# Matthew K. Robison

Assistant Professor, Psychology, University of Texas at Arlington 501 S Nedderman Dr, Box 19528, Arlington, TX 76019 ☐ matthew.robison@uta.edu | Updated: Aug. 31, 2023

Professional Appointments	
Assistant Professor	2020-present
Department of Psychology	
The University of Texas at Arlington	
Postdoctoral Research Associate	2018-20
Memory and Attention Control Laboratory	
Arizona State University	
Education	
University of Oregon, Ph.D. Psychology	2018
University of Oregon, M.S. Psychology	2014
University of Notre Dame, B.B.A. Entrepreneurship, Psychology	2013
Extramural Research Funding (Funded)	
Measuring Change in the Relations Amongst Cognitive, Health, and Socioemotional Fa Subject Level and Improving Prediction of Critical Outcomes	actors at the Single- 2023-2026
U.S. Army Research Institute (W911NF-23-1-0300)	
Total Amount: \$1,707,828	
Role: Co-Principal Investigator (Co PIs: Gene A. Brewer & Holly P. O'R Amount: \$479,693)	ourke; Subaward
Behavioral and Physiological Indicators of Vigilance and Cognitive Fatigue	2022-25
U.S. Naval Research Laboratory (Noo173-22-2-Coo6)	
Amount: \$325,000	
Role: Principal Investigator	
Using Cognitive Offloading to Mitigate Age-Related Declines in Prospective Memory	2022-26
National Institutes of Health (R16GM146705)	
Amount: \$770,000	
Role: Co-Investigator (PI: Hunter Ball)	

# **Extramural Research Funding (Pending)**

Impact of Transcranial Photobiomodulation on Neurocognitive and Physiological Health in Non-HispanicBlack Individuals with Elevated Risk for AD/ADRD2024-2026

National Institute of Aging

Amount: \$429,560

Role: Co-Investigator

Cognitive and Psychophysiological Mechanisms Underlying Individual Differences in Attention Control 2023-2026

Office of Naval Research (Young Investigator Program)

Amount: \$607,437

Role: Principal Investigator

*Improving technical capabilities and expanding capacities of eye-tracking equipment for psychophysiological research* 2023-24

Department of Defense (Defense University Research Instrumentation Program)

Amount: \$ 171,570

Role: Principal Investigator

#### **Intramural Research Funding (Funded)**

The Effect of Transcranial Photobiomodulation on Indices of Neurocognitive and Physiological Middle Aced Non Hismanic Black Individuals	Health in
	2023-2024
The University of Texas at Arlington (Interdisciplinary Research Program)	
Amount: \$20,000 (Awarded)	
Role: Co-Investigator	
Leveraging multimodal biometric sensing to detect and correct attention and memory failures	2022-23
The University of Texas at Arlington (Interdisciplinary Research Program)	
Amount: \$20,000 (Awarded)	

Role: Principal Investigator

Low-cost eye-tracking equipment for psychological research

Arizona State University (Cialdini Leap Forward Fund)

Amount: \$7,500 (Awarded)

Role: Co-Investigator

2019

#### Honors and Awards

Named a Champion of Experiential Learning by UT-Arlington's D	ivision of Student Affairs 2023
Summer Faculty Fellowship (\$16,500)	2023   Office of Naval Research
Summer Faculty Fellowship (\$16,500)	2022   Office of Naval Research
General University Scholarship (\$3,000)	2017   University of Oregon
Clarence and Lucille Dunbar Scholarship (\$2,000)	2016   University of Oregon
Graduate Travel Award (\$1,000)	2015   Psychonomic Society
Clarence and Lucille Dunbar Scholarship (\$2,500)	2014   University of Oregon
Undergraduate Research Opportunity Program (\$4,500)	2012   University of Notre Dame

#### **Publications**

*Impact (Google scholar metrics): total citations = 2,272; h-index = 23, i10-index = 37* 

