


Jeanne M. Powell, MA


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 Emory University

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Education

2022–Pres. **PhD, Psychology/Biomedical Informatics**

Emory University, Laney Graduate School, Atlanta, GA

Research Focus: Biological and social determinants of health in Parkinson's disease: How gender influences falls

Advisor: Dr. J. Lucas McKay

2019–2021 **MA, Behavioral and Systems Neuroscience**

Emory University, Laney Graduate School, Atlanta, GA

Thesis: Distribution of nonapeptide receptors in the forebrain and midbrain of the spiny mouse (*Acomys cahirinus*)

Advisor: Dr. Aubrey M. Kelly

2013–2017 **BA, Biological Sciences (*cum laude*) and Psychology**

Cornell University, College of Arts and Sciences, Ithaca, NY

Thesis: The impact of early social environment on egression in prairie voles (*Microtus ochrogaster*)

Advisor: Dr. Alexander G. Ophir

Research

2022–Pres. **Brain Health Center Motion Analysis Lab**

Role: PhD Candidate

Departments of Neurology and Biomedical Informatics, Emory University, Atlanta, GA

Advisor: Dr. J. Lucas McKay

- Performed systematic analyses to identify sex biases in Parkinson's disease clinical research
- Applied natural language processing to classify patient-reported outcomes

2019–2022 **Comparative Social Neuroscience Lab**

Role: PhD Student

Department of Psychology, Emory University, Atlanta, GA

Advisor: Dr. Aubrey M. Kelly

- Characterized the nonapeptide receptor systems in the spiny mouse using RNAscope and receptor-binding autoradiography
- Characterized the nonapeptide receptor systems in the Mongolian gerbil using receptor-binding autoradiography
- Managed a team of undergraduates to explore whether the social brain and behaviors change with age in the prairie vole using behavioral assays and immunohistochemistry

2017–2019 **Developmental Neurobiology Group**

Role: Post-baccalaureate IRTA Fellow

Neurobiology Lab, NIEHS-NIH, Research Triangle Park, NC

Advisor: Dr. Patricia Jensen

- Developed method and associated FIJI macro (DEFiNE) to digitally remove autofluorescence and fluorescent artifacts from images of fluorescently labeled axonal fibers to allow for accurate fiber quantification
- Cryo-sectioned, fluorescently stained, and imaged tissue on confocal microscope, processed images using DEFiNE macro, and quantified axonal fibers for study of noradrenergic axon collaterals in mice

2016–2017 **Integrative Neuroethology Lab**

Roles: Honors Student & Post-baccalaureate Research Assistant

Cornell University, Ithaca, NY

Advisor: Dr. Alexander G. Ophir

- Involved in all aspects of study exploring the effects of paternal absence on the ontogeny of nest egression in prairie voles, including planning, animal handling, video recording, behavioral analysis, and statistical analysis
- Applied for grant and was awarded funding for honors thesis through Tanner Dean's Scholars Program
- Coded module in Python to automate preparatory tasks, imaged tissue using epifluorescence microscope, and quantified cells to examine nonapeptide neuron functional differences in mothers and fathers during parenting
- Created behavioral