

Emily Ruth Weichart

Assistant Professor
Department of Psychology
Utah State University
emily.weichart@usu.edu

Education

- **Ph.D., University of Virginia, August 2020**
Psychology, Cognitive Area
Dissertation: *Characterizing and quantifying dynamic mechanisms of cognitive control*
- **M.A., The Ohio State University, June 2017**
Psychology, Cognitive Area
Masters Thesis: *A dynamic conflict-based account of intra-trial decision making*
- **B.S., The Ohio State University, May 2013**
Major: Psychology, English
Minor: Neuroscience
Magna Cum Laude with Honors in the Arts and Sciences
Honors Research Distinction in Psychology
Honors Thesis: *Tracking performance at the crossroads of perception and memory*

Employment

- **Assistant Professor**
Department of Psychology, Utah State University, 2023-present
Director, Quantified Cognition Lab
Assistant professor in the Brain and Cognition specialization of the psychology department. Responsible for mentoring students, teaching courses, servicing the university, and conducting scholarly research.
- **Postdoctoral Scholar**
Department of Psychology, The Ohio State University, 2020-2023
Model-based Cognitive Neuroscience Lab, PI: Brandon Turner, Ph.D. (primary)
Cognitive Development Lab, PI: Vladimir Sloutsky, Ph.D. (secondary)
Co-developed a model of human learning that uses simultaneous streams of behavioral and gaze fixation data to gain insight into attention, memory, and decision processes; investigated the development of selective attention and associated cognitive mechanisms from young childhood to adulthood.
- **Graduate Research Associate**
Department of Psychology, University of Virginia, 2017-2020
Department of Psychology, The Ohio State University, 2015-2017
Computational Memory Lab, PI: Per Sederberg, Ph.D.

Designed, programmed, and analyzed data from perceptual decision-making tasks administered alongside eye-tracking, EEG, and fMRI measures; developed a computational model of conflict resolution and cognitive control; investigated cognitive changes alongside healthy aging and degenerative neurological disorders.

- **EEG and Eye-Tracking Lab Technician**

Department of Psychology, The Ohio State University, 2015-2017

Managed equipment and collected data for all departmental EEG and eye-tracking studies; coded experiments to ensure proper data alignment; trained student and faculty users on proper data-collection, equipment-handling, and analysis techniques.

- **Clinical Research Assistant**

The Ohio State University, 2013-2015

Department of Psychology, Computational Memory Lab, PI: Per Sederberg, Ph.D. (primary)
Wexner Medical Center, Neurological Institute, PI: Ali Rezai, MD (secondary)

Collected and analyzed longitudinal behavioral and EEG data from participants who were receiving deep brain stimulation (DBS) treatment for Alzheimer's disease, traumatic brain injury, obsessive compulsive disorder, and treatment-refractory obesity.

Published Articles

- **Weichart ER**, Galdo M, Sloutsky VM, & Turner BM. (2022). As within, so without; as above, so below: Common mechanisms can support between- and within-trial category learning dynamics. *Psychological Review*, 129(5), 1104-1143.
- **Weichart ER***, Evans DG*, Galdo M, Bahg G, & Turner BM. (2022). Distributed neural systems support flexible attention updating during category learning. *Journal of Cognitive Neuroscience*, 34, 1761-1779.
- Galdo M, **Weichart ER**, Sloutsky VM, & Turner BM. (2022). The quest for simplicity in human learning: Identifying the constraints on attention. *Cognitive Psychology*, 138, 101508.
- **Weichart ER**, Darby KP, Fenton AW, Jacques BG, Kirkpatrick RP, Turner BM, & Sederberg PB. (2021). Quantifying mechanisms of cognition with an experiment and modeling ecosystem. *Behavior Research Methods*, 53, 1833-1856.
- **Weichart ER** & Sederberg PB. (2020). Individual differences in attention allocation during a 2-dimensional inhibitory control task. *Attention, Perception, & Psychophysics*, 83, 676-684.
- **Weichart ER**, Turner BM, & Sederberg PB. (2020). A model of dynamic, within-trial conflict resolution for decision making. *Psychological Review*, 125(5), 749-777.
- **Weichart ER**, Sederberg PB, Sammartino F, Krishna V, Corrigan JD, & Rezai AR. (2020). Cognitive task performance during titration predicts deep brain stimulation treatment efficacy: Evidence from a case study. *Frontiers in Psychiatry*, 11(30).

