

# ELLYN BUTLER

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## EDUCATION

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**Northwestern University, Evanston, IL**

Starting September 2021

Doctor of Philosophy in Clinical Psychology — Master of Science in Statistics

- Principal Investigators: Robin Nusslock, Ph.D. & Caterina Gratton, Ph.D.
- Research objective  $\Rightarrow$  Identify neuroimmune mechanisms connecting violence exposure with psychopathology across development, and determine important moderators of this association, including modifiable characteristics of the social environment.

**Oberlin College & Conservatory, Oberlin, OH** GPA: 3.96

August 2013 - May 2018

Bachelor of Arts in Psychology — Bachelor of Music in Flute Performance

Concentration in Statistical Modeling — Minor in Law & Society

## WORK EXPERIENCE

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**University of Pennsylvania, Philadelphia, PA**

June 2018 - August 2021

*Data Analyst — Brain Behavior Laboratory*

- Principal Investigator: Ruben Gur, Ph.D.
- Mission  $\Rightarrow$  The lab aims to characterize clinical, cognitive and neurobiological trajectories of youth on the psychosis spectrum, and to uncover the biological bases of behavior more broadly in part through improving the measurement of pertinent domains.
- Statistics, Visualization and Communication  $\Rightarrow$  Translate research questions into testable hypotheses, utilize machine learning and Bayesian methods for prediction, communicate results to investigators using informative graphics, and write methods and results sections for manuscripts.
- Neuroimaging  $\Rightarrow$  Pre-process T1-weighted, diffusion, and functional images using a variety of software packages, and build a series of Docker images to process longitudinal structural data.
- Psychometrics  $\Rightarrow$  Utilize factor analysis and item response theory to explore psychometric properties and score cognitive and clinical assessments, and assess the validity of various administration strategies for the Penn Computerized Neurocognitive Battery.
- Management  $\Rightarrow$  Organize weekly meetings to discuss data and teach junior staff about data analysis.
- Manuscript Preparation  $\Rightarrow$  Write manuscripts on the social, biological and psychopathological sequelae of childhood physical and sexual abuse, and measurement and statistics.

**Momentum@Work, Austin, TX**

December 2019 - January 2020

*Consulting Statistician*

- Collaborator: Allison Brenner, M.A.
- Responsibilities: Performed psychometric analyses and wrote summary of results to help determine efficacy of evaluation for potential Foreign Service members.

## TECHNICAL SKILLS

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**Programming Languages**

R, Python, Bash,  $\LaTeX$

**Version Control**

GitHub, Docker, Singularity, Flywheel

**Neuroimaging Software**

fMRIPrep, XCPEngine, NiLearn, ANTs, FSL, AFNI, Freesurfer

1. **Butler, E.R.**, Chen, A., Ramadan, R., Le, T.T., Ruparel, K., Moore, T.M., Satterthwaite, T.D., Zhang, F., Shou, H., Gur, R.C., Nichols, T.E.\*, & Shinohara, R.T.\* (accepted). Pitfalls in brain age analyses. *Human brain mapping*. <https://bit.ly/2RdvVBd>
2. Moore, T.M.\*, Calkins, M.E.\*, Rosen, A.F.G., **Butler, E.R.**, Ruparel, K., Fusar-Poli, P., Koutsouleris, N., McGuire, P., Cannon, T.D., Gur, R.C., & Gur, R.E. (2021). Development of a probability calculator for psychosis risk in children, adolescents, and young adults. *Psychological medicine*, 1-9. <http://bit.ly/38PHepB>
3. Moore, T.M., **Butler, E.R.**, Scott, J.C., Port, A.M., Ruparel, K., Njokweni, L.J., Gur, R.E., & Gur, R.C. (2020). When CAT is not an option: Complementary methods of test abbreviation for neurocognitive batteries. *Cognitive neuropsychiatry*, 26(1), 35-54. <https://bit.ly/3nAtVOZ>
4. Gur, R.C., **Butler, E.R.**, Moore, T.M., Rosen, A.F.G., Ruparel, K., Satterthwaite, T.D., Roalf, D.R., Gennatas, E.D., Bilker, W.B., Shinohara R.T., Port, M., Elliott, M.A., Verma, R., Davatzikos, C., Wolf, D.H., Detre, J.A., & Gur, R.E. (2020). Structural and functional brain parameters related to cognitive performance across development: Replication and extension of the parieto-frontal integration theory in a single sample. *Cerebral cortex*, 31(3), 1444-1463. <https://bit.ly/3aEgN7Z>
5. Morean, M.E. & **Butler, E.R.** (2019). The Medical Cannabis Expectancy Questionnaire: Adult medical marijuana users' expectancies associated with combustible, vaporized, and edible cannabis use for medical purposes. *Cannabis*, 2, 1-18. <https://bit.ly/2NTGLYX>
6. Morean, M.E., L'Insalata, A., **Butler, E.R.**, McKee, A., & Krishnan-Sarin, S. (2018). Age at drinking onset, age at first intoxication, and delay to first intoxication: Assessing the concurrent validity of measures of drinking initiation with alcohol use and related problems. *Addictive behaviors*, 79, 195-200. <https://bit.ly/30wIhoE>
7. Morean, M. E., **Butler, E. R.**, Bold, K. W., Kong, G., Camenga, D. R., Cavallo, D. A., Simon, P., & Krishnan-Sarin, S. (2018). Preferring more e-cigarette flavors is associated with e-cigarette use frequency among adolescents but not adults. *PloS one*, 13(1), e0189015. <https://bit.ly/2NyJBST>

