# Megan Spurney

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## EDUCATION

**CORNELL UNIVERSITY, ITHACA, NY** August 2017 – May 2021

Bachelor of Arts in Psychology

- GPA: 3.85/4.00, Distinction in all Subjects
- Completed coursework: Developmental Psychology, Abnormal Psychology, Neuroscience, Computer Science, Statistics, Research Methods, and Social Psychology

## HONORS

- Post-Baccalaureate Intramural Research Training Award 2021, 2022, 2023
- 2022 National Institutes of Health Postbaccalaureate Poster Day "Outstanding Poster Award" Winner
- 2022 National Institute of Mental Health Office of Fellowship Training "Trainee Travel Award" Winner
- Cornell University Dean's List Fall 2017, Fall 2018, Fall 2019, Fall 2020

## RESEARCH EXPERIENCE

**NATIONAL INSTITUTE OF MENTAL HEALTH, BETHESDA, MD**

*CLINICAL TRANSLATIONAL NEUROSCIENCE BRANCH – SECTION ON INTEGRATIVE NEUROIMAGING*

Post-baccalaureate IRTA Research Fellow under Director Dr. Karen Berman, MD August 2023 – Present

- Collect structural and functional MRI data on typically developing children and adolescents to examine the influence of puberty on brain development.
- Collect, process, and analyze structure and functional MRI data of children and adults with Williams syndrome, 7q11.23 duplication syndrome, and typically developing children.
- Coordinate a longitudinal study of children with Williams syndrome, 7q11.23 duplication syndrome, and healthy volunteers, including scheduling MRI scanning, neuropsychological testing, as well as facilitating patient visits.
- Collaborate with physicians, post-doctoral fellows, staff scientists, and post-baccalaureate fellows to improve data acquisition and analysis methods.

**NATIONAL INSTITUTE OF MENTAL HEALTH, BETHESDA, MD**

*LABORATORY OF BRAIN AND COGNITION – SECTION ON FUNCTIONAL IMAGING METHODS*

Post-baccalaureate IRTA Research Fellow under Director Dr. Peter Bandettini, PhD August 2021 – August 2023

- Conduct analyses on resting-state functional magnetic resonance imaging (fMRI) data using AFNI, nipype, and FreeSurfer to evaluate whole-brain functional connectivity configurations during rest and discover relationships between functional connectivity and patterns of ongoing thought to further development of clinical biomarkers.
- Apply data science techniques to calculate statistical summary metrics from high-dimensional dynamic functional connectivity data structures from resting-state fMRI.
- Modify and leverage state-of-the-art modeling algorithms, such as linear and ridge regression, to generate brain-behavior associations.
- Utilize Jupyter notebooks and a plethora of Python packages including pandas, numpy, and nilearn to aid data analyses and interpretations and to create visualizations.
- Operate 3T and 7T fMRI scanners to acquire data.
- Synthesize results and findings into multiple presentations at national and international conferences as well as furthering publication writing skills.

**CORNELL UNIVERSITY, ITHACA, NY**

*DEPARTMENT OF PSYCHOLOGY – LABORATORY OF NEUROBIOLOGY OF LEARNING AND MEMORY*

Research Assistant under Director Dr. David Smith, PhD August 2018 – May 2021

- Performed small animal studies including maze training and olfactory tasks to analyze how manipulations of brain circuitry impacted task performance and processes of learning and memory.

- Observed techniques including optogenetic cellular manipulation and intracellular neuronal membrane potential measurements.
- Attended and presented at weekly lab meetings and journal clubs.

**CORNELL UNIVERSITY, ITHACA, NY**

*DEPARTMENT OF PSYCHOLOGY – PERSONALITY, ATTACHMENT, AND CONTROL LABORATORY*

Research Assistant under Director Dr. Vivian Zayas, PhD August 2017 – August 2018

- Managed full research participant experience in study analyzing delay of gratification in adults.
- Applied best practice for documentation when recording data and managing source documentation.
- Provided data summaries and literature reviews for lab meetings.

## CLINICAL/VOLUNTEER EXPERIENCE

**THE FOUNDATION OF CONTEMPORARY MENTAL HEALTH, WASHINGTON, DC**

*PARTNERS IN DRUG ABUSE REHABILITATION COUNSELING*

Clinical Intern under Director Dr. Howard Hoffman, MD, DLFAPA June 2020 – August 2020

- Observed counseling sessions with substance abuse patients in the methadone maintenance program.
- Completed data entry tasks, including drug test results.
- Shadowed nursing activities within the clinic, extensively learning about substance abuse disorders.

**CHILDREN'S NATIONAL HOSPITAL, WASHINGTON, DC**

*CENTER FOR TRANSLATIONAL RESEARCH – DIABETES RESEARCH TEAM*

Research Assistant under Director Dr. Randi Streisand, PhD May 2019 – August 2019

- Analyzed data acquired by the Diabetes Research Team studying socioeconomic factors related to pediatric diabetes outcomes using SPSS.
- Observed pediatric diabetes and developmental clinics.
- Completed extensive literature searches for research projects using PubMed and Google Scholar, contributing to posters and publications.