- Palestro JJ, **Weichart ER**, Sederberg PB, & Turner BM. (2018). Some task demands induce collapsing bounds: Evidence from a behavioral analysis. *Psychonomic Bulletin & Review*, 25(4), 1225-1248.
- Scharre DW, **Weichart ER**, Nielson DM, Zhang J, Agrawal P, Sederberg PB, Knopp MV, & Rezai AR. (2018). Deep brain stimulation of frontal lobe networks to treat Alzheimer's Disease. *Journal of Alzheimer's Disease*, 62, 621-633.

Published Conference Papers and Abstracts

- Unger L, **Weichart ER**, Reardon N, & Sloutsky VM. (2023). Without even trying: How incidental exposure shapes category learning. *Proceedings of the Annual Meeting of the Cognitive Science Society*.
- Krishna V, Bigler AJ, Sammartino F, **Weichart ER**, Shaikhouni A, Agrawal P, Corrigan JC, Bogner J, Sederberg PB, & Rezai AR. (2017). Acute clinical effects of stimulation in a patient with Nucleus Accumbens DBS: Insights from a structural connectivity study. *Journal of Neurosurgery*, 126(4), A1410-A1411.

Works in Progress

- **Weichart ER**. (in press). Electroencephalography: Event-related potentials. In: Kirby ED, Glenn MJ, Sandstrom NJ, Williams CL, eds. Introduction to Behavioral Neuroscience, 1e. Houston, TX: OpenStax.
- **Weichart ER**, Unger L, King N, Sloutsky VM, & Turner BM. (under review, *Psychological Review*). 'The eyes are the window to the representation': Linking gaze to memory precision and decision weights during object discrimination tasks.

Awards and Scholarships

- International Scholar Award, Philanthropic Educational Organization (\$14,000), 2019
- Women of MathPsych Travel and Networking Award (\$1,000), 2017
- MathPsych Student Travel Award (\$100), 2017
- College of Social and Behavioral Sciences Fellowship (\$3,200), 2017
- University Fellowship (\$24,000), 2015
- Undergraduate Research Office Summer Fellowship (\$2,800), 2012

Teaching

- **Instructor**
Department of Psychology, Utah State University
PSYC 1010, General Psychology, 2023
- **Training Instructor, Electroencephalography (EEG) Methods**
Department of Psychology, The Ohio State University, 2015-2017

Developed and administered a hands-on training program for undergraduate and graduate students to learn EEG data collection methods, monitoring protocols, and data handling procedures.

- **Instructional Staff, Clinical Psychology Institute**
Talent Identification Program, Duke University, 2013
Developed course materials and lectures on psychological research methods including literature review, experimental design, and behavioral data analysis during an intensive summer course on clinical psychology.
- **Course Assistant, Introductory Psychology**
Department of Psychology, The Ohio State University, 2013
Lectured on topics related to memory and cognition, led exam review sessions, developed study materials, and graded assignments for an introductory undergraduate course.

Service and Volunteering

- **Ad Hoc Journal Reviewer**
Psychological Review, Cognitive Psychology, and Attention, Perception, & Psychophysics
- **Mentor, Advancing Diversity in Neuroimaging Research (ADNiR) Initiative**
Center for Cognitive and Brain Sciences, The Ohio State University, 2021
Mentored undergraduate students from underrepresented groups on projects related to cognitive computational modeling during summer rotation, and advised on professional development.
- **Student Representative, Diversifying Psychology Initiative**
Department of Psychology, University of Virginia, 2017, 2018, 2019, 2020
Provided mentorship and introductions to research in the Computational Memory Lab to undergraduate students from underrepresented groups who were interested in pursuing a graduate degree in psychology.
- **Student Liaison, CCBS Undergraduate Summer Institute (CUSI)**
Center for Cognitive and Brain Sciences, The Ohio State University, 2015, 2016
Organized schedules and interfaced with attendees of an immersive summer cognitive science program geared toward undergraduate students from diverse backgrounds, and ensured services and accommodations for students with disabilities.
- **Undergraduate Research Assistant, Computational Memory Lab**
Department of Psychology, The Ohio State University, 2010-2013
Collected behavioral and EEG data while student participants completed computerized cognitive tasks; developed IRB protocols for lab experiments.
- **Crisis Counselor, Suicide Prevention Services**
North Central Mental Health Services, 2013-2014

