Darcy A. Waller, PhD

Postdoctoral Research Associate, Department of Neuroscience, Brown University
Incoming Assistant Professor of Psychology (Fall 2027), University of Wisconsin–Madison
(918) 289-6944 | darcy_waller@brown.edu | waller.darcy@gmail.com | darcywaller.com
Also published as ***Darcy A. Diesburg***

APPOINTMENTS AND POSITIONS

2022–present	**Postdoctoral Research Fellow/Associate**, Computational Neuroscience Lab, Brown. Supervisor: Stephanie Jones
2016–2022	**Graduate Research Fellow/Assistant**, Cognitive Neurology Lab, University of Iowa. Supervisor: Jan Wessel
2015–2016	**Undergraduate Researcher**, NeuroCATT (Neurocognitive Aspects of Anxiety, Trauma, and Treatment) Lab, Laureate Institute for Brain Research. Supervisor: Robin Aupperle
2014–2016	**Undergraduate Researcher**, SPARTA (Study of the Prevention, Adjustment, and Resilience to Trauma and Adversity) Lab, University of Tulsa. Supervisor: Lisa Cromer

EDUCATION

2016–2022	**PhD, Psychology**, Behavioral and Cognitive Neuroscience track, University of Iowa, Department of Psychological and Brain Sciences. Dissertation: *Conceptualizing mechanisms of human movement cancellation within a Pause-then-Cancel model of motor inhibition.*
2020–2021	**Graduate Certificate in College Teaching**, University of Iowa Graduate College
2012–2016	**BS Psychology** and **BA Music**, *magna cum laude*, University of Tulsa

FUNDING, FELLOWSHIPS, AND GRANT APPLICATIONS

2023–2025	Carney Institute Advancing Research Careers (ARC) Award, Brown University. Total award: $25,000 research seed funds
2022–2024	T32 Postdoctoral Fellowship, Computational Psychiatry, Brown University. Total award $54,840 stipend/year, two years.
2022	Ballard-Seashore Dissertation Fellowship, University of Iowa Graduate College. Total award: $10,500 stipend
2020	Graduate College Summer Fellowship, University of Iowa. Total award: $5,000 stipend
2020	Post-Comprehensive Research Fellowship, University of Iowa Graduate College. Total award: $10,000 stipend
2017–2019	T32 Graduate Fellowship, Behavioral-Biomedical Interface Training Program. Total award: $19,276 stipend /year, two years.
2018	Graduate and Professional Student Government Travel Grant, University of Iowa. Total award: $250
2016–2017	Behavioral-Biomedical Interface Training Program Recruitment Fellowship.

Total award: $11,688 stipend

Notable applications submitted, not awarded: NIH/NIMH K99/R00 (impact score 30), NIH/NINDS F31 (impact score 34).

AWARDS AND HONORS

2022	Brown Brainstorm EEG Challenge, Runner-up
2022	Spence-Lewis Award, Department of Psychological and Brain Sciences, University of Iowa
2022	University of Iowa nominee for CGS/ProQuest Distinguished Dissertation Award
2022	D. C. Spriestersbach Dissertation Prize in the Social Sciences, University of Iowa
2022	Gormezano Research Award for best student-authored research paper, Department of Psychological and Brain Sciences, University of Iowa
2021	Finalist, Three-Minute Thesis Competition, University of Iowa
2020	Trainee Professional Development Award, Society for Neuroscience
2018	Data Blitz Winner, Behavioral and Cognitive Neuroscience Annual Meeting, Department of Psychological and Brain Sciences, University of Iowa

PUBLICATIONS

12 peer-reviewed publications, 8 as first author. * denotes equal contribution.

Peer-reviewed articles

2026 **Waller, D. A.**, Carpenter, L. L., & Jones, S. R. (2026). Frontal transient spectral events from resting-state EEG predict response to sertraline in major depressive disorder. *Journal of Psychiatric Research.* https://doi.org/10.1016/j.jpsychires.2026.03.010

2024 **Diesburg, D. A.**, Wessel, J. R., & Jones, S. R. (2024). Biophysical modeling of frontocentral ERP generation links circuit-level mechanisms of action-stopping to a behavioral race model. *Journal of Neuroscience.* https://doi.org/10.1523/JNEUROSCI.2016-23.2024

2022 Wessel, J. R., **Diesburg, D. A.**, Chalkley, N., & Greenlee, J. D. W. (2022). A causal role for the human subthalamic nucleus in non-selective cortico-motor inhibition. *Current Biology.* https://doi.org/10.1016/j.cub.2022.06.067