- <sup>+</sup>denotes undergraduate student co-author
- Robison, M. K., Celaya, X. C., Ball, B. H., & Brewer, G. A. (2023). Task sequencing does not systematically affect the factor structure of cognitive abilities. *Psychonomic Bulletin & Review*.
- Garner, L. D., Shuman, J., & Robison, M. K. (2023). Piece-rate time-based incentives improve sustained attention. *Journal of Applied Research in Memory and Cognition*.
- Robison, M. K. & Nguyen, B. N.<sup>+</sup> (2023). Competition and reward structures nearly eliminate time-on-task performance decrements: Implications for theories of vigilance and mental effort. *Journal of Experimental Psychology: Human Perception and Performance.* 49(9), 1256 1270. [Named an Editor's Choice article by the American Psychological Association].
- Robison, M. K., Ralph, K. J., Gondoli, D. M., Torres, A., Campbell, S., Brewer, G. A., & Gibson, B.
  S. (2023). Testing locus coeruleus-norepinephrine accounts of working memory, attention control, and fluid intelligence. *Cognitive, Affective, & Behavioral Neuroscience*, 23, 1014 1058.
- Robison, M. K., & Campbell, S. (2023). Baseline pupil diameter does not correlate with fluid intelligence. *Psychonomic Bulletin & Review.*
- Unsworth, N., Miller, A. L., & Robison, M. K. (2023). Oculometric indicators of individual differences in preparatory control during the antisaccade task. *Journal of Experimental Psychology: Human Perception and Performance*, 49(2), 159 - 176.
- Robison, M. K. (2023). Abrupt vs. gradual visual onsets in go/no-go measures of sustained attention. *Attention, Perception, & Psychophysics, 85, 9 22.*
- Benitez, V. L. & Robison, M. K. (2022). Pupillometry as a window into young children's sustained attention. *Journal of Intelligence*, 10(4), 107. [Named Editor's Choice Article]
- Unsworth, N., Robison, M. K., & Miller, A. L. (2022). On the relation between working memory capacity and the antisaccade task. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 48*(10), 1420 1447.
- Robison, M. K., Coyne, J. T., Sibley, C., Brown, N. L., Neilson, B., & Foroughi, C. (2022). An

examination of relations between baseline pupil measures and cognitive abilities. *Psy-chophysiology*, 59, e14124.

- Unsworth, N., Robison, M. K., & Miller, A. L. (2022). The influence of working memory capacity and lapses of attention for variation in error monitoring. *Cognitive, Affective, & Behavioral Neuroscience,* 22(3), 450-466.
- Robison, M. K., Diede, N. T., Nicosia, J., Ball, B. H., & Bugg, J. M. (2022). A multimodal analysis of sustained attention in younger and older adults. *Psychology & Aging*, 37(3), 307-325.
- Robison, M. K., Trost, J. M., Schor, D., Gibson, B. S., & Healey, M. K. (2022). Pupillary correlates of individual differences in long-term memory. *Psychonomic Bulletin & Review*, 29, 1355-1366.
- Robison, M. K., & Brewer, G. A. (2022). Individual differences in working memory capacity, attention control, fluid intelligence, and pupillary measures of arousal. *Journal of Experimental Psychology: Learning, Memory and Cognition, 48*(9), 1296-1310.
- Ball, B. H., Robison, M. K., Coulson, A.,<sup>+</sup> & Brewer, G. A. (2022). Individual differences in disqualifying monitoring underlie false memories across different paradigms. *Memory & Cognition*, 50, 751-764.
- Robison, M. K., Obulasetty, M. O.,<sup>+</sup> Wingert, K. M., Blais, C., & Brewer, G. A. (2022). The effect of binaural beat stimulation on sustained attention. *Psychological Research*, *86*(3), 808-822.
- Unsworth, N., Miller, A. L., & Robison, M. K. (2021). No consistent correlation between baseline pupil diameter and cognitive abilities after controlling for confounds—A comment on Tsukahara and Engle (2021). *Cognition*, *215*, 104825.
- Robison, M. K., Ellis, D. M., Pitaes, M. M., Karoly, P., & Brewer, G. A. (2021). Acute pain impairs sustained attention. *Journal of Experimental Psychology: Applied*, 27(3), 563–577.
- Unsworth, N., Miller, A. L., & Robison, M. K. (2021). Are individual differences in attention control related to working memory capacity? A latent variable mega-analysis. *Journal of Experimental Psychology: General*, 150(7), 1332-1357.
- Unsworth, N., Robison, M. K., & Miller, A. L. (2021). Individual differences in lapses of attention: A latent variable analysis. *Journal of Experimental Psychology: General*, 150(7), 1303-1331.
- Robison, M. K., Unsworth, N., & Brewer, G. A. (2021). Examining the effects of goal-setting, feedback, and incentives on sustained attention. *Journal of Experimental Psychology: Human Perception and Performance*, 47(6), 869-891.
- Ellis, D.M., Robison, M. K., & Brewer, G. A. (2021). The cognitive underpinnings of multiplyconstrained problem-solving. *Journal of Intelligence*, 7, 9.
- Unsworth, N., Miller, A. L., & Robison, M. K. (2021). Is working memory capacity related to baseline pupil diameter? *Psychonomic Bulletin & Review*, 28, 228-237.
- Chowdry, M. S. N., Dutta, A., Robison, M. K., Blais, C., Brewer, G. A., & Bliss, D. W. (2020). Deep neural network for visual stimulus-based reaction time. *Sensors*, 20(21), 6090.
- Robison, M. K., & Brewer, G. A. (2020). Individual differences in working memory capacity and the regulation of arousal. *Attention, Perception, & Psychophysics, 82*, 3273-3290.

