**Grace Elizabeth Anderson**

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# Education

2016-2020 **Wake Forest University**, Winston-Salem, NC

Bachelor of Arts in Psychology with Honors, minor in Neuroscience

*Summa cum laude*

Honors Thesis: 5-HT6, Effort-Related Decision Making, and Feeding Behavior

# Honors and Awards

2020-2022 **Postbaccalaureate Intramural Training Award (IRTA) Fellowship,**

 **National Institutes of Health (NIH)**

The IRTA program provides recent graduates who are planning to apply to

 graduate or professional school an opportunity to spend two years performing

 full-time research at the NIH. IRTAs work side-by-side with some of the

 leading scientists in the world, in an environment devoted exclusively to

 biomedical research. Specifically, I have been an IRTA in the Experimental

 Therapeutics and Pathophysiology Branch of the National Institute of Mental

 Health under Dr. Carlos Zarate.

Sep. 2021 **Invited Video Poster Presentation, NIMH Training Day**

Selected by Office of Fellowship Training to submit 5-minute recording of

 poster presentation for NIMH Training Day 2021.

May 2020 **The Robert C. Beck Prize for Excellence in Psychology**

Award presented by the Wake Forest University Department of Psychology annually to one undergraduate student based on academic standing, faculty recommendation, and research experience within the department.

May 2020 **The Florence Robinson Neuroscience Award**

Award presented by the Wake Forest University Department of Neuroscience annually to one undergraduate student based on academic standing, faculty recommendation, and research experience within the department. Specifically, this award was given for work exploring the impact of 5-HT6 serotonin receptor stimulation in the nucleus accumbens on effort-related decision making in a rodent model.

April 2020 **The Phi Beta Kappa Society**

April 2019 **Mortar Board Honor Society** and **Omicron Delta Kappa**

April 2018 **Psi Chi International Psychology Honor Society**

Vice President, 2018-2019 | President, 2019-2020

2016-2020 **Wake Forest University Dean’s List**

3.4 (out of 4.0) or better GPA every semester.

# Research Experience

June 2020-Present **Experimental Therapeutics and Pathophysiology Branch (ETPB),**

**National Institute of Mental Health (NIMH)**

**Supervisors:** Dr. Carlos Zarate, MD and Dr. Jessica Gilbert, PhD

***Post-baccalaureate Intramural Research Training Award (IRTA) Fellow.***

* Coordinate study activities and manage data entry for two inpatient ketamine clinical trials for adults diagnosed with treatment-resistant depression, an online study analyzing mental health effects of COVID-19 pandemic on healthcare workers, and a healthy volunteer study to develop novel paradigms to measure mood reactivity with magnetoencephalography (MEG).
* Provide support for simultaneous EEG-fMRI, MEG, and 3T and 7T fMRI data collection for all protocols. Scans for clinical trials included simultaneous ketamine infusions. Aid in quality control of these scans through running Analysis of Functional NeuroImages (AFNI) preprocessing pipelines.
* Administer neurocognitive and behavioral testing to participants under supervision of a clinical psychologist.
* Recruit and screen participants for protocol eligibility. Use the NIH electronic medical record system to gather eligibility-related information including psychiatric and medical history to determine fit for inpatient studies.
* Conduct independent projects examining MEG gamma power, mood induction, and temporal discounting in patients with mood disorder diagnoses. Communicate findings at lab meetings, internal conferences, and external conferences.
* Participate in group developing educational presentations related to diversity and inclusion in clinical research, with presentations at lab meetings and a NIMH principal investigator meeting.

Jan. 2018-Aug. 2021 **Department of Family and Community Medicine, Wake Forest**

 **University School of Medicine**

**Supervisor:** Dr. Parissa J. Ballard

***Research Assistant.***

* Served as primary research assistant on pilot study assessing volunteering as a treatment for adolescent depression and functional connectivity within the Default Mode Network. Compiled a list, contacted, and completed structured interviews with non-profit organizations in Forsyth County, NC seeking youth volunteers. Coordinated with psychiatric providers in the community for participant recruitment. Aided in literature review, fMRI task design, data entry, and contributed to manuscripts.
* Conducted qualitative coding for a project assessing a community-based positive youth development initiative.
* Led focus groups on autonomy and adult-like roles in middle school youth to study meaningful social roles during pre-adolescent development.