2021 **Diesburg, D. A.**, & Tatz, J. R. (2021). Unexpected events activate a frontal-basal-ganglia inhibitory network: What is the role of the pre-supplementary motor area? *Journal of Neuroscience.* https://doi.org/10.1523/JNEUROSCI.0565-21.2021

2021 **Diesburg, D. A.**, & Wessel, J. R. (2021). The pause-then-cancel model of stopping in humans: Theoretical considerations and empirical evidence. *Neuroscience and Biobehavioral Reviews.* https://doi.org/10.1016/j.neubiorev.2021.07.019

2021 **Diesburg, D. A.**, Greenlee, J. D. W., & Wessel, J. R. (2021). Cortico-subcortical beta burst dynamics underlying movement cancellation in humans. *eLife.* https://doi.org/10.7554/eLife.70270

2020 Dykstra, T.*,* ***Waller, D. A.***, Hazeltine, E., & Wessel, J. R. (2020). Leveling the field for a fairer race between going and stopping: Neural evidence for the race model of motor inhibition from a new version of the stop-signal task. *Journal of Cognitive Neuroscience.* https://doi.org/10.1162/jocn_a_01503

2020 Iacullo, C.*,* ***Diesburg, D. A.***, & Wessel, J. R. (2020). Non-selective inhibition of the motor system following unexpected and expected infrequent events. *Experimental Brain Research.* https://doi.org/10.1007/s00221-020-05919-3

2019 Clausen, A. N., Aupperle, R. L., Yeh, H., **Waller, D. A.**, Payne, J., Kuplicki, R., Akeman, E., & Tulsa 1000 Investigators (2019). Machine learning analysis of the relationships between gray matter volume and childhood trauma in a transdiagnostic community-based sample. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging.* https://doi.org/10.1016/j.bpsc.2019.03.001

2019 **Waller, D. A.**, Hazeltine, E., & Wessel, J. R. (2019). Common neural processes during action-stopping and infrequent stimulus detection: The frontocentral P3 as an index of generic motor inhibition. *International Journal of Psychophysiology.* https://doi.org/10.1016/j.ijpsycho.2019.01.004

2019 Wessel, J. R., **Waller, D. A.**, & Greenlee, J. D. (2019). Non-selective inhibition of inappropriate motor-tendencies during response-conflict by a fronto-subthalamic mechanism. *eLife.* https://doi.org/10.7554/eLife.42959

2018 Dutra, I., **Waller, D. A.**, & Wessel, J. R. (2018). Perceptual surprise improves action stopping by non-selectively suppressing motor activity via a neural mechanism for motor inhibition. *Journal of Neuroscience.* https://doi.org/10.1523/JNEUROSCI.3091-17.2017

Preprints

Cesnaite, E., … **Waller, D.**, … Busch, N. A. Many pipelines, one dataset: Analytic flexibility and its impact in EEG research. *OSF.* https://doi.org/10.31222/osf.io/wvx48_v2

Cesnaite, E., … **Waller, D.**, … Busch, N. A. The EEGManyPipelines dataset: Metascientific data on 168 independent analyses of a single EEG dataset. *MetaArXiv.* https://doi.org/10.31222/osf.io/c4xwg_v1

Duecker, K., Soplata, A., Tolley, N., Pugliese, S., Jones, T., Kandpal, C., **Waller, D. A.**, Daniels, D., & Jones, S. R. Next generation Human Neocortical Neurosolver model with biophysically realistic somatic, dendritic and synaptic dynamics. *bioRxiv. https://www.biorxiv.org/content/10.64898/2026.10.29.762964v1.abstract*

Manuscripts in preparation

Waller, D. A., Abeshaus, C. J., & Jones, S. R. Transient frontal beta events and evoked responses reflect single-trial inhibitory mechanisms and strategies during inhibitory control.

Waller, D. A., Dillon, D., Tirrell, E., Carpenter, L. L., & Jones, S. R. Changes to response execution and inhibition in major depressive disorder: Novel insights with the pause-then-cancel framework.

PRESENTATIONS

Invited talks

2026 *Developing a scalable and translational mechanistic framework of human inhibitory control.* Center for Neuromodulation and Neurorehabilitation, Providence VA, Providence, RI. June 2026.

