

BRENDAN CULLEN

I am a PhD student and [National Science Foundation Graduate Research Fellow](#) in the Department of Psychology at the University of Oregon. As an aspiring data scientist, my long-term goal is to contribute to open-source software and to apply my computational skills as a researcher within an industry setting focused on enhancing health across the lifespan.

🎓 EDUCATION

- 2022 | 2017 ● **PhD Student, Psychology**
University of Oregon 📍 Eugene, OR
 - My research takes a translational (neuro)science approach toward predictive modeling of self-regulation processes and health-risking behaviors within a precision medicine framework.
 - I am currently pursuing a 5-course [Data Science Specialization](#) taught entirely in R, focused on data visualization, functional programming, and machine learning.
- 2019 | 2017 ● **MS, Psychology**
University of Oregon 📍 Eugene, OR
 - Thesis: Comparing cognitive and affective predictors of craving
- 2015 | 2011 ● **BA, Neuroscience**
Middlebury College 📍 Middlebury, VT
 - Thesis: Neurophysiological correlates of self-referential activity in meditators and non-meditators

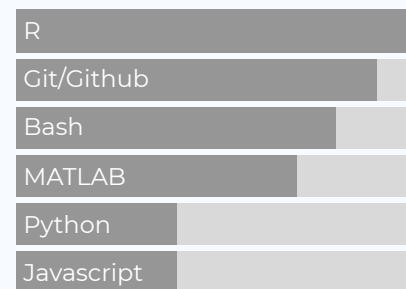
🏆 HONORS & AWARDS

- 2023 | 2018 ● **NSF Graduate Research Fellowship**
National Science Foundation
- 2020 ● **Center on Parenting and Opioids Pilot & Training Core Travel Award**
University of Oregon
- 2020 ● **Graduate School “Special Opps” Travel & Research Award**
University of Oregon
- 2019 ● **Graduate Education Committee Travel Award**
Department of Psychology, University of Oregon
- 2017 ● **Graduate School Recruitment Award**
University of Oregon
- 2017 ● **Mind and Life Summer Research Institute Fellow**
Mind and Life Institute

CONTACT

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PROGRAMMING SKILLS



- 2016 ● **International Symposium for Contemplative Studies Scholarship**
Mind and Life Institute
- 2015 ● **BA in Neuroscience with Highest Honors, Summa Cum Laude**
Middlebury College
- 2015 ● **Elected to Phi Beta Kappa**
Middlebury College
- 2015 | 2011 ● **Dean's Honor List (8 semesters)**
Middlebury College
- 2015 ● **Rosalin Lieberman-Reiss Memorial Award**
Department of Psychology, Middlebury College
 - Awarded to a graduating senior who shows the greatest promise to contribute to the treatment and cure of severe mental illness.
- 2015 ● **Mind and Life Summer Research Institute Fellow**
Mind and Life Institute
- 2014 ● **International Symposium for Contemplative Studies Scholarship**
Mind and Life Institute
- 2014 ● **Academic Conference Travel Fund Award**
Middlebury College
- 2014 ● **Senior Research Project Supplement**
Middlebury College
- 2014 ● **Bicentennial Fund for Research Partnerships in the Sciences Fellowship**
Middlebury College
- 2013 ● **Fred M. Roddy Research Fellowship in Biomedical Science**
Middlebury College

�� PROFESSIONAL RESEARCH EXPERIENCE

- 2018 | 2017 ● **Graduate Employee**
Social and Affective Neuroscience Lab ● University of Oregon
 - Selected self-report measures and co-designed interventions for NCI-funded RCT comparing behavioral response and cognitive reappraisal interventions for devaluing unhealthy food
 - Created automated workflow for daily backup of fMRI data via a high performance computing cluster
- 2017 | 2015 ● **Research Assistant**
Clinical and Affective Neuroscience Lab ● Brown University
 - Cleaned and scored self-report data (20+ measures) from an NIH-funded 3-armed RCT comparing focused awareness meditation, open-monitoring meditation, and Mindfulness-Based Cognitive Therapy on clinical efficacy for depression
 - Led a project investigating the effects of meditation training on EEG and behavioral measures of self-referential processing

Skills gained from research positions:

- Data analysis with R
- Functional programming
- Machine learning
- Shell scripting
- Git/Github
- Research design
- Neuroimaging analysis
- Experimental software development (MATLAB)
- High performance computing
- Python
- Project management
- Agile/Scrum workflow
- Student mentoring

2017
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2015

- **Research Assistant**
Embodied Neuroscience Lab 📍 Brown University
 - Collected EEG data for pilot RCT testing a neuromuscular-immune model of chronic fatigue in female cancer survivors
 - Designed custom software in MATLAB to implement novel EEG/EMG paradigm for measuring neural correlates of tactile acuity and precision grip strength
- **Recruitment Specialist**
Women's Medicine Collaborative,
Miriam Hospital 📍 Providence, RI
 - Developed strategies to recruit specialized patient populations for randomized controlled trials, including female cancer survivors and patients with asthma
- **Research Assistant**
Social Psychology of Meditation Lab 📍 Middlebury College
 - Led a study on relationship between mindfulness, hormones, empathy, and prosocial behavior
 - Recruited and interviewed participants, administered surveys and cognitive tests, and analyzed salivary cortisol and testosterone assays
- **Research Assistant**
Behavioral Neuroendocrinology Lab 📍 Middlebury College
 - Collected animal behavior data on the dose-dependent effects of testosterone replacement on spatial memory
 - Performed behavioral testing, prepared brain samples, collected microscopy data and assisted with manuscript preparation



TEACHING EXPERIENCE

2020

- **Lab Instructor**
[PSY 612: Data Analysis II](#) 📍 University of Oregon
 - Designed and taught lab sections on [Correlations](#), [Univariate Regression and the General Linear Model](#), [Regression with Categorical Predictors](#), [Interactions](#), and [Factorial ANOVA](#).

2019

- **Lab Instructor**
[PSY 611: Data Analysis I](#) 📍 University of Oregon
 - Designed and taught lab sections on [R Basics and Descriptive Statistics](#), [Matrix Algebra](#), [Data Transformation with dyplr](#), [Pre-registration](#), and [Paired samples t-tests](#).

2015

- **Teaching Assistant**
[PSYC 301: Physiological Psychology](#) 📍 Middlebury College
 - Assisted with lab and discussion sections, held exam review sessions, prepared experimental equipment, and conducted animal testing for student projects

I believe that learning open-source data science tools can empower us to be better scientists. During my third year of graduate school, I served as a teaching assistant and lab instructor for a graduate-level advanced data analysis sequence and have spent a significant amount of time creating educational resources about working with data in R. I have relished the opportunity to help equip my fellow graduate students learn R and increase the efficiency and reproducibility of their own research projects.



WORKSHOPS TAUGHT

2020

- **Introduction to Git and Github**
Psychology First Year Research Seminar



University of Oregon

- Introductory workshop for first-year psychology PhD and Master's students on basics of using Git and Github for version control

2019

- **Intermediate Git and Github**
UO Data Science Club



University of Oregon

- Intermediate Git/Github workshop for University of Oregon's Data Science Club, including discussion of merge conflicts, branching, pull requests, and best practices for collaborative Github projects

I have extensive experience with git and Github and have taught several workshops on using Github for version control and collaborative projects. You can view a record of my Github pull requests [here](#).



PEER-REVIEWED PUBLICATIONS

2018

- **Dismantling Mindfulness-Based Cognitive Therapy: Creation and validation of 8-week Focused Attention and Open Monitoring interventions within a 3-armed randomized controlled trial**

Behaviour and Research Therapy, 101, 92-107.

- Britton, W.B., Davis, J., Loucks, E.B., Peterson, B., Cullen, B., Reuter, L., Rando, A., Rahrig, H., Lipsky, J. & Lindahl, J. (2018).

2018

- **Comparing embodiment experiences in expert meditators and non-meditators**

Consciousness and Cognition, 65, 325-333.

- Xu, A., Cullen, B., Penner, C., Zimmerman, C., Kerr, C.E., & Schmalzl, L. (2018)

2018

- **Dose-dependent effects of testosterone on spatial memory in adult male rats**

Psychoneuroendocrinology, 89, 120-130.

- Wagner, B., Braddick, V. Batson, C., Cullen, B., Miller, E. & Spritzer, M. (2018).

