



Exponent[®]
Engineering & Scientific Consulting

Jacqueline Zimmermann, Ph.D.

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Professional Profile

Dr. Zimmermann has training in human perception and cognition, reaction time, attention, distraction, memory, audition and vision. Her expertise has been applied to assessing and understanding how driver and pedestrian variables such as age, attention, cognitive load, experience and expectancy influence perception and response to roadway and walkway hazards. In addition, she investigates how these human factors interact with environmental conditions such as lighting, visibility, road conditions, and conspicuity of hazards. Dr. Zimmermann combines knowledge of human psychology and neuroscience with complex statistical and computational techniques to evaluate a wide array of accident scenarios involving vehicles and pedestrians, micro-mobility, consumer products or trip-and-fall incidents. She also analyzes factors influencing human information-seeking and compliance with warnings and instructions. She oversees and independently designs cognitive and behavioral experiments, and tests and interprets human behavioral and neuroscience data based on scientific literature reviews.

Dr. Zimmermann joined Exponent with a Ph.D. and Master's degree in Psychology from University of Toronto, with a Cognitive Neuroscience sub-specialization. She was awarded over 15 awards at Institutional, National and International levels throughout her graduate studies. Dr. Zimmermann's doctoral dissertation employed behavioral and brain-imaging techniques to address how our ability to react to our environments is influenced by long-term memory and familiarity with those environments. She has knowledge of signal processing and detection theory, human perceptual hearing deficits as well as the effects of noisy environments on the ability to interpret auditory information. She has been an Instructor at the University of Toronto in Human Memory and Psychology and the Law, and has also worked as a psychometrist to gauge cognitive and motor impairments in various clinical groups (HIV, Alzheimer's disease, mild cognitive impairment, various auditory cognitive impairments) and to assess decline with age.

Academic Credentials & Professional Honors

Ph.D., Psychology, University of Toronto, Canada, 2018

M.A., Psychology, University of Toronto, Canada, 2014

B.Sc., Psychology, University of Toronto, Canada, 2013

Selected University of Toronto Scholar of 2012: Among top 20 students at University of Toronto in 2012

International and private:

Weston Brain Institute International Fellowship in Neuroscience, 2017-2018

Auditory Cognitive Neuroscience Network, University Claude Bernard, Lyon, France, 2015

National:

Natural Sciences and Engineering Research Council of Canada Doctorate Scholarship, 2016 – 2018

McCuaig-Throop Bursary, 2017

NSERC-CREATE, Auditory Cognitive Neuroscience Biomedical program, 2014-2015

Institutional:

Learning and Developmental Award, Baycrest Hospital, 2018

School of Graduate Studies Travel Award, 2018

Men's Service Group Graduate Fellowship, Rotman Research Institute, 2017

Jack and Rita Catherall Fund, Baycrest Hospital, 2017

School of Graduate Studies Conference Grant, 2017

Mary Gertrude l'Anson Scholarship, 2016

Professor R. Paul Young Fellowship, 2015

University wide Margaret and Nicholas Fodor Fellowship, 2014

University wide Agnes M. Ireland Award, 2013

I.M. Spigel Memorial Scholarship in Psychology, 2013

Academic Appointments

Instructor, Psychology Department, University of Toronto, 2016

Professional Affiliations

Human Factors and Ergonomics Society

Society of Automotive Engineers

Languages

Czech

Publications

Kolarik K, Phillips K B, Zimmermann J F, Krauss A D. Driver stopping behavior at stop-controlled intersections. Proceedings, 64th Annual Meeting of the Human Factors and Ergonomics Society, 2020; doi: 10.1177/1071181320641350.

Zimmermann J, King D, Crump C. Battery-related injuries in children and adults. Proceedings, 64th Annual Meeting of the Human Factors and Ergonomics Society, 2020.

Zimmermann J, Ross B, Moscovitch M, Alain C. Neural dynamics supporting auditory long-term memory effects on target detection. *NeuroImage*, NIMG-19-2973R2, 2020; doi: 10.1016/j.neuroimage.2020.116979.

Watson H, Garman T, Zimmermann J, Wishart J. Patient demographics and injury characteristics of ER visits related to powered scooters. *Society of Automotive Engineers*, 20SS-0434/2020-01-0933, 2020; doi:10.4271/2020-01-0933.

