – Mech. Syst.* 3(1): 734-743.

Walker, A.D., **Owens, J.M.**, & Muth, E.R. (2009). Major causes of spatial disorientation and the role of visual training systems: A survey of experts. *International Journal of Professional Aviation Training & Testing Research, 3*(1).

Owens, D. A., Wood, J. M., & **Owens, J. M.** (2007). Effects of age and illumination on night driving: A road test. *Human Factors, 49*(6), 1115-1131.

Published Reports

Perez, M., Owens, J., Viita, D., Angell, L., Ranney, T.A., Baldwin, G.H.S., & Parmer, E. (2012). *Summary of Radio Tuning Effects on Visual and Driving Performance Measures – Simulator and Test Track Studies.* Document ID NHTSA-2010-0053-0076, U.S. Department of Transportation, Washington, D.C.

Owens, J. M. (2008). *Anticipatory control of human locomotion requires visuo-spatial attentional resources*. (Doctoral dissertation). Available from ProQuest Dissertations & Theses Database. (UMI No. 3335686).

Flannagan, M.J., Reed, M.P., Owens, J.M., Way, M.L., & Blower, D.F. (2003). *Optimizing the performance and use of indirect visibility systems on heavy trucks: Interim report.* The University of Michigan Transportation Research Institute.

Forthcoming Publications

Owens, J.M. & Warren, W.H. (*in prep*). Anticipation of moving targets in locomotion.

Owens, J.M. & Warren, W.H. (*in prep).* The attentional requirements of anticipatory obstacle avoidance.

Conference Presentations

Owens, J.M. & Warren, W.H. (2009). Are attentional resources required to anticipate moving obstacles? [Abstract] *Journal of Vision, 9*(8), 1128.

Owens, J.M. & Warren, W.H. (2008). Can people learn to anticipate obstacle motion when necessary to avoid collision? [Abstract] *Journal of Vision, 8*(6), 1156.

Owens, J.M. & Warren, W.H. (2007). Avoiding moving obstacles on foot: Can people learn to anticipate obstacle motion? [Abstract]. *Journal of Vision, 7*(9), 757a.

Owens, J.M. & Warren, W.H. (2006). Intercepting moving targets on foot: Can people learn to anticipate multiple trajectories? [Abstract]. *Journal of Vision, 6*(6), 145a.

Owens, J.M. & Warren, W.H. (2005). Intercepting moving targets on foot: Can people learn to anticipate target motion? [Abstract]. *Journal of Vision, 5*(8), 310a.

Owens J.M. & Warren, W.H. (2004). Interception of curving targets. *Abstracts of the Psychonomic Society, 9*: 54-55.

Owens, J.M. & Warren, W.H. (2004). Intercepting moving targets on foot: Target acceleration and direction change [Abstract]. *Journal of Vision,* 4(8), 801.

Brooks, J. O., Owens, J. M., Stephens, B. R., & Tyrrell, R. A. (2003). How well do we know our own visual limitations? Comparisons of estimated and actual visual abilities [Abstract]. *Journal of Vision*, *3*(9), 810a.

Wood, J. M., Owens, D. A., Woolf, M. I., & Owens, J.M. (2002). Predicting night-time visibility while driving [Abstract]. *Journal of Vision*, *2*(7), 331a.

Owens, J. M., & Lehman, R. (2001). The effects of distraction and age on reaction time in a driving simulator. *Proceedings of the First International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design.* 147-152.

Ferris, J. S., Owens, J. M., Berson, S. B., & Owens, D. A. (2002) How good are those headlights? A test of the Civil Twilight Criterion. *Conference of the Eastern Psychological Association*. Baltimore, March 2002.

Owens, D. A, Owens, J. M., Wood, J., Whittam, & Woolf, M. (2000). Age-related variation in driving behavior at night. *North American Meeting of the International Society of Ecological Psychology*, Clemson, SC, June 2000.