Jan. 2020-May 2020 **Department of Psychology, Wake Forest University**

**Supervisor:** Dr. Anthony Sali, PhD

***Research Assistant.***

* Collected EEG data from student participants during *n*-back cognitive tasks assessing attentional control.

Jan. 2019-May 2020 **PRATT Lab, Wake Forest University**

**Supervisor:** Dr. Wayne Pratt, PhD

***Honors Thesis.***

* Designed and completed a study involving 5-HT6 serotonin receptor stimulation and inhibition in the nucleus accumbens, analyzing effort-related decision-making in a rodent model.
* Coordinated and completed daily handling and care of rodents. Trained rats on a progressive-ratio effort-related decision making task in an operant chamber.
* Performed stereotaxic surgery to insert guide cannulas in the nucleus accumbens core.
* Administered microinjections of 5-HT6 agonist and antagonist.
* Analyzed data to write and defend a thesis for a panel of psychology faculty.

July 2018-May 2020 **Post-Traumatic Growth (PTG) Lab, Wake Forest University**

**Supervisor:** Dr. Eranda Jayawickreme, PhD

***Research Assistant.***

* Worked with community participants and medical school student participants on laboratory tasks and structured interviews assessing topics like post traumatic growth, self-perception, and perception of others.
* Led project on layperson’s definitions of wisdom. Designed survey and collected pilot data on layperson views of wisdom.

June 2019-July 2019 **Program for Anxiety, Cognition, and Treatment (PACT) Lab and**

 **Virginia Affective Neuroscience Lab, University of Virginia**

**Supervisors:** Dr. Bethany Teachman, PhD (primary) and Dr. James Coan, PhD

***Leadership Alliance Summer Research Early Identification Program (SR-EIP) Research Fellow.***

* Collected EEG, behavioral, and survey data from community participants during a social emotion regulation task.
* Completed independent project on emotion regulation style, social emotion regulation, and event-related potentials during exposure to the threat of shock.

Sep. 2017-Dec. 2018 **Office of the Dean and Department of Psychology, Wake Forest**

**University**

**Supervisor:** Dr. Christy Buchanan, PhD

***Research Assistant.***

* Conducted literature review on well-being in college-aged young adults and university retention.
* Analyzed data to develop more effective coursework for first year students on diversity, inclusion, adapting to university-life, and increasing well-being.

Sep. 2017-Aug. 2018 **The Beacon Project, Wake Forest University**

**Supervisor:** Dr. William Fleeson, PhD

* Assisted community and student participants through paradigms assessing moral development.
* Developed surveys on Qualtrics and Amazon Mechanical Turk. Lab coordination tasks, such as payment, participant tracking, and recruitment.

# Publications

Ballard, P.J., Daniel, S.S., **Anderson, G.E.**, Koehler, A.N., Caballero Quinones, E., Strahley A.E., & Nicolotti, L.N. (2022). A feasibility study of incorporating volunteering into treatment for adolescent depression and anxiety. *Frontiers in Psychology, 13,* 1-8. <https://doi.org/10.3389/fpsyg.2022.840881>*.*

Hurst, K.T., Ballard, E.D., **Anderson, G.E.**, Greenstein, D.K., Cavanaugh, G.W., Dwyer, E., Swartz, K., Zarate, C.A., Chung, J., Park, L.T. (2022). The mental health impact of contact with COVID-19 patients on healthcare workers in the United States. *Psychiatry Research, 308,* 1-3. https://doi.org/10.1016/j.psychres.2021.114359.