- Robison, M. K., Miller, A. L., & Unsworth, N. (2020). A multi-faceted approach to understanding individual differences in mind-wandering. *Cognition*, *198*, 104078.
- Unsworth, N., Miller, A. L., & Robison, M. K. (2020). Individual differences in lapses of sustained attention: Oculometric indicators of intrinsic alertness and preparatory control. *Journal of Experimental Psychology: Human Perception and Performance*, 46(6), 569-592.
- Chowdry, M. S. N., Dutta, N., Robison, M. K., Blais, C., Brewer, G. A., & Bliss, D. W. (2020). A generalized model to estimated reaction time corresponding to visual stimulus using single-trial EEG. 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Montréal, QC, Canada. Peer-reviewed conference paper.
- Unsworth, N., & Robison, M. K. (2020). Working memory capacity and sustained attention: A cognitive-energetic perspective. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 46(1), 77 103.
- Unsworth, N., Robison, M. K., & Miller, A. L. (2019). Individual differences in baseline oculometrics: Examining variation in baseline pupil diameter, spontaneous eye blink rate, and fixation stability. *Cognitive, Affective, & Behavioral Neuroscience*, 19, 1074 – 1093.
- Unsworth, N., Miller, A. L., & Robison, M. K. (2019). Individual differences in encoding strategies and free recall dynamics. *The Quarterly Journal of Experimental Psychology*, *72*, 2495 2508.
- Robison, M. K., Miller, A. L., & Unsworth, N. (2019). Examining the effects of probe frequency, response options, and framing within the thought-probe method. *Behavior Research Methods*, 51, 398 – 408.
- Robison, M. K., & Unsworth, N. (2019). Pupillometry tracks fluctuations in working memory performance. *Attention, Perception, & Psychophysics, 81, 407 419.*
- Unsworth, N., & Robison, M. K. (2018). Tracking mind-wandering and arousal state with pupillometry. *Cognitive, Affective, & Behavioral Neuroscience, 18,* 638 – 664.
- Unsworth, N., Robison, M. K., & Miller, A. L. (2018). Pupillary correlates of fluctuations in sustained attention. *Journal of Cognitive Neuroscience*, 30, 1241 1253.
- Adam, K. C. S., Robison, M. K., & Vogel, E. K. (2018). Contralateral delay activity tracks fluctuations in working memory performance. *Journal of Cognitive Neuroscience*, *30*, 1229 – 1240.
- Robison, M. K., Miller, A. L., & Unsworth, N. (2018). Individual differences in working memory capacity and filtering. *Journal of Experimental Psychology: Human Perception and Performance*, 44(7), 1038 1053.
- Unsworth, N., & Robison, M. K. (2018). Tracking working memory maintenance with pupillometry. *Attention, Perception, & Psychophysics, 80,* 461 – 484.
- Robison, M. K., & Unsworth, N. (2018). Cognitive and contextual correlates of spontaneous and deliberate mind-wandering. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 44(1), 85 98.
- Unsworth, N., & Robison, M. K. (2017). The importance of arousal for variation in working memory capacity and attention control: A latent variable pupillometry study. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 43, 1962 1987.*