2024 *Cortico-basal ganglia-thalamocortical circuit mechanisms of inhibitory control in health and neuropsychiatric disease.* Center for Depression, Anxiety, and Stress Research Seminar Series, McLean Hospital, Belmont, MA. May 2024.

2024 *Using biophysical models of evoked responses to probe mechanisms of inhibitory control in the PFC.* MEG Group Meeting, Martinos Center for Biomedical Imaging, Boston, MA. January 2024.

2023 *Deep brain stimulation and action-stopping: A cognitive neuroscience perspective on the contributions of fronto-basal ganglia circuits to inhibitory control.* Stimulating Brains virtual talk series. May 2023.

2022 *Delineating the role of subthalamic beta bursts in human motor inhibition* (data blitz). Control Processes, virtual meeting. May 2022.

2021 *The role of beta burst dynamics in movement cancellation.* Faces of the Future Flash Talks, Society for Psychophysiological Research Annual Meeting. October 2021.

2021 *Cortico-subcortical beta burst dynamics underlying movement cancellation in humans.* Frank, Asaad, and Borton Labs, Carney Institute for Brain Science, Brown University. May 2021.

2021 *Beta burst dynamics in cortico-subcortical circuits underlie movement cancellation.* Jones and Moore Labs, Carney Institute for Brain Science, Brown University. February 2021.

Conference talks and symposia

2027 *Distinct inhibitory microscale mechanisms of proactive and reactive control from biophysical models of prefrontal EEG*. In symposium: Multiscale Dynamics of Cognitive Processes from M/EEG: Micro-to-Macroscale and Back Again (organizer). Cognitive Neuroscience Society. Boston, MA. March 2027.

2026 *Distinct inhibitory mechanisms of proactive versus reactive control revealed by biophysical models of medial prefrontal EEG.* Blitz talk, Control Processes, Ghent, Belgium. June 2026.

2024 *Biophysically modeling circuit-level mechanisms of the frontocentral event-related potential during response inhibition.* In symposium: Computational Modeling for Understanding Generative Mechanisms of Evoked and Induced Brain Potentials. Society for Psychophysiological Research Annual Meeting, Prague, Czech Republic. October 2024.

Posters

2026 Chanthrakumar, P., **Waller, D.**, Tolley, N., Zhou, D., & Jones, S. *EEG-measured auditory evoked response reveals smaller N1 peak magnitudes in depressed sertraline nonresponders versus responders, attributable to across-trial variability in peak latencies.* Society of Biological Psychiatry Annual Meeting, New York, NY. May 2026.

2026 **Waller, D. A.**, Tirrell, E., Carpenter, L. L., & Jones, S. R. *Deficits of response inhibition in depression arise from specific subphases of inhibitory control.* Society of Biological Psychiatry Annual Meeting, New York, NY. May 2026.

2026 Zhou, D. W., **Waller, D. A.**, & Jones, S. R. *Beta waveform shape predicts antidepressant response to sertraline.* Society of Biological Psychiatry Annual Meeting, New York, NY. May 2026.

2026 Duecker, K., **Waller, D.**, Murphy, J., Pugliese, S., Moore, C., & Jones, S. *Dendritic calcium dynamics shape functionally relevant human E/MEG ~20 Hz beta events: A biophysical modeling study.* Organization for Computational Neurosciences Annual Meeting, Halifax, NS. July 2026.

2026 Duecker, K., **Waller, D.**, Murphy, J., Pugliese, S., Moore, C., & Jones, S. *Dendritic calcium dynamics shape functionally relevant human E/MEG ~20 Hz beta events: A biophysical modeling study with the next generation Human Neocortical Neurosolver.* EMBO Workshop: Dendrites and Beyond. May 2026.

2026 **Waller, D. A.**, Tirrell, E., Carpenter, L. L., & Jones, S. R. *Deficits of response inhibition in depression arise from specific subphases of inhibitory control.* Cognitive Neuroscience Society Annual Meeting, Vancouver, BC. March 2026.

2025 **Diesburg, D. A.**, Zhou, D. W., Carpenter, L., & Jones, S. R. *Transient EEG resting-state spectral events predict antidepressant response to sertraline.* Society of Biological Psychiatry Annual Meeting, Toronto, ON. April 2025.

2025 **Diesburg, D. A.**, Abeshaus, C. J., & Jones, S. R. *Neural modeling of frontal evoked responses predicts transient beta events influence inhibitory control via slow GABAergic inhibition.* Cognitive Neuroscience Society Annual Meeting, Boston, MA. March 2025.