Hoyt, L.T., Chaku, N., Barry, K., **Anderson, G.**, Ballard, P.J. (2021). Enacting maturity during adolescence: Extending theory, developing a measure, and considering implications for problem behaviors. *Applied Developmental Science.* <https://doi.org/10.1080/10888691.2021.1957892>

Ballard, P.J., Daniel, S.S., **Anderson, G.**, Nicolotti, L.M., Caballero Quinones, E., Lee, M., Koehler, A.N. (2021). Incorporating volunteering into treatment for depression among adolescents: Developmental and clinical considerations. *Frontiers in Psychology: Clinical Settings*, *12,* 1-7. <https://doi.org/10.3389/fpsyg.2021.642910>

Ballard, P.J., **Anderson, G.**, Moore, D.P., Daniel, S.S. (2021). Youth experiences in Authoring Action: The impact of an arts-based empowerment program on personal and community development. *Journal of Adolescent Research,* 1-33. <https://doi.org/10.1177/07435584211006787>

**Anderson, G.**, Medina-DeVilliers, S., Namaky, N., Coan, J.A., Teachman, B.A. (2020). Neural indicators of social and emotion regulation. *The Harvard Brain: A Harvard College Mind, Brain, and Behavior Publication, 1(*1), 57-58. https://issuu.com/theharvardbrain/docs/harvard\_brain\_spring\_2020

**Anderson, G.E.**, Sharp, A.J., Pratt, W.E. (*Under Review*). Stimulation of nucleus accumbens 5-HT6 receptors increases both appetitive and consummatory motivation in an effort-based choice task. *NeuroReport*.

# Presentations

Nischal, R.P., Greenstein, D.K., Ballard, E.D., Burton, C.R., **Anderson, G.E.**, Zarate, C.A., Gilbert, J.R., (2022, June). *Hopelessness is associated with reduced wide-band magnetoencephalographic power in salience network regions in a clinical sample.* [Poster presentation]. Suicide Research Symposium.

**Anderson, G.E.**, Burton, C.R., Greenstein, D.K., Nischal, R.P., Gilbert, J.R., Ballard, E.D., Zarate, C.A. (2022, April). *Temporal discounting rates and effective connectivity models reveal differences between mood disorder patients at varying levels of risk for suicide.* [Poster presentation]. Society of Biological Psychiatry, New Orleans, Louisiana.

Nischal, R.P., Greenstein, D.K., Ballard, E.D., Burton, C.R., **Anderson, G.E**., Gilbert, J.R. (2022, April) *Hopelessness is associated with reduced wide-band magnetoencephalographic power in anterior insula in a clinical sample*. [Poster presentation.] Society of Biological Psychiatry, New Orleans, Louisiana.

Campbell, D., **Anderson, G.E.**, Greenstein, D.K., Hurst, K.P., Ballard, E.D., Yavi, M., Zarate, C.A., Park, L. (2022, April) *Resilience and distress in healthcare workers*

*during the COVID-19 pandemic*. [Poster presentation.] NIH Virtual Postbac Poster Days, Bethesda, MD.

**Anderson, G.E.**, Burton, C.R., Greenstein, D.K., Gilbert, J.R., Ballard, E.D., Zarate, C.A. (2021, November). *Rates of temporal discounting and lateral intraparietal sulcus gamma power are associated in patients with mood disorders*. [Poster presentation.] Society for Neuroscience Annual Meeting, Chicago, IL (online due to COVID-19).

Ballard E.D., Gilbert, J.R., **Anderson, G.E.**, Burton, C.R., Farmer, C., Zarate, C.A. (2021, October). *Mood reactivity and implicit suicide risk after mood induction during magnetoencephalography*. [Poster presentation.] International Academy of Suicide Research/American Foundation for Suicide Prevention 2021 Virtual Conference.

**Anderson, G.E.**, Burton, C.R., Greenstein, D.K., Gilbert, J.R., Ballard, E.D., Zarate, C.A. (2021, September). *Lateral intraparietal sulcus power and rates of temporal discounting are related in the alpha, beta, and gamma frequencies in patients with suicidal history.* [Invited video poster presentation.] National Institute of Mental Health Training Day, Bethesda, MD.

**Anderson, G.E.** (2021, July). *The Nicolas Cage effect: How pop culture influences neuroscientific research.* [Three-minute talk.] NIMH Three-Minute Talks Competition.