My peer-reviewed scientific publications are varied in topic, ranging from the neuroendocrinology of spatial memory to decomposing neurocognitive mechanisms of mindfulness practices with respect to clinical depression outcomes. In general, I am interested in studying how the plasticity of the brain can be leveraged to better understand and guide adaptive changes in behavior.



WORKS IN PROGRESS

2020

- **The contributions of focused attention and open monitoring in Mindfulness-Based Cognitive Therapy: a 3-armed randomized dismantling trial**

In prep

- Cullen, B., Eichel, K., Lindahl, J., Rahrig, H., Kini, N., Flahive, J. & Britton, W.B.

2020

- **Neural correlates of emotion reactivity and emotion regulation in women with borderline personality disorder: A replication of the literature with novel extensions**

In prep

- Lewis, J., Cullen, B., Giuliani, N., & Zalewski, M.

- 2020 ● **Comparing cognitive and affective predictors of craving**
In prep
· Cullen, B., DeStasio, K., Cosme, D., & Berkman, E.T.
- 2020 ● **The teacher matters: Instructor related effects of a pilot mindfulness intervention RCT in a school setting**
In prep
· Canby, N., Lipsky, J., Cullen, B., Eichel, K., & Britton, W.B.

SELECTED POSTER PRESENTATIONS

- 2019 ● **Cognitive versus affective predictors of craving**
Society for Personality and Social Psychology  Portland, OR
· Cullen, B., DeStasio, K., Cosme, D., & Berkman, E.T. (2019)
- 2019 ● **Personalized stop-signal training to improve inhibitory control among adults who experienced early adversity**
Society for Personality and Social Psychology  Portland, OR
· DeStasio, K., Cullen, B., Shaffer, K., & Berkman, E.T. (2019)
- 2018 ● **A pilot randomized control trial investigating brain-body mechanisms of Qigong meditative movement practice for cancer-related fatigue**
Society for Neuroscience Annual Meeting  San Diego, CA
· Zimmerman, C., Penner, C., Temereanca, S., Daniels, D., Cullen, B., Jones, S., & Kerr, C.
- 2017 ● **Teacher effects in a school-based mindfulness intervention**
Mind and Life Summer Research Institute  Garrison, NY
· Cullen, B., Canby, N., & Britton, W. B.
- 2017 ● **Sustained Attention in Focused Attention versus Open Monitoring Meditation: Behavioral and Neurophysiological Changes**
29th Association for Psychological Science Annual Convention  Boston, MA
· Eichel, K., Essien, G., Cullen, B., Rogers, A. & Britton, W.B.
- 2017 ● **Dose-dependent effects of testosterone on spatial memory in young and adult male rats**
International Meeting for Steroids and the Nervous System  Turin, Italy
· Spritzer, M.D., Batson, C.G., Braddick, V.C., Chyr, C.U., Cullen, B., Goins, E.C., Jaeger, E.C.B., Miller, L.E., Super, C., & Wagner, B.A.

- 2016
- **An open-source system for EEG neurofeedback and transcranial current stimulation control: Applications for meditation research**
International Symposium for Contemplative Studies, San Diego, CA
Society for Neuroscience Annual Meeting
• Cullen, B., Santoyo, J., Black, C., McFarlane-Blake, C. & Kerr, C.
- 2016
- **A Neurofeedback Informed Meditation Technique (NIMT) for modulating posterior cingulate cortex activity: Proof-of concept for a novel mental-training paradigm with clinical applications**
International Symposium for Contemplative Studies, San Diego, CA
Society for Neuroscience Annual Meeting
• Santoyo, J., Cullen, B., & Kerr, C.
- 2016
- **The role of social relationships in contemplative development**
Mind and Life Summer Research Institute Garrison, NY
• Canby, N., Margolis, C., Cullen, B., Rahrig, H., Alejandra-Lara, A., Noorani, M., Lindahl, J. & Britton, W.
- 2016
- **The impact of social relationship factors on clinical outcomes in Mindfulness-Based Interventions**
Brown University Mind Brain Research Day Providence, RI
Brown University Public Health Research Day
• Cullen, B., Rahrig, H., Dumais, T., Canby, N., Lindahl, J., & Britton, W.
- 2015
- **Neurophysiological correlates of self-referential activity in meditators and non-meditators**
Mind and Life Summer Research Institute Garrison, NY
• Cullen, B., Bruns, M., Paritsky, A., McGuirk, E., Ogle, T., Kimble, M., & Cronise, K.
- 2015
- **Neurophysiological correlates of self-referential activity in meditators and non-meditators**
Advances in Meditation Research New York, NY
• Cullen, B., Bruns, M., Paritsky, A., McGuirk, E., Ogle, T., Kimble, M., & Cronise, K.
- 2014
- **Do expert meditators differ from novice and non-meditators in emotion identification, physiological competitive reactions, or prosocial responses?**
Center for Compassion and Altruism Research San Francisco, CA
and Education Science of Compassion Conference
• Cullen, B., Stallworthy, I., Lesenskyj, A., Boles, L., Weinert-Stein, M., Perce-
lay, R., Kahn, H.; McGuirk, E., Sellers, J., & Cronise, K.
- 2014
- **Effects of testosterone dose on spatial memory in adult male rats**
Society for Neuroscience Annual Meeting Washington, D.C.
• Cullen, B., Spritzer, M., Batson, C., Spillane, S., & Wagner, B.

