MADELYN QUIRK

PhD

248.208.5970
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HUMAN FACTORS

EDUCATION

	UNIVERSITY OF MICHIGAN	
PhD	Psychology	2024
MS	Psychology	2021
	UNIVERSITY OF SOUTH CAROLINA	
BS	Experimental Psychology	2019

AFFILIATIONS

Psychonomic Society
Phi Beta Kappa Honor Society
National Society for Collegiate Scholars
Alpha Lambda Delta Honor Fraternity

PROFESSIONAL PROFILE

Dr. Madelyn Quirk is a Human Factors Senior Scientist at Explico and holds a Ph.D. in Cognitive Psychology from the University of Michigan. Her doctoral research focused on furthering our understanding of human attention systems, cognitive heuristic and decision making, and psychophysiological responses to novel vehicular technology. These areas of expertise have equipped her to apply principles of cognitive science to critically assess the interaction between human cognition and the environment. At Explico, this application includes analyzing human driving behavior, utilization of safety and warning labels, and related error-prone decision making.

Dr. Quirk's dissertation research at the University of Michigan explored the underlying cognitive mechanisms involved in overcoming distraction and habitual behavior to produce goal-oriented results. Her research investigated how individuals allocate attentional priority to visual information based on goal-relevance, physical salience, and prior exposure, and how priority-allocation mechanisms differ for individuals with attention deficits. Additionally, other research of hers explored scientific literacy and decision making during the COVID-19 pandemic. Lastly, Dr. Quirk also utilized psychophysiological measures to explore how individuals and different demographic groups respond during a ride in an autonomous vehicle. This project combined data from biometric sensors, saliva samples, and psychometric questionnaires to examine passengers' response to the vehicle ride.

In short, Dr. Quirk utilizes behavioral, computational, and theoretical research methods to derive insights about the imperfect nature of human cognition that leads to errors in judgement and performance.

QUIRK

PhD

Experience

Explico

2026 - Present *Senior Scientist*
2024 - 2025 *Scientist*

University of Michigan

2019- 2024 *Graduate Student Researcher*
2020-2022 *Graduate Student Instructor*

Institute for Social Research, University of Michigan

2021-2022 *Teaching Assistant, Bayesian Modeling*

Publications

Fansher, M., Lalwani, P., Adkins, T.J., Zhang, H., Quirk, M., Carlson, M., Boduroglu, A., Lewis, R.L., Jonides, J., & Shah, P. (2025). A brief intervention to improve reasoning about accumulation. *Journal of Experimental Psychology: Applied.* https://doi.org/10.1037/xap0000532

*Prizlow, P., *Quirk, M., *Schache, K.J., Bhakkad, S., Laub, E.C., Xu, E.L., & Hill, S. (2022). Going Virtual: Successes and Shortcomings of a Synchronous STEM Outreach Event. *Journal of Chemical Education,* acs.jchemed.2c00101. https://doi.org/10.1021/acs.jchemed.2c00101.

*Fansher, M., *Adkins, T.J., Lewis, R.L., Boduroglu, A., Lalwani, P., Quirk, M., Shah, P., & Jonides, J. (2022). How well do ordinary Americans forecast the growth of COVID-19? *Memory & Cognition.* https://doi.org/10.3758/s13421-022-01288-0.

*Fansher, M., *Adkins, T.J., Lalwani, P., Boduroglu, A., Carlson, M., Quirk, M., Lewis, R., Shah, P., Zhang, H., Jonides, J. (2022). Icon Arrays Reduce Concern Over COVID-19 Vaccine Side Effects: A Randomized Control Study. *Cognitive Research: Principles and Implications.* https://doi.org/10.1186/s41235-022-00387-5.

Presentations

Human Factors Guest Lecture, Lawrence Technological University BME 4903, Forensic Engineering, 2025

Quirk, M. (2024) *Attentional Priority and Response Competition.* Presented at Explico; 2024 March 7; Novi, MI.

Quirk, M. (2023) *The Structured Clinical Interview for ADHD Research: Automation and Validation.* Poster presented at the Annual Meeting of Psychonomic Society; 2023 November 16; San Francisco, CA.

Quirk, M. (2023) *Guiding Attention in Neurotypical and ADHD Adults: Spatial, Temporal, and Feature Selection History.* Presented at CCN Area Forum; 2023 April 7; Ann Arbor, MI.

Quirk, M. (2021) *Conservatives and liberals forecast growth of COVID-19 differently with corresponding social consequences.* Poster presented at Psychonomic Society Annual Meeting; 2021 November 6; Virtual.

Quirk, M. (2020) *Predicting the Pandemic: Everyone did it and no one was right. A Bayesian latent variable approach to misestimation and COVID-19.* Presented at CCN Area Forum via Zoom; 2020 October 2; Ann Arbor, MI.

Quirk, M. (2019) *Differences in Stimulus-Response Prediction and Reorientation of Attention Relative to Student Athletic Background.* Poster presented at Discover USC; 2019 April 19; Columbia, SC.

Bayer, C., Hoyman, L., Murthy, J., Quirk, M., & Robbins, J. (2019, February). *The development of and clinical utility of a neuropsychological (NP) stroke protocol and interventions for patients in an impatient acquired brain injury (ABI) rehabilitation setting.* Poster accepted for presentation at the annual conference of the International Neuropsychological Society, New York, NY.

Murthy, J., Bayer, C., Holman, L. Ruiz, A., Quirk, M., Coad, S., & Robbins, J. (2019, February). *How normal is normal? Examining overall battery performance in relation to Orientation Log (O-Log) scores.* Poster accepted for presentation at the annual conference of the International Neuropsychological Society, New York, NY.

Dissertation

Guiding Attention in Neurotypical and ADHD Adults: Spatial, Feature, and Temporal Selection History, A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy (Psychology) at the University of Michigan, 2024. https://dx.doi.org/10.7302/24026

Professional Development

Occupational/Industrial Health and Safety

OSHA-30 General Industry Training Program, 2025 (OSHA Compliant Course)

Society of Automotive Engineers

Applying Automotive EDR Data to Traffic Crash Reconstruction, 2025

Driver Distraction from Electronic Devices: Insights and Implications, 2025

The Fundamentals of Automotive All-Wheel Drive System, 2025