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Engineering & Scientific Consulting

Kelly Michaelis, Ph.D.

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Professional Profile

Dr. Michaelis specializes in the study of human behavior and cognition. Her work has focused on the cognitive and physiological bases of executive function (attention, task-switching, vigilance, inhibition), creativity, verbal and spatial reasoning, and speech and language processing. She uses this extensive research experience to address questions related to human factors, driver distraction and driver behavior, human-machine interfaces, and human performance. Dr. Michaelis has extensive experience with study development and experimental design, as well as the collection and analysis of human subjects' data. Dr. Michaelis' work has been recognized by the National Science Foundation, the Society for the Neurobiology of Language, and the International Mind, Brain, and Education Society.

Dr. Michaelis also has experience using virtual reality-based tasks to examine how humans process spatial distance and time when evaluating rewards. At Exponent, Dr. Michaelis utilizes her skillset to assess human factors in a wide range of transportation accidents and injuries, including those involving advanced driver assistance systems (ADAS). She has also participated in the planning and execution of experimental studies evaluating the risk and safety of in-vehicle technologies.

Prior to joining Exponent, Dr. Michaelis graduated from Georgetown University with a Ph.D. in neuroscience and served as a postdoctoral fellow at the National Institute for Neurological Disorders and Stroke and the National Institutes of Health. Her work used behavioral experiments and neuroimaging to investigate a variety of complex human behaviors and their underlying neural networks.

Academic Credentials & Professional Honors

Ph.D., Neuroscience, Georgetown University, 2019

B.A., International Development, University of Virginia, 2009

Prior Experience

Grant and Product Development Consultant, Transcendent Endeavors, Oct 2021 – May 2023

Senior Postdoctoral Fellow, Lab for Relational Cognition, Department of Psychology, Georgetown University, July 2021 – May 2023

Postdoctoral Fellow, National Institute for Neurological Disorders and Stroke (NINDS), National Institutes of Health (NIH), Sept 2019 – June 2021

Doctoral Candidate, Cognitive Recovery Lab, Department of Neurology, Georgetown University, July 2015 – Aug 2019

Professional Affiliations

2022-2023, International Mind, Brain, and Education Society, Member

2021-2023, Society for the Neuroscience of Creativity, Executive Committee Member

2019-2023, National Postdoctoral Association, Member

2014-2019, American Association for the Advancement of Science, Member

2016-2019, Society for the Neurobiology of Language, Member

2018-2019, Organization for Human Brain Mapping, Member

2014-2019, American Association for the Advancement of Science, Member

Publications

Scully ID, Davis, SJ, Shlanta, P., Yanes, J.A., Michaelis, K., Cades, D.M. Looking back on forward collision warnings: A review of perception response time from empirical studies. Proceedings of the Human Factors and Ergonomics Society Annual Meeting. 2024: Advance Online Publication.

Michaelis, K., Miyakoshi, M., Norato, G., Medvedev, A. V., & Turkeltaub, P. E. (2021). Motor engagement relates to accurate perception of phonemes and audiovisual words, but not auditory words. Communications biology, 4(1), 1-12.

Michaelis, K., Erickson, L., Fama, M., Skipper-Kallal, L., Xing, S., Lacey, E., Anbari, Z., Rauschecker, J., and Turkeltaub, P. Effects of age and left hemisphere lesions on audiovisual integration of speech. Brain and Language, 206, 104812.

Robinson, E., Michaelis, K., Thompson, J.C., & Wiener, M.(2019) Temporal and spatial discounting are distinct in humans. Cognition, 190, 212-220.

Wiener, M., Michaelis, K., & Thompson, J. C. (2016). Functional correlates of likelihood and prior representations in a virtual distance task. Human brain mapping, 37(9), 3172-3187.

Michaelis, K., Wiener, M., & Thompson, J. (2014) Passive listening to preferred motor tempo modulates corticospinal excitability. Frontiers in Human Neuroscience, 8,252.

Presentations

Michaelis, K., Wienberger, A.B., Cortes, R.A., Betzel, R.F., Green, A.E. Exploring Functional Brain Network Modularity in Educational Contexts. Presented at the 7th Bienniel Meeting of the International Mind, Brain, and Education Society, July 21-23, Montreal, Canada.

Michaelis, K., Daker, R.J., Colaizzi, G.A, Mastrogiannis, A.M., Sherr, M., Lyons, I.M., Green, A.E. Predictive Effects of Creative Abilities and Attitudes on Performance in University-Level Computer Science Courses. Presented at the 7th Annual Meeting of the Society for the Neuroscience of Creativity, May 12-13, virtual.

Michaelis, K., Wienberger, A.B., Cortes, R.A., Betzel, R.F., Green, A.E. Exploring Functional Brain Network Modularity in Educational Contexts. Presented at the 29th Annual Meeting of the Cognitive Neuroscience Society, April 23-26, San Francisco, U.S.

Michaelis, K., Miyakoshi, M., Medvedev, A., Turkeltaub, P.E. Motor engagement relates to accurate perception of phonemes and audiovisual words, but inaccurate perception of auditory words. Presented

at the 11th Annual Meeting of the Society for the Neurobiology of Language; 2019 Aug 22-23; Helsinki, Finland.

Michaelis, K., Medvedev, A., Turkeltaub, P.E. Testing the engagement of dorsal stream motor areas during the perception of phonemes, words, and environmental sounds. Presented at the 10th Annual Meeting of the Society for the Neurobiology of Language; 2018 Aug 16-18; Québec City, Canada.

Michaelis, K., Medvedev, A., Turkeltaub, P.E. The role of the motor system in the perception of phonemes, words, and environmental sounds. Presented at the 2018 annual meeting of the Organization for Human Brain Mapping 2018 Annual Meeting; 2018 June 17–21; Suntec City, Singapore.

Michaelis, K., Schuler, K., Medvedev, A., & Turkeltaub, P.E. Evaluating motor system involvement in speech perception using EEG. Oral presentation at Georgetown University Biomedical Graduate Education Student Research Day; 2017 Oct 10; Washington, DC, USA.

Thompson, J., Wiener, M., & Michaelis, K. Distinct spatial and temporal discounting during decision making in humans. Presented at the 15th Annual Meeting of the Vision Sciences Society; 2015 May 15-20; St. Pete Beach, Florida, USA. doi:10.1167/15.12.411

Harrington, R., Chan, E., Mohapatra, S., Michaelis, K., & Harris-Love, M.L. Combining theta burst stimulation with reaching practice in individuals with severe post-stroke arm impairment: Two case studies. Presented at the annual meeting of the Society for Neuroscience; 2014 Nov 15-19; Washington, DC, USA.

Michaelis, K., Wiener, M., & Thompson, J. Passive listening to preferred motor tempo modulates corticospinal excitability. Presented at the annual meeting of the Society for Neuroscience; 2013 Nov 9-13; San Diego, CA, USA.

Research Grants

National Science Foundation Graduate Research Award Fellowship, 2015

Peer Reviews

Neurobiology of Language

Communications Biology

Scientific Reports