Owens, J. M., Owens, D. A. Wood, J., Whittam, & Woolf, M. (1999). Effects of age and light on lane-keeping. *Conference of the Eastern Psychological Association. Baltimore, MD*, March 1999.

Invited Manuscript Reviewer For:

- *Experimental Brain Research*
- *Ecological Psychology*
- *Applied Cognitive Psychology*
- *Accident Analysis & Prevention*

Sponsored Research

- 1/2013 – Present *Effects of Age, Lighting, and Weather on Driver Vehicle Control.* Principal Investigator (PI), Sponsor: National Surface Transportation Safety Center For Excellence (NSTSCE). The goal of this study is to use naturalistic driving data to examine how varying lighting and weather conditions affect driver vehicle control across age groups.

- 6/2011 – Present *Driver Distraction: Operational Definitions, Event Algorithm Development, and Dataset Creation.* Co-PI, Sponsor: Major Automotive Company (MAC). The goal of this project is to develop an algorithm to detect distracted driving epochs in the SHRP2 naturalistic driving database, and to use this to construct a dataset of distracted driving epochs along with a baseline, non-distracted dataset.

- 6/2011 – Present *Comparing the Driving Safety Benefits of Brain Fitness Training Programs for Older Drivers.* Co-PI, Sponsor: NSTSCE/MAC. This project focuses on evaluating cognitive training methodologies for senior drivers. This project includes laboratory sessions as well as driving tasks on a closed-road course and public roads.

- 5/2011 – 7/2012 *In-Vehicle Device Guidelines.* Sponsor: National Highway Traffic Safety Administration (NHTSA). Assisted in data analysis, report writing, and facilitation of a brainstorming session for NHTSA-sponsored project to evaluate in-vehicle interface guidelines.

- 9/2010 – 5/2011 *MSF-VTTI Naturalistic Motorcycle Study.* Project Manager, Sponsor Motorcycle Safety Foundation (MSF). Project manager during preparation of MSF-VTTI Naturalistic Motorcycle Study; supervised IRB application, recruitment design, website development.

- 10/2010 – 3/2011 *Aggressive Driver Field Report*. Project Manager, Sponsor: MAC Conducted a naturalistic driving evaluation of aggressive driver behavior for a Major Automotive Company (MAC).

- 5/2010 – 9/2010 Reviewed and compiled published HMI tests for collision avoidance systems, working toward developing standards for system testing.

- 7/2009 – 9/2010 *Driver Performance While Using Handheld and In-Vehicle Systems to Play Music, Text Message, and Make Calls.* Project Manager. Sponsor: Ford Motor Company
  Designed and conducted a study evaluating driver performance while making mobile phone calls, having conversations, playing

music tracks and text messaging on public roads and on a closed-road course. Publications in both *SAE* and *AA&P* cited above.

- 9/2008 – 7/2009 Researched the dangers associated with rural driving and "hot spot" intersections and corridors; sponsored by the National Surface Transportation Safety Center for Excellence (STSCE).

- 9/2008 – 3/2009 *MASK Validation Study.* Sponsor: NSTSCE
  Conducted a study evaluating the effectiveness and accuracy of a proprietary machine-vision system designed to monitor drivers' eye movements.

- 10/2008 – 3/2009 *Literature Review on Semi-Autonomous Vehicles.* Sponsor: MAC.
  Conducted a major literature review on semi-autonomous vehicle systems for an MAC. Presented in both paper and website form.

- 9/2003 – 8/2008 Conducted research with Dr. William Warren, Brown University Department of Cognitive & Linguistic Sciences, studying the dynamical underpinnings of the visual control of human locomotion. Dissertation research focused on the extent to which attention modulates people's ability to predict when moving objects in the world may become threats.

- Summer 2002 Internship at the University of Michigan Transportation Research Institute, with Dr. Michael Flannagan and Dr. Michael Sivak. Primary work conducted on a project studying the implementation and effectiveness of heavy truck mirrors and alternative technologies.