- Robison, M. K., & Unsworth, N. (2017). Individual differences in working memory capacity predict learned control over attentional capture. *Journal of Experimental Psychology: Human Perception and Performance*, 43(12), 1912 1924.
- Unsworth, N. & Robison, M. K. (2017). A locus coeruleus-norepinephrine account of individual differences in working memory capacity and attention control. *Psychonomic Bulletin & Review*, 24, 1282 1311.
- Robison, M. K., & Unsworth, N. (2017). Variation in the use of cues to guide attention in visual working memory. *Attention, Perception, & Psychophysics, 79, 1652 1665.*
- Robison, M. K., McGuirk, W. P., & Unsworth, N. (2017). No evidence for enhancements to visual working memory with transcranial direct current stimulation to prefrontal or posterior parietal cortices. *Behavioral Neuroscience*, 131(4), 277 288.
- Robison, M. K., & Unsworth, N. (2017). Working memory capacity and mind-wandering during low-demand cognitive tasks. *Consciousness and Cognition*, 52, 47 54.
- Unsworth, N., & Robison, M. K. (2017). Pupillary correlates of covert shifts of attention during working memory maintenance. *Attention, Perception, & Psychophysics, 79, 782 795.*
- Robison, M. K., & Unsworth, N. (2017). Individual differences in working memory capacity and resistance to belief bias in syllogistic reasoning. *The Quarterly Journal of Experimental Psychology*, 70, 1471 1484.
- Robison, M. K., Gath, K. I.,<sup>+</sup> & Unsworth, N. (2017). The neurotic wandering mind: An individual differences investigation of neuroticism, mind-wandering, and executive control. *The Quarterly Journal of Experimental Psychology*, *70*, 649 – 663.
- Robison, M. K., & Unsworth, N. (2017). Working memory capacity, strategic allocation of study time, and value-directed remembering. *Journal of Memory and Language*, 93, 231 244.
- Unsworth, N., & Robison, M. K. (2016). Pupillary correlates of lapses of sustained attention. *Cognitive, Affective, & Behavioral Neuroscience, 16,* 601 615.
- Robison, M. K., & Unsworth, N. (2016). Do participants differ in their cognitive abilities, task motivation, or personality characteristics as a function of time of participation? *Journal of Experimental Psychology: Learning, Memory, and Cognition,* 42(6), 897 914.
- Unsworth, N., & Robison, M. K. (2016). The influence of lapses of attention on working memory capacity. *Memory & Cognition*, 44, 188 196.
- Robison, M. K., & Unsworth, N. (2015). Working memory capacity offers resistance to mindwandering and external distraction in a context-dependent manner. *Applied Cognitive Psychology*, 29, 680 – 690.
- Unsworth, N. & Robison, M. K. (2015). Individual differences in the allocation of attention to items in working memory: Evidence from pupillometry. *Psychonomic Bulletin & Review*, 22, 757 765.
- Gibson, B. S., Gondoli, D. M., Johnson, A. C., & Robison, M. K. (2014). Recall initiation strategies must be controlled in training studies that use immediate free recall tasks to measure the components of working memory capacity across time. *Child Neuropsychology*, 20, 536-556.

