



**Exponent**<sup>®</sup>  
Engineering & Scientific Consulting

## Branden Kolarik, Ph.D.

Scientist | Human Factors

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### Professional Profile

Dr. Kolarik has expertise in perception, cognition, cognitive neuroscience, human behavior, spatial navigation, and age-related cognitive impairments along with extensive experience in experimental design and data analysis. He uses his knowledge of cognition and behavior to assess human factors involved in a wide range of scenarios including automobile, motorcycle, bicycle, pedestrian, and trucking accidents; warnings and product liability; industrial/occupational accidents, and trip-and-fall incidents. Dr. Kolarik also uses his experience in experimental design and data analysis to design and conduct research aimed at furthering our understanding of human behavior in real-world situations.

Dr. Kolarik joined Exponent after a postdoctoral fellowship at UC Irvine where he was awarded an NIA Neurobiology of Aging Training Grant to study memory impairments that come with normal healthy aging using both neuroimaging and behavioral intervention approaches. His doctoral work at UC Davis focused on spatial memory impairments in adults following damage to the medial temporal lobes. He has experience in a variety of research methods including human subjects testing, virtual reality, structural and functional MRI, behavioral interventions, neuropsychological testing, and data analysis.

### Academic Credentials & Professional Honors

Ph.D., Psychology, University of California, Davis, 2017

M.A., Psychology, San Francisco State University, 2011

B.A., Psychology, University of Wisconsin, Milwaukee, 2006

### Academic Appointments

Postdoctoral Fellow, University of California, Irvine 2017-2019

### Professional Affiliations

Human Factors and Ergonomics Society

Society for Neuroscience

Cognitive Neuroscience Society

## Publications

Kolarik, B., Baer, T., Shahlaie, K., Yonelinas, A. and Ekstrom, AD. (2017). Close but no cigar: Spatial precision deficits following medial temporal lobe lesions provide novel insight into theoretical models of navigation and memory. *Hippocampus*, 28, 31-41.

Kolarik, B., Shahlie, K., Hassan. A., Borders,A., Kaufman, K., Gurkoff, G., Yonelinas, A. and Ekstrom, A. (2016). Impairments in precision, rather than spatial strategy, characterize performance in the human analogue of the virtual Morris Water Maze: A Case Study. *Neuropsychologia*, 80, 90-101.

Kolarik, B. & Ekstrom, AD. (2015). The neural underpinnings of spatial memory and navigation. In Toga, A. & Poldrack, R. (Eds.) *Brain Mapping: An Encyclopedic Reference*. Oxford, UK: Elsevier.

## Selected Presentations

Kolarik, B., Stark, S.M., & Stark, C.E.L. (2019, April). Age-related impairments for memory updating in healthy older adults. *Cognitive Neuroscience Society Annual Meeting*, San Francisco, CA.

Kolarik, B., Rutledge, S.M., Stark, S.M., & Stark, C.E.L. (2018, October). Memory benefits in older adults following real-world environmental enrichment training. *Society for Neuroscience Annual Meeting*, San Diego, CA.

Kolarik, B., Stark, S.M., & Stark, C.E.L. (2018, April). Investigating the effects of real-world exploration as environmental enrichment in older adults. *Learning and Memory*, Huntington Beach, CA.

Kolarik, B., Baer, T., Shahlaie, K., Gurkoff, G., Yonelinas, A., Ekstrom, A. (2016, November). Patients with hippocampal damage demonstrate impairments in spatio-temporal binding and precision but not spatial strategy. *Society for Neuroscience Annual Meeting*, San Diego, CA.

Kolarik, B., Baer, T., Shahlaie, K., Gurkoff, G., Farias, S., Yonelinas, A., Ekstrom, A. (2016, August). Patients with hippocampal damage demonstrate impairments in spatio-temporal binding and precision but not spatial strategy. *Spatial Cognition Annual Meeting*, Philadelphia, PA.

Kolarik, B., Shahlaie, K., Hassan, A., Borders, A., Kaufman, K., Gurkoff, G., Yonelinas, A., Ekstrom, A. (2015, October). Damage to the medial temporal lobes impairs spatial precision and spatiotemporal binding while sparing allocentric memory. *Society for Neuroscience Annual Meeting*, Chicago, IL.

Kolarik, B., Borders, A., Kaufman, K., Yonelinas, A., Ekstrom, A. (2015, April). Damage to the medial temporal lobes impairs spatial precision and spatiotemporal binding while sparing allocentric memory. *Cognitive Neuroscience Society Annual Meeting*, San, Francisco, CA.

## Invited Talks

Kolarik, B. (2019). Hippocampally-dependent memory impairments in normal healthy aging. Talk presented at University of Arizona.

Kolarik, B. (2019). Memory benefits in older adults following real-world environmental enrichment training. Talk presented at the REMIND Symposium, University of California Irvine.

Kolarik, B. (2016). Patients with hippocampal damage demonstrate impairments in spatio-temporal binding and precision but not spatial strategy. Talk presented at the UC Neurotrauma Symposium, Sonoma, CA.

Kolarik, B. (2015). Damage to the medial temporal lobes impairs spatial precision and spatiotemporal

binding while sparing allocentric memory. Talk presented at the Bay Area Memory Meeting, University of California, Davis.

## Research Grants

NIA Neurobiology of Aging Training Grant T32.

## Peer Reviewer

Neuropsychologia

Journal of Neuroscience

Nature Communications

Learning and Memory