2024 **Diesburg, D. A.**, Abeshaus, C. J., Wessel, J. R., & Jones, S. R. *Evoked responses and transient beta events reveal frontal microcircuit dynamics of inhibitory control during response inhibition.* Cognitive Computational Neuroscience, Boston, MA. August 2024.

2023 Abeshaus, C. J., **Diesburg, D. A.**, & Jones, S. R. *Modeling the biophysical dynamics of the frontocentral ERP given transient beta events during the stop-signal task.* Leadership Alliance National Symposium, Hartford, CT. July 2023.

2022 **Diesburg, D. A.**, Wessel, J. R., & Jones, S. R. *Biophysical circuit mechanisms of the stop-signal P3 during action-stopping.* Society for Neuroscience Annual Meeting, San Diego, CA. November 2022.

2022 **Diesburg, D. A.**, Wessel, J. R., & Jones, S. R. *Biophysical dynamics of the stop-signal P3 during action-stopping.* Society for Psychophysiological Research Annual Meeting, Vancouver, BC. September 2022.

2021 **Diesburg, D. A.**, Greenlee, J. D. W., & Wessel, J. R. *Cortico-subcortical beta burst dynamics underlying action stopping in humans.* Cognitive Neuroscience Society Annual Meeting. March 2021.

2021 **Diesburg, D. A.**, Greenlee, J. D. W., & Wessel, J. R. *Cortico-subcortical beta burst dynamics underlying action stopping in humans.* Society for Neuroscience Global Connectome. January 2021.

2020 **Diesburg, D. A.**, Iacullo, C., & Wessel, J. R. *Infrequent but expected stimuli elicit automatic, non-selective inhibition.* Society for Psychophysiological Research Annual Meeting. October 2020.

2019 **Waller, D. A.**, Singh, A., Espinoza, A., Narayanan, N. S., Greenlee, J. D. W., & Wessel, J. R. *Motor inhibition and motor-based response conflict share a common neural mechanism involving the subthalamic nucleus.* Society for Neuroscience Annual Meeting, Chicago, IL. October 2019.

2019 Iacullo, C. R., **Diesburg, D. A.**, & Wessel, J. R. *Effects of the timing of infrequent stimuli on motor system suppression.* Fall Undergraduate Research Festival, University of Iowa, Iowa City, IA. November 2019.

2018 **Waller, D. A.**, Dykstra, T., Hazeltine, E., & Wessel, J. R. *A fairer race between going and stopping: Neural signatures of motor inhibition in a redesigned stop-signal task.* Society for Neuroscience Annual Meeting, San Diego, CA. November 2018.

2018 Clausen, A. N., Aupperle, R. L., Yeh, H., **Waller, D.**, Payne, J., Akeman, E., Paulus, M., & Tulsa 1000 Investigators. *Relationship between severity and subtypes of childhood trauma and brain morphology in adults.* Anxiety and Depression Association of America Annual Meeting, Washington, DC. April 2018.

2018 **Waller, D. A.**, & Wessel, J. R. *Separating inhibitory and attentional neural signals in the stop-signal paradigm.* Cognitive Neuroscience Society Annual Meeting, Boston, MA. March 2018.

2017 Clausen, A. N., Aupperle, R. L., Yeh, H., **Waller, D.**, Payne, J., Akeman, E., Paulus, M., & Tulsa 1000 Investigators. *Assessing relationship between childhood trauma and brain morphology in large community-based adult sample.* American College of Neuropsychopharmacology Annual Meeting, Palm Springs, CA. December 2017.

2017 Dutra, I., **Waller, D. A.**, & Wessel, J. R. *Surprise improves action stopping through inhibition.* Tri-State Undergraduate Psychology Research Conference, Cedar Rapids, IA. November 2017.

2016 **Waller, D. A.**, Clausen, A. N., & Aupperle, R. L. *Moderating effects of gender in the relationship between childhood trauma and volumetric gray matter differences in depressed subjects.* 19th Annual Student Research Colloquium, University of Tulsa, Tulsa, OK. April 2016.

2016 Clausen, A. N., **Waller, D.**, Youngren, W. A., Paulus, M., & Aupperle, R. L. *Gray matter volume as a moderator for the relationship between childhood trauma and depression.* Anxiety and Depression Association of America Annual Meeting, Philadelphia, PA. March 2016.