### Manuscripts under review

- Robison, M. K., Miller, A. L., Wiemers, E., Ellis, D. M., Unsworth, N., Redick, T. R., & Brewer, G. A. (Under review). What makes working memory work? A multifaceted account of the predictive power of working memory capacity. Submitted to *Journal of Experimental Psychology: General.*
- Fernando, F., Robison, M. K., & Maia, P. (Under review). Analysis of goal, feedback and rewards on sustained attention via machine learning. Submitted to Attention, Perception, & Psychophysics.
- Strayer, D., Robison, M. K., & Unsworth, N. (Under review). Effects of goal-setting on sustained attention and attention lapses. Submitted to *Attention, Perception, & Psychophysics.*
- Robison, M. K., & Garner, L. D. (Under review). Pupillary correlates of individual differences in *n*-back task performance. Submitted to *Attention, Perception, & Psychophysics.*
- Torres, A., Robison, M. K., McClure, S. M., & Brewer, G. A. (Under review). An experimental evaluation of the influence of transcranial direct current stimulation to the trigeminal nerve on attention and arousal. Submitted to *Cognitive, Affective, & Behavioral Neuroscience*.

## Manuscripts in preparation

Robison, M. K., Brewer, G. A., Redick, T. S., & Unsworth, N. (In preparation). Sample size guidelines for latent variable analyses of cognitive abilities.

## **Conference Presentations and Invited Talks**

- Robison, M. K., Garner, L. D., & Campbell, S. (2023, August). Piece-rate time-based incentive structures improve motivation and sustained attention. *Paper presentation at the 14th Bienniel Meeting of the Society for Applied Research in Memory and Cognition, Nagoya, Japan.*
- Robison, M. K. (2023, March). The science of memory and attention. *Invited talk given to the North Dallas Early Childhood Parent-Teacher Association.*
- Robison, M. K. (2022, November). Individual differences in sustained attention: Both ability and motivation matter. *Poster presentation at the Annual Meeting of the Psychonomic Society.*
- Campbell, S., & Robison, M. K. (2022, November). Examining working memory precision estimates as an individual difference. *Poster presentation at the Annual Meeting of the Psychonomic Society.*
- Torres, A. S., Brewer, G. A., Robison, M. K., McClure, S., & Helms Tillery, S. (2022, November). An experimental evaluation of transcranial direct current stimulation of the trigeminal nerve on attention and arousal. *Poster presentation at the Annual Meeting of the Psychonomic Society.*
- Strayer, D. L., Robison, M. K., & Unsworth, N. (2022, November). Effects of goal-setting on sustained attention and attention lapses. *Poster presentation at the Annual Meeting of the Psychonomic Society.*
- Robison, M. K. (2022, April). Understanding controlled attention through pupillometry. *Invited talk given to the Frontiers of BrainHealth series at the Center for BrainHealth, University of Texas at Dallas.*
- Robison, M. K., (2021, September). Using pupillometry to understand individual differences in

cognitive abilities. Invited talk given to the Attention & Working Memory Lab, Georgia Institute of Technology.

- Torres, A. S., Robison, M. K., & Brewer, G. A. (2021, March). Measurement properties of pupil dynamics. *Poster presentation at the annual meeting of the Cognitive Neuroscience Society.*
- Robison, M. K., Gibson, B. S., Healey, M. K., Schor, D., & Trost, J. M. (2020, November). Individual differences in arousal regulation and long-term memory abilities. *Oral presentation at the* 61st Annual Meeting of the Psychonomic Society (Virtual).
- Robison, M. K. (2020, October). A multimodal investigation of sustained attention. A presentation to the Cognition, Brain, and Behavior area at the University of Notre Dame.
- Brewer, G. A., Robison, M. K., Ellis, D. M., & Karoly, P. (2019, March). Acute pain disrupts sustained attention. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.*
- Robison, M. K., & Unsworth, N. (2018, November). Pupillometry tracks fluctuations in working memory performance. *Poster presented at the 59th Annual Meeting of the Psychonomic Society, New Orleans, LA.*
- Robison, M. K., & Unsworth, N. (2017, November). Individual differences in working memory capacity and filtering. *Poster presented at the 58th Annual Meeting of the Psychonomic Society, Vancouver, BC, Canada.*
- Robison, M. K. (2017, September). Working memory capacity: Multiple mechanisms of control. *Invited talk given to the Cognition, Brain, and Behavior group at the University of Notre Dame.*
- Robison, M. K. (2016, October). Cognition, disposition, and context: A multifaceted approach to mind-wandering. *Presentation of Preliminary Exams at the University of Oregon*.
- Robison, M. K., Gath, K. I., & Unsworth, N. (2015, November). The neurotic wandering mind: An individual differences investigation of neuroticism, mind-wandering, and executive control. *Poster presented at the 56th Annual Meeting of the Psychonomic Society, Chicago, IL.* (Graduate Travel Award recipient)
- Robison, M.K. (2014, October). Mind-wandering and distraction in silent and noisy studying environments. *Presentation of a First-Year Project at the University of Oregon.*
- Robison, M.K. & Gibson, B.S. (2013, May). The role of recall initiation strategies in the measurement of primary and secondary memory in the context of a working memory training program. *Poster and oral presentation at the Department of Psychology Undergraduate Research Symposium, University of Notre Dame.*