**Anderson, G.E.**, Burton, C.R., Farmer, C., Gilbert, J.R., Ballard, E.D., Zarate, C.A. (2021, April) *Reduced emotional reactivity during mood induction associated with anhedonia and ventral striatum activity in a depressed sample*. [Poster presentation.] NIH Virtual Postbac Poster Days, Bethesda, MD.

**Anderson, G.E.**, Burton, C.R., Farmer, C., Gilbert, J.R., Ballard, E.D., Zarate, C.A. (2021, April) *Reduced gamma-band dysregulation in the ventral striatum is related to anhedonia and emotional blunting during mood induction in a depressed sample*. [Poster presentation.] Society of Biological Psychiatry, San Diego, CA (online due to COVID-19).

**Anderson, G.E.**, Gilbert, J.R. (2021, March) *Emotional state of being moved by films and mood induction*. [Oral presentation.] Experimental Therapeutics and Pathophysiology Branch lab meeting, NIMH.

**Anderson, G.E.**, Burton, C.R., Farmer, C., Gilbert, J.R., Ballard, E.D., Zarate, C.A. (2021, January) *MEG gamma-band dysregulation and clinical outcomes demonstrate reduced emotional reactivity during mood induction in a depressed sample*. [Poster presentation.] Society for Neuroscience, Global Connectome Virtual Event.

**Anderson, G.E.**, Burton, C.R., Farmer, C., Gilbert, J.R., Ballard, E.D., Zarate, C.A. (2020, September) *Clinical and behavioral outcomes of a mood induction paradigm in a mood disorder patient sample*. [Poster presentation.] National Institute of Mental Health Training Day, Bethesda, MD.

**Anderson, G.E.,** Pratt, W.E. (2020, April), *5-HT6, effort-related decision making, and feeding behavior.* [Oral presentation.] Wake Forest University Department of Psychology, Honors Thesis Presentation, Winston-Salem, NC.

**Anderson, G.E.**, Medina-DeVilliers, S., Namaky, N., Coan, J.A., Teachman, B.A. (2019, September) *Neural indicators of social and emotion regulation*. [Poster presentation]. Wake Forest University Undergraduate Research Day, Winston-Salem, NC.

**Anderson, G.E.**, Medina-DeVilliers, S., Namaky, N., Coan, J.A., Teachman, B.A. (2019, July) *Neural indicators of social and emotion regulation*. [Oral presentation]. Leadership Alliance National Symposium, Hartford, CT.

**Anderson, G.E.**, Daniel, S., Laurienti, P.J., Ballard, P.J. (2019, April). *Volunteering as an intervention to reduce depression among adolescents: investigating neurobiological mechanisms*. [Poster presentation]. Symposium for Young Neuroscientists and Professors of the Southeast (SYNAPSE), High Point, NC.

# Technical Skills and Professional Trainings

**Data Analysis and Programming:** R/R Studio, Python, SPSS, Linux, MATLAB, Microsoft Office Programs (Word, Powerpoint, Excel), Qualtrics, REDCap; *familiarity with:* AFNI, CTF, and Amazon Mechanical Turk

**Qualitative Research Programming:** Atlas.ti

**Neuroimaging Modalities:** MEG (CTF Omega 275), EEG (EGI 128-channel HydraCel Geodesic Net; acquisition with Net Station), MRI (Siemens: Skyra 3T and Terra 7T)

**Neurocognitive Testing:** Trail Making Test, Wechsler Abbreviated Scale of Intelligence (WASI-II) Vocabulary and Matrix Reasoning, California Verbal Learning Test (CVLT-II), Wechsler Memory Scale (WMS-III) Spatial Span, Behavioral tasks assessing anhedonia (four-armed bandit task, time conflict clock task, short/long line task, AGT tree task)

**Data Visualization in R** NIH, Foundation for Advanced Education in the Sciences, July 2021.

**Introduction to Python** NIH, Foundation for Advanced Education in the Sciences, Fall 2020.

**Statistics Seminar Series**, National Institute of Mental Health, September 2020.

**Safety Trainings:** CPR Certificate, Human MRI Safety Course, August 2020.