TEACHING

Courses and workshops

Fall 2026 Teaching Assistant, NEUR 1440: Mechanisms and Meaning of Neural Dynamics, Brown University. Supervisor: Stephanie Jones

Summer 2024 Teaching Assistant, Neuromatch Academy Computational Neuroscience Course

Spring 2024 Lecture and demonstration on time-frequency decomposition, Brown BrainStorm Data Challenge Workshop

Fall 2021 Teaching Practicum, PSQF 1075: Educational Psychology, University of Iowa. Supervisor: Mitchell Kelly

Spring 2021 Teaching Practicum, PSY 7150: Analyzing Neural Field Potentials, University of Iowa. Supervisor: Jan Wessel

2019, 2021 Practical demonstrations of EEG analysis, neuroscience workshop for first-generation undergraduates, University of Iowa

Fall 2019 Administrative Teaching Assistant, Elementary Psychology, University of Iowa. Supervisor: Shaun Vecera

Guest lectures

Summer 2025 *Magnetic resonance spectroscopy: How we non-invasively study brain metabolites.* Brown Pre-College Course, How Does a Brain Study Itself? Introduction to Human Neuroscientific Methods

Fall 2024 *Time-frequency analysis methods.* NEUR 1440: Mechanisms and Meaning of Neural Dynamics, Brown University

Fall 2023 *Using biophysical models of cortical circuits to probe mechanisms of inhibitory control in the PFC.* NEUR 1440, Brown University

Fall 2022 *Probing mechanisms of cognitive processes using biophysical models of laminar circuits.* NEUR 1440, Brown University

Spring 2022 *Electroencephalography and the event-related potential approach.* PSY 6440: Developmental Cognitive Neuroscience, University of Iowa

Fall 2021 *Constructivism, teaching every student (individualized instruction and teacher expectations).* PSQF 1075: Educational Psychology and Measurement, University of Iowa

Spring 2021 *Non-oscillatory time-frequency signatures.* PSY 7150: Laboratory in Cognitive Neuroscience, University of Iowa

Fall 2019 *Social development.* PSY 1001: Elementary Psychology, University of Iowa

MENTORING

2025–present Graduate student, Jones Lab, Brown University: Pranavan Chanthrakumar

2024–2025 Undergraduate student, Jones Lab, Brown University: Anel Zhussubali

Summer 2023 Undergraduate summer researcher, The Leadership Alliance: CJ Abeshaus

Summer 2020 Evidence-based research mentor training (8-hour workshop series), Iowa Mentoring Academy, University of Iowa

2017–2020	Undergraduate researchers completing independent projects, University of Iowa: Isabella Dutra, Carly Iacullo

SERVICE

Extramural

2022	Committee member, Women in Cognitive Control Virtual Talk Series
2019–2022	Program Committee, Poster and Big Idea Chair, Society for Psychophysiological Research 2022 Meeting
2020–2021	Operations and Communications, University of Iowa Cognitive Control Collaborative Showcase 2021

Intramural

2025	Reviewer, Carney Institute Graduate Awards, Brown University
2024	Co-proposer and organizer, inaugural Carney Institute Postdoc Retreat, Brown University
2023	Reviewer, Undergraduate Teaching and Research Awards, Brown University
2022–2024	Co-chair, BrainExPo Seminar Series Planning Committee, Brown University
2020–2022	Grant Reviewer, Graduate and Professional Student Government, University of Iowa
2019–2020	Graduate Student Senator, Department of Psychological and Brain Sciences; Jakobsen Conference Planning Committee, University of Iowa
2018–2019	Curriculum and Evaluation Committee, Behavioral-Biomedical Interface Training Program, University of Iowa
2017–2019	Graduate Student Advisory Committee, Department of Psychological and Brain Sciences, University of Iowa (area representative 2017–2018; chair 2018–2019)
2017–2018	Volunteer judge, Undergraduate Research Festival, University of Iowa
2017	Volunteer judge, Summer Enrichment Initiative Science Fair, University of Iowa

Ad hoc peer review

Attention, Perception, & Psychophysics; Brain Stimulation; Brain Topography; Cerebral Cortex; Clinical Neurophysiology; Cognitive Neuropsychology; eLife; Experimental Brain Research; Human Brain Mapping; International Journal of Psychophysiology; Journal of Cognitive Neuroscience; Journal of Experimental Psychology: General; Journal of Neuroscience; Journal of Neurophysiology; Journal of Psychophysiology; Neuropsychologia; Neuroscience and Biobehavioral Reviews; Proceedings of the National Academy of Sciences; Scientific Reports; Trends in Cognitive Sciences