Todd J, Zimmermann J, Dunning A, Krauss D. Behavior of electric scooter operators in naturalistic environments. *Society of Automotive Engineers*, 9SS-0320/2019-01-1007, 2018; doi:10.4271/2019-01-1007.

Zimmermann J, Alain C, Butler C. Impaired memory-guided attention in asymptomatic APOE4 carriers. *Scientific Reports* 2019; doi: 10.1038/s41598-019-44471-1.

Zimmermann J, Butler C. Accelerated long-term forgetting in asymptomatic APOE ε4 carriers. *The Lancet Neurology* 2018; [http://dx.doi.org/10.1016/S1474-4422\(18\)30078-4](http://dx.doi.org/10.1016/S1474-4422(18)30078-4).

Zimmermann J, Moscovitch M, Alain C. Attending to auditory memory. *Brain Research* 2015; doi:10.1016/j.brainres.2015.11.032.

Zimmermann J, Moscovitch M, & Alain C. Long-term memory biases auditory spatial attention. *Journal of Experimental Psychology-Learning Memory and Cognition* 2017; doi:10.1037/xlm0000398.

Non-Peer Reviewed Articles

Zimmermann J, Krauss D. Driver behavior from a Human Factors perspective: What is visible vs what is seen. *American Bar Association, Tort Trial and Insurance Practice Section, Winter 2020 Newsletter*. Americanbar.org/tips.

Conference Presentations

Zimmermann J, King D, Crump C. Battery-related injuries in children and adults. Oral Presentation (Digital), *Human Factors and Ergonomics Society*, 2020.

Watson N, Garman C MR, Wishart J, Zimmermann J. Patient demographics and injury characteristics of ER visits related to powered scooters. Oral Presentation (Digital), *Society for Automotive Engineers, WCX Digital Summit*, 2020.

Presented by J. Zimmermann on behalf of Crump, C, Bui, Y Speed of child cyclists. Oral Presentation, *Society for Automotive Engineers, Detroit, MI*, 2019.

Zimmermann J, Alain C, Butler C. Healthy and impaired memory-guided attention. Oral Presentation, *International Conference on Learning and Memory, Irvine, CA*, 2018.

Zimmermann J. Memory-guided attention in individuals with genetic risk for Alzheimer's disease. Oral Presentation, *Oxford Brooke's University Research Seminar, Oxford, United Kingdom*, 2017.

Zimmermann J, Moscovitch M, Alain C. Long-term memory guides auditory spatial attention: An event-related potential study. Poster presentation, *Cognitive Neuroscience Society, San Francisco, CA*, 2017.

Zimmermann J, Alain C, Perrin F. Music and externalization enhances self-relevant processing. Poster presentation, *BRAMS symposium, Montreal, Canada*, 2015.

Zimmermann J, Moscovitch M, Alain C. Long-term memory influences the deployment of auditory attention as revealed by neuromagnetic recordings. Poster presentation, SFN 44th Annual Conference, Washington DC, 2014.

Zimmermann J, Van Lieshout P. Do scary sounds make you sweat: Cognitive and physiological responses to threatening auditory stimuli. Oral presentation, UHN Toronto Rehab Institute's Annual Conference, Toronto, Canada, 2012.

Public Engagements

Zimmermann J. Brain Spotlight series. Oral Presentation. University of Oxford, Oxford, United Kingdom, 2017. (<https://morethanadodo.com/2017/09/21/all-about-alzheimers/>)

Project Experience

Driver behavior cases for litigation: Analyzing cases regarding human perception, performance and response time, and influences of both internal driver/pedestrian variables such as age, attention, cognitive load, experience, as well as external variables such as weather, road conditions, nighttime visibility, distraction etc.

Trip-and-fall cases for litigation: Assessing human gait and typical walking behavior in different walking environments.

On-product and environmental warnings cases for litigation: Assessing user information-seeking and compliance with warnings and instructions.

Micro-mobility research: Assessing user behavior and safety of new technology.

Vehicular class actions: Conducted research in vehicular class action cases to assess potential human factors contributions to the alleged defect.

Peer Reviewer

eLife Scientific Journal

Experimental Brain Research

"Memory and Behaviour", Oxford University Press Canada