Provided confidential counseling, crisis intervention, and suicide prevention support for adults, teens, seniors, and veterans in emotional and psychological distress; completed rigorous clinical intervention training; interfaced with emergency services; maintained up-to-date information on local outreach organizations.

Invited Talks

- University of Missouri—Kansas City, 2023
School of Education, Social Work, and Psychological Sciences
Learning from experience: How attention, representation, and decision dynamics shape reality
- Utah State University, 2023
Department of Psychology
Learning from experience: How attention, representation, and decision dynamics shape reality
- State University of New York (SUNY) at Albany, 2022
Striving to Achieve Gender Equality in STEM (SAGES), Postdoctoral Visitation Program
Interactions among attention, representation, and decision components of category learning
- Brown University, 2021
Shenhav Lab Meeting
Dynamic, within-trial mechanisms of attention and decision-making
- University of Virginia, 2017
Department of Psychology
Cognitive task performance during titration predicts DBS treatment efficacy

Conference Presentations

- Weichart ER, Unger L, Sloutsky VM, & Turner BM. (2022). Fixation-gated encoding accounts for attention biases during recognition and categorization. Talk presented at the Annual Meeting of the Psychology for Mathematical Psychology, Toronto, Canada.
- Weichart ER, Galdo M, Sloutsky VM, & Turner BM. (2021). Common mechanisms support between- and within-trial learning dynamics. Talk presented at the Context and Episodic Memory Symposium, Philadelphia, PA.
- Weichart ER, Galdo M, Sloutsky VM, & Turner BM. (2020). Common mechanisms support between- and within-trial learning dynamics. Talk presented at the Annual Meeting of the Society for Mathematical Psychology, [Virtual].
- Weichart ER, Turner BM, & Sederberg PB. (2018). Latent input joint model analysis of intra-trial conflict during perceptual decisions. Poster presented at the Annual Meeting of the Psychonomic Society, New Orleans, LA.
- Weichart ER, Turner BM, & Sederberg PB. (2018). Latent input joint model analysis of intra-trial conflict during perceptual decisions. Poster presented at the Global Brain Health and Performance Summit, Columbus, OH.

- Weichart ER, Turner BM, & Sederberg PB. (2018). Intra-trial conflict during perceptual decisions. Talk presented at the Annual Meeting of the Society for Mathematical Psychology, Madison, WI.
- Weichart ER, Turner BM, & Sederberg PB. (2017). A dynamic conflict-based approach for intra-trial decision making. Talk presented at the Annual Meeting of the Society for Mathematical Psychology, Warwick, UK.
- Weichart ER, Turner BM, & Sederberg PB. (2017). A model-based method for tracking cognitive ability through time. Poster presented at the Global Brain Health and Performance Summit, Columbus, OH.
- Weichart ER, Bigler AJ, Man VY, Cunningham WA, & Sederberg PB. (2016). Testing the effects of context repetition for valence and items. Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.
- Weichart ER, Nielson DM, & Sederberg PB. (2015). Inter-subject correlation in theta and gamma spectral bands predicts memory for details of scientific talks. Poster presented at the Annual Meeting of the Society for Neuroscience, Chicago, IL.
- Weichart ER, Nielson DM, & Sederberg PB. (2015). Inter-subject correlation in theta and gamma spectral bands predicts memory for details of scientific talks. Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.
- Weichart ER & Sederberg PB. (2013). Tracking performance at the crossroads of perception and memory. Poster presented at the Denman Undergraduate Research Forum, Columbus, OH. Awarded Honorable Mention in Psychology.