



Kyra Veprek, Ph.D.

Scientist | Human Factors

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Professional Profile

Dr. Veprek is a cognitive psychologist and human factors expert with a background in human subjects research and a focus on natural pedestrian behavior.

She draws on her expertise in visual perception, attention, and locomotor control to consult on projects across transportation, automotive, consumer product, and technology industries. She additionally evaluates human factors contributions to trip/slip-and-fall incidents, industrial accidents, and product-related injuries, including warning comprehension and compliance.

Before joining Exponent, Dr. Veprek completed her Ph.D. in Cognitive Science at Brown University, where she studied the visual control of collision avoidance in pedestrians navigating social environments. Her doctoral work combined virtual reality experimentation, time-series analyses of locomotor behavior, and agent-based simulations of individual and crowd pedestrian dynamics. Prior to her doctoral studies, Dr. Veprek worked in educational consulting and research. Her broader professional interests include improving vehicle and pedestrian safety.

Academic Credentials & Professional Honors

Ph.D., Cognitive Science, Brown University, 2026

M.S., Cognitive Science, Brown University, 2023

B.A., Psychology, University of Massachusetts, 2021

Early Career Travel Award, National Eye Institute, 2024

Prior Experience

Research Assistant, Sagefox Consulting Group, 2020-2021

Professional Affiliations

Human Factors and Ergonomics Society

Vision Sciences Society

International Society for Ecological Psychology

Publications

Feldmann S, Veprek K, and Warren WH. "[Formation of lanes and stripes in crossing pedestrian flows using an empirical human model.](#)" In Proceedings of Traffic and Granular Flow, vol. 334, p. 04011, 2025.

Presentations

Feldmann S, Veprek K, and Warren WH. Self-organized pattern formation in crossing pedestrian crowds. Poster Presentation, The International Conference on the Simulation of Adaptive Behavior (SAB), Berlin, Germany, 2026.

Veprek K, and Warren WH. Visual model of collision avoidance generalizes to mutual avoidance. Oral Presentation, The Annual Meeting of the Vision Sciences Society (VSS), St. Pete Beach, Florida, 2026.

Feldmann S, Veprek K, and Warren WH. Simulating crossing pedestrian flows with a vision-based model of collision avoidance. Oral Presentation, The International Conference on Pedestrian and Evacuation Dynamics (PED), Prague, Czech Republic, 2025.

Veprek K, Feldmann S and Warren WH. Visual model of locomotion reproduces lanes and stripes in crossing human crowds. Poster Presentation, The Annual Meeting of the Vision Sciences Society (VSS), St. Pete Beach, Florida, 2025.

Veprek K, and Warren WH. How many potential collisions do we respond to at once: Investigating the efficacy of visual thresholds in human crowds. Poster Presentation, The International Conference on Perception and Action (ICPA), Trondheim, Norway, 2024.

Veprek K, and Warren WH. How many moving obstacles do we respond to at once? A temporal threshold model best accounts for collision avoidance in a crowd. Poster Presentation, The Annual Meeting of the Vision Sciences Society (VSS), St. Pete Beach, Florida, 2024.

Veprek K, and Warren WH. Human collision avoidance with multiple moving obstacles. Oral Presentation, The International Conference on Perception and Action (ICPA), Guadalajara, Mexico, 2023.

Veprek K, and Warren WH. Visual Collision Avoidance in a Crowd. Poster Presentation, The Annual Meeting of the Vision Sciences Society (VSS), St. Pete Beach, Florida, 2023.

Veprek K, Esiason, J, and Zarch R. The footprint of RPPforCS: A national look at communities served by research-practitioner-partnerships in computer science. Poster Presentation, Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT) IEEE, Remote, 2021.