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MANUSCRIPTS: OTHER

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1. **Butler, E.R.**, Moore, T.M., Calkins, M.E., Ruparel, K., Gur, R.C., & Gur, R.E. (preprint). Do we understand our daughters' depression and anxiety? A bifactor modeling approach. <https://psyarxiv.com/57hrv/>
2. Scott, J.C., Moore, T.M., Roalf, D.R., Satterthwaite, T.D., Wolf, D.H., Port, A.M., **Butler, E.R.**, Ruparel, K., Nievergelt, C.M., Risbrough, V.B., Baker, D.G., Gur, R.E., & Gur, R.C. (under review). Development and application of novel, data-driven performance validity metrics for computerized neurocognitive batteries.
3. Tapera, T.M., Cieslak, M., Bertolero, M., Adebimpe, A., Aguirre, G.K., **Butler, E.R.**, Cook, P.A., Davila, D., Elliott, M.A., Linguiti, S., Murtha, K., Tackett, W., Detre, J.A., & Satterthwaite, T. (under review). FlywheelTools: data curation and manipulation on the Flywheel platform. <https://www.biorxiv.org/content/10.1101/2021.03.12.434998v3>
4. Adebimpe, A., Bertolero, M., Douli, S., Cieslak, M., Murtha, K., Baller, E., **Butler, E.R.**, Cook, P., Colcombe, S., Covitz, S., Davatzikos, C., Davila, D., Flounders, M., Elliott, M.A., Franco, A., Gur, R.E., Gur, R.C., Jaber, B., McMillian, C., Milham, M., Mutsaerts, H., Oathes, D.J., Olm, D., Phillips, J., Tackett, W., Roalf, D.R., Tapera, T.M., Tisdall, M.D., Esteban, O., Poldrack, R., Detre, J.A., & Satterthwaite, T.D. (under review). ASLPrep: A generalizable workflow for processing of arterial spin labeled MRI and quantification of brain perfusion.