- 9/2001-8/2003 Graduate Research Assistant for Dr. Eric Muth, Clemson University Department of Psychology. Worked in aviation human factors research examining performance in high workload environments, particularly environments with motion and acceleration stress. Master's thesis investigated the development of an augmented cognition system that provided real-time user assistance based on heart rate variability.

  Additionally, worked with Dr. Richard Tyrrell on several studies of people's estimates of their own visibility at night and on the visibility of others.

- Summer 2001 Conducted research at Centre for Eye Research, Queensland University of Technology, Brisbane, Australia. Supervising researcher Dr. Joanne Wood; conducted experiments on pedestrian recognition at night.

• Summer 1998 Conducted research at Centre for Eye Research, Queensland University of Technology, Brisbane, Australia. Supervising researcher Dr. Joanne Wood; assisted in data collection and analysis during a study of driver behavior at night on a closed road course. Published results in *Human Factors* cited above.

Teaching Experience

Teaching Assistantships

• Spring 2006: Course: Making Decisions
Professor: Dr. Steven Sloman
- Developed & presented lecture: "Decision Making and Driving"

• Fall 2005: Course: Child Development
Professor: Dr. James Morgan
- Developed & presented lecture: "Autism"

• Spring 2005: Course: Perception, Illusion, and the Visual Arts
Professor: Dr. William Warren

• Fall 2004: Course: Quantitative Methods in Psychology
Professor: Dr. Kathryn Spoehr
- Developed & presented lecture: "Introduction to Statistics and Data Presentation with Microsoft Excel"

Teaching Credentials

• Spring 2006: Brown University Harriet W. Sheridan Center for Teaching and Learning, *Teaching Certificate I*

Invited Talks

October 3, 2012: Virginia Occupational Safety & Health Conference, Roanoke, VA: "Naturalistic Driving Studies: What we have learned about driver distraction." (Talk written in conjunction with and delivered at the request of Dr. Charlie Klauer)

December 17, 2010: ITS America, Human Interaction with Intelligent Transportation Systems Committee: "Comparing Handheld and Voice-Control Interfaces when Using Mobile Phones and Portable Music Players."

April 23, 2010: Introductory Human Factors Course, Brown University, Providence, RI: "Introduction to Automotive Human Factors."

February 20, 2006: Clemson University, Clemson, SC: "Interception of Novel and Predictable Targets."

Professional Memberships, Honors and Awards

• 2005 – Present: Member of the Human Factors & Ergonomics Society
• 2006-2007: Brown University Dissertation Fellowship Award
• 2001: Departmental Honors in Psychology
• 2000-2001: Honors List at Franklin & Marshall College
• 1999: Hackman Summer Research Grant
• 1999-2001: Psi Chi, National Psychology Honor Society
- 2000: Chapter President
• 1997-2000: Dean's List at Franklin & Marshall College
• 1997: Franklin & Marshall Presidential Scholars Award

Technical Experience

• I am experienced with a variety of instrumented vehicle systems and retrieval/analysis of on-road driving data.

• I have extensive experience configuring, using, and troubleshooting a virtual reality laboratory, including:

- Head-mounted displays (HMDs)
- Movement tracking systems (particularly Intersense ultrasonic/inertial)
- Analysis of human movement data
- VR environment creation software
    - Used Python and Vizard to develop a flexible, customizable operating system for the VENLab virtual environment laboratory at Brown University, which was used for my dissertation research and by other researchers in the lab.

• I am familiar with the use of a wide variety of specialized and general software, including Matlab, Python, Vizard, Adobe Creative Suite, SPSS, SAS, HTML, various proprietary software packages, and Microsoft Office, as well as both Windows and OSX operating systems.

• I have strong general interest in working with and understanding technology and mechanical systems. I enjoy maintaining and modifying automobiles in my spare time, and consider myself well-versed in technology. I enjoy a challenge and am always eager to learn new skills.