## WORK EXPERIENCE

**RIVER FALLS COMMUNITY CENTER, POTOMAC, MD**

Assistant Swim Coach May – August, 2018 – 2019

- Directly responsible for teaching swim team members ages 4 through 14 years old for competitive meets.
- Mentored children to develop swimming skills, improve self-confidence, and develop strong worth ethic and teamwork strategies.

## PUBLICATIONS

Gonzalez-Castillo, J., **Spurney, M.A.,** Lam, K.C., Handwerker, D.A., Bandettini, P.A. (*In Preparation*) Contribution of In-Scanner Thoughts to Resting-state Functional Connectivity: how participants rest matters

Teves, J., Gonzalez-Castillo, J., Holness, M., **Spurney, M.A.**, Bandettini, P.A., Handwerker, D.A. (2023) The art and science of using quality control to understand and improve fMRI data. *Frontiers in Neuroscience*, 17. https://doi.org/10.3389/fnins.2023.1100544

## PRESENTATIONS

**Spurney, M.A.**, Faskowitz, J., Gonzalez-Castillo, J., Handwerker, D.A., Bandettini, P.A. (2023, November). *Evaluating the predictive power of dynamic fMRI connectivity summary statistics*. Society for Neuroscience, Washington, DC, USA.

**Spurney, M.A.**, Faskowitz, J., Gonzalez-Castillo, J., Handwerker, D.A., Bandettini, P.A. (2023, September). *Exploring the landscape of brain-behavior predictions by leveraging dynamic connectivity information from resting-state fMRI*. NIMH Training Day, National Institute of Mental Health, Bethesda, MD, USA.

**Spurney, M.A.**, Faskowitz, J., Gonzalez-Castillo, J., Handwerker, D.A., Bandettini, P.A. (2023, July) *Edge-time series summary metrics: predictive value for demographics and cognitive traits*. Organization for Human Brain Mapping, Montreal, Canada

**Spurney, M.A.**, Faskowitz, J., Gonzalez-Castillo, J., Handwerker, D.A., Bandettini, P.A. (2023, April) *Building brain-behavior predictions from multiple measures of fMRI connectivity dynamics.* Postbaccalaureate Poster Days, National Institutes of Health, Bethesda, MD, USA.

**Spurney, M.A.,** Gonzalez-Castillo, J., Lam, K.C., Handwerker, D.A., Teves, J., Pereira, F., Bandettini, P.A. (2022, November) *How conscious in-scanner thoughts modulate functional connectivity during resting-state fMRI.* Society for Neuroscience, San Diego, CA, USA.

**Spurney, M.A.,** Gonzalez-Castillo, J., Lam, K.C., Handwerker, D.A., Teves, J., Pereira, F., Bandettini, P.A. (2022, September) *Functional Connectivity Modulated by Conscious Thoughts During Resting-State fMRI Scans.* NIMH Training Day, National Institute of Mental Health, Bethesda, MD, USA.

Gonzalez-Castillo, J., **Spurney, M.A.,** Lam, K.C., Handwerker, D.A., Teves, J., Pereira, F., Bandettini, P.A. (2022, June) *How conscious thoughts during "resting-state" affect functional connectivity estimates*. Organization for Human Brain Mapping, Glasgow, Scotland.

**Spurney, M.A.,** Gonzalez-Castillo, J., Lam, K.C., Handwerker, D.A., Teves, J., Pereira, F., Bandettini, P.A. (2022, April) *Content and Form of Conscious Thoughts Modulate Functional Connectivity.* Postbaccalaureate Poster Days, National Institutes of Health, Bethesda, MD, USA.

**Spurney, M.A.,** Hamberger, S., Sinistierra, M., Tully, C., Streisand, R. (2020, April) *Examining the Relationship Between Child Race, Income and Caregiver Psychosocial Functioning in Families of Young Children with Diabetes*. Children's National Research Institute Education and Innovation Week, Washington, DC, USA.

## RESEARCH SKILLS

CODING/SCRIPTING LANGUAGES
- Python, Unix (bash), R, Java

COMPUTATIONAL TOOLS
- GitHub, Linux

NEUROIMAGING PACKAGES
- AFNI, FSL, FreeSurfer

## ACADEMIC ACTIVITIES & INTERESTS

- Completed Graduate Level Course: Statistics for Biomedical Researchers (Fall 2021).
- Completed NeuroMatch Academy Computational Neuroscience Course (July 2022).
- Completed Empathy, Assistance, and Referral Service Peer Counseling Training (November 2020).
- Undergraduate Teaching Assistant for *Neurochemistry of Human Behavior* (Supervisor: Dr. Eve de Rosa, PhD) (Fall 2019).

## PROFESSIONAL AFFILIATIONS

- Society for Neuroscience
- Psi Chi