## CONFERENCE POSTER PRESENTATIONS

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1. Adebimpe, A., Bertolero, M., Douli, S., Cieslak, M., Murtha, K., Baller, E., **Butler, E.R.**, Cook, P., Colcombe, S., Covitz, S., Davatzikos, C., Davila, D., Flounders, M., Elliott, M.A., Franco, A., Gur, R.E., Gur, R.C., Jaber, B., McMillian, C., Milham, M., Mutsaerts, H., Oathes, D.J., Olm, D., Phillips, J., Tackett, W., Roalf, D.R., Tapera, T.M., Tisdall, M.D., Esteban, O., Poldrack, R., Detre, J.A., & Satterthwaite, T.D. (June 2021). ASLPrep: A generalizable workflow for processing of arterial spin labeled MRI and quantification of brain perfusion. To be presented at the annual meeting of the Organization for Human Brain Mapping.
2. Calkins, M.E., **Butler, E.R.**, Moore, T.M., Ruparel, K., Wolf, D.H., Satterthwaite, T.D., Gur, R.C., & Gur, R.E. (April 2021). Longitudinal trajectories of psychosis spectrum symptoms in community youth: findings from the Philadelphia Neurodevelopmental Cohort (PNC). To be presented at the annual meeting of the Society of Biological Psychiatry.
3. Scott, J.C., Moore, T.M., Roalf, D.R., Satterthwaite, T.D., Wolf, D.H., Port, A.M., **Butler, E.R.**, Ruparel, K., Nievergelt, C.M., Risbrough, V.B., Baker, D.G., Gur, R.E., & Gur, R.C. (February 2021). Development and application of novel, data-driven performance validity metrics for computerized neurocognitive batteries. Talk presented at the International Neuropsychological Society Annual Conference, San Diego, CA (virtual).
4. **Butler, E.R.**, Chen, A., Ramadan, R., Ruparel, K., Moore, T.M., Zhang, F., Shou, H., Gur, R.C., Nichols, T.E.\*, & Shinohara, R.T.\* (June 2020). Statistical pitfalls in brain age analyses. Poster presented at the annual meeting of the Organization for Human Brain Mapping.
5. Morean, M.E., **Butler, E.R.**, Bold, K., Kong, G., Camenga, D., Cavallo, D., Simon, P. & Krishnan-Sarin, S. (March 2017). Preference for more e-cigarette flavors is associated with e-cigarette use frequency among youths but not adults. Poster presented at the annual meeting of the Society for Research on Nicotine and Tobacco.
6. Morean, M.E., **Butler, E.R.**, Bold, K., Kong, G., Camenga, D., Cavallo, D., Simon, P. & Krishnan-Sarin, S. (November 2016). Preference for more e-cigarette flavors is associated with e-cigarette use frequency among youths but not adults. Poster presented at the annual Tobacco Regulatory Science Conference.

\* Denotes equal contribution

## PROFESSIONAL SERVICE

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| 1. Ad hoc reviewer for <i>Biological Psychiatry</i>              | February 2021 |
| 2. Ad hoc reviewer for <i>The American Journal of Psychiatry</i> | January 2021  |
| 3. Ad hoc reviewer for <i>Substance Use and Misuse</i>           | November 2017 |

## HONORS AND AWARDS

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|---|---------------|
| 1. Honorable Mention from the NSF Graduate Research Fellowship Program    | March 2021    |
| 2. Nominated member of Phi Beta Kappa                                     | April 2018    |
| 3. Nominated member of Sigma Xi, The Scientific Research Society          | March 2018    |
| 4. Nominated member of Phi Kappa Lambda, The National Music Honor Society | February 2018 |

## RELEVANT UNDERGRADUATE COURSEWORK

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### Mathematics, Statistics & Computer Science

Multivariable Calculus, Discrete Mathematics, Linear Algebra, Statistical Modeling, Probability, Mathematical Statistics, Introduction to Bayesian Data Analysis, Introduction to Computer Science

### Neuroscience

Introduction to Neuroscience, Cognitive Neuroscience, Advanced Methods in Human Psychophysiology

### Psychology

Clinical and Counseling, Child Psychopathology and Treatment, Abnormal, Developmental, Social, Cultural, Seminar in Social Conflict, Advanced Methods in Psychometrics

## UNDERGRADUATE RESEARCH EXPERIENCE

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### Temple University, Philadelphia, PA

June 2017 - August 2017

*Research Assistant — Ellman Lab*

- Principal Investigator: Lauren Ellman, Ph.D.
- Responsibilities: Worked on a project to document associations between childhood trauma, social support and psychosis symptoms.

### Children's Hospital of Philadelphia, Philadelphia, PA

June 2016 - August 2016

*REU Intern — Center for Injury Research and Prevention*

- Principal Investigator: Joel Fein, M.D., M.P.H.
- Responsibilities: Conducted research with Dr. Nancy Kassam-Adams on parent-child PTSD symptom agreement and severity. Shadowed Violence Intervention Program case managers and reviewed surveillance data to identify incidents of assaults on school property. Wrote a blog post on the mental health needs of children with incarcerated parents: <https://bit.ly/3bkgU5V>.