TALKS

- 2020 ● **Predicting diabetes status from personality using machine learning**
useR! 2020 (canceled)  St. Louis, MO
· Cullen, B., Weston, S., & Condon, D.
- 2018 ● **Effects of focused attention and open monitoring meditation on error-related processing: Behavioral and neurophysiological changes**
International Conference of the European Society for Cognitive and Affective Neuroscience  Leiden, Netherlands
· Eichel, K., Cullen, B., & Britton, W.
- 2017 ● **Dismantling effects of focused attention and open monitoring techniques in Mindfulness-Based Cognitive Therapy for affective disturbances**
Annual Meeting and Expo of the American Public Health Association  Atlanta, GA
· Chang, B., Cullen, B., Kini, N., Rahrig, H., & Britton, W.
- 2016 ● **Movement, embodiment and interoception in the context of contemplative practices (Panel)**
International Symposium for Contemplative Studies  San Diego, CA
· Schmalzl, L., Powers, C., Yetz, N., Groessl, EJ., Saron, C., Kerr, C., Zimmerman, C., **Cullen, B.**, Clark, D., Mostofsky, SH., Feinstein, J., Khalsa, S., Simmons, K., & Paulus, M.
- 2016 ● **Effects of focused attention and open monitoring meditation on sustained attention**
International Symposium for Contemplative Studies  San Diego, CA
· Eichel, K., **Cullen, B.**, & Britton, W.

ADDITIONAL TRAINING

- 2020 ● **Introduction to Machine Learning with the Tidyverse**
rstudio::conf(2020)  San Francisco, CA
· Two-day workshop on machine learning with tidymodels taught by Alison Hill. Topics covered included prediction, classification, sampling & resampling, ensembling, workflows, recipes, cross-validation and model tuning.

SERVICE & LEADERSHIP

- 2020 ● **Co-organizer**
Cascadia R Conf 2020  Eugene, OR
· Updated website, designed new hex sticker, secured additional sponsors

- 2018
- **Co-organizer**
[Eugene Brainhack](#) 📍 Eugene, OR
 - Co-organized a two-day Brainhack event hosted at the University of Oregon for collaborative software development projects related to computational neuroscience and psychology
- 2018
- **Science communication ambassador**
[The People's Science](#) 📍 Eugene, OR
 - Trained to be a coach to assist people with communicating their scientific work to the general public
- 2018
- **Lab Tour Guide**
[Intel Science Fair](#) 📍 Eugene, OR
 - Gave a presentation for middle- and high-school students as part of a science outreach event during the regional Intel Science Fair in Eugene
 - Gave students a tour of the Social and Affective Neuroscience Lab and hosted a Q&A session about scientific careers
- 2016
- **Co-organizer**
Mindfulness, Healing and Empathy in Healthcare Speaker Series,
Warren Alpert Medical School at Brown University 📍 Providence, RI
 - Coordinated with guest speakers for a 6-part lecture series for Brown University medical students and community members
 - Created a website to advertise the public talks and to provide community members with information about mindfulness resources