#### **Professional service**

Consulting Editor, *Psychonomic Bulletin & Review* 

2021 – present

Ad Hoc Reviewer: Acta Psychologica; Applied Cognitive Psychology; Attention, Perception, and Psychophysics; Behavior Research Methods; Biological Psychology; Brain Topography; Consciousness and Cognition; Cognition; Cognitive Processing; Cognitive Psychology; Cortex; Discourse Processes; Frontiers in Psychology; Heliyon; International Journal of Psychology; Journal of Applied Research in Memory and Cognition; Journal of Educational Psychology; Journal of Experimental Child Psychology; Journal of Experimental Psychology: Applied; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning, Memory, and Cognition; Journal of Intelligence; Journal of Neuroscience Methods; Journal of Vision; Language and Linguistics Compass; Learning & Behavior; Learning and Individual Differences; Memory; Memory & Cognition; Neuropsychologia; PCI Registered Reports; Perspectives in Psychological Science; PLoS ONE; Psychology & Aging; Psychonomic Bulletin & Review; Psychophysiology; Research in Developmental Disabilities; The Quarterly Journal of Experimental Psychology; Scientific Reports; Sensors

## **Departmental Service**

Graduate Curriculum Committee	2022 - present
Developmental Psychology Search Committee	2022 - 2023
Cognitive Neuroscience Faculty Search Committee	2016-17
Graduate Student Representative	

# Advising

Doctoral Dissertation Committees	
Tommaso Viola	2023
Phil Peper	2023
Maxine Geltmeier	2021
Master's Thesis Committees	
James Lo	2023
Haein Won	2023
Nasima Subedi	2023
Stephen Campbell	2022
Durna Alakbarova	2021
Honors Thesis Advising	
Jessica Nwanko (UT-Arlington)	2023
Janine Shuman (UT-Arlington)	2023
Kiera Wingo (UT-Arlington)	2022
Olivia Anchondo (UT-Arlington)	2021
Ben Pope (Arizona State)	2020
Faith Brown (Arizona State)	2020
Deanna Strayer (Arizona State)	2019
Dylan Vas (University of Oregon)	2017

Katherine Gath (University of Oregon)	2015
Kyung Hoon Jeong (University of Oregon)	2015
Christian Arenas (University of Oregon)	2014
<b>Unfunded Research Proposals</b> <i>Testing the trait stability and domain-generality of arousal regulation and phasic</i>	responsiveness
National Science Foundation	
Amount: \$856,330	
Implementing low-cost eye-tracking and wearable actigraphy to detect abnormal ing, sleep disruptions, and cognitive decline for early detection of dementia	locus coeruleus function- 1
National Institutes of Health	
Amount: \$2,043,718	
A latent state-trait analysis of arousal regulation and cognition National Science Foundation Amount: \$838,755	
Predictive Modeling of Student Engagement with Virtual and Online Learning James S. McDonnell Foundation Opportunity Program	
Antount. \$250,000	
LC-NE Regulation and Attention	
NIH Ruth L. Kirschstein NRSA Individual Postdoctoral Fellowship	
Amount: \$187,662	
The Impact of Physical Fatigue on the Cognitive Health of Student Athletes ASU Global Sport Institute Amount: \$20,000	
Teaching	
Multivariate Data Analysis - Graduate	2022-2023
Advanced Topics in Cognitive Science	2022-2023
Learning and Memory	2015
Human Performance	2014

# References

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