### Oberlin College, Oberlin, OH

October 2015 - May 2018

*Research Assistant — Substance Use in Adolescence*

- Principal Investigator: Meghan Morean, Ph.D.
- Responsibilities: Designed surveys for experience with and expectations of substance use; performed psychometric and statistical analyses for publication; and assisted in manuscript preparation.

### University of Denver, Denver, CO

May 2015 - July 2015

*Research Assistant — The Relationship Lab*

- Principal Investigator: Wyndol Furman, Ph.D.
- Responsibilities: Conducted background research, ran analyses, and edited articles for publication on adolescent romantic relationships.

### University of Chicago, Chicago, IL

May 2014 - August 2014

*Research Assistant — Child Neurosuite*

- Principal Investigator: Jean Decety, Ph.D.
- Responsibilities: Recruited and applied electroencephalographic caps to infants, and maintained their focus during tasks evaluating pro-social behavior.

### Oberlin College, Oberlin, OH

January 2014 - December 2014

*Research Assistant — Continuity of Close Relationships Project*

- Principal Investigator: Nancy Darling, Ph.D.
- Responsibilities: Micro- and macro-coded videos of adolescent and adult couples engaging in conflict resolution and social support tasks. This included marking and coding specific utterances, and evaluating couples on dimensions such as anxiety, affection and cohesion.

## UNDERGRADUATE TEACHING EXPERIENCE

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### **Oberlin College, Oberlin, OH**

August 2017 - December 2017

*Grader — Introduction to Biostatistics, Mathematics Department*

- Supervisor: Jeffrey Witmer, Ph.D.
- Responsibilities: Graded and provided feedback on biostatistics homework.

### **Oberlin College, Oberlin, OH**

August 2017 - December 2017

*Drop-In Tutor — Mathematics Department*

- Responsibilities: Assisted students with comprehension of calculus and statistics.

### **Oberlin College, Oberlin, OH**

February 2016 - May 2016

*Teaching Assistant — Research Methods II, Psychology Department*

- Supervisor: Travis Wilson, Ph.D.
- Responsibilities: Held office hours, graded daily quizzes, and assisted students during lab.

### **Oberlin College, Oberlin, OH**

October 2015 - December 2017

*Tutor — Student Academic Services*

- Courses: Introduction to Neuroscience, Statistical Modeling, Calculus I-III, Research Methods I-II, Aural Skills 1-IV, Music Theory I-IV

## CLINICALLY RELEVANT EXPERIENCE

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### **Oberlin College, Oberlin, OH**

August 2017 - December 2017

*Peer Advising Leader — Office of the Dean of Students*

- Supervisor: Dana Hamdan, M.Ed., Executive Director, Career Development Center
- Responsibilities: Advised freshmen on course selection, study habits, and career opportunities.

### **Oberlin College, Oberlin, OH**

November 2014 - May 2018

*Peer Listener and Board Member — Peer Support Center*

- Supervisor: Matthew Hayden, M.A., Associate Dean of Students
- Responsibilities: Listened to and supported peers during periods of stress, and troubleshoot logistics of launching a peer-to-peer support center.

## COMMUNITY SERVICE

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### **Collective Success Network, Philadelphia, PA**

October 2020 - December 2020

*Mentor*

- Supervisor: Alice Ginsberg
- Responsibilities: Help a low-income, first-generation college student achieve their academic and career aspirations through providing advice and resources on preparing for graduate school.

### **Mighty Writers, Philadelphia, PA**

October 2018 - present

*Mentor*

- Supervisor: Christina Rissell
- Responsibilities: Help a student from 7<sup>th</sup> through 9<sup>th</sup> grade develop writing and studying skills, and thrive through the transition to high school by helping with applications, time management, and new social situations.

### **Oberlin Community Services, Oberlin, OH**

February 2014 - May 2018

*Tutor — America Counts*

- Responsibilities: Tutored a student from 4<sup>th</sup> through 8<sup>th</sup> grade in mathematics, and provided mentorship for the student through difficult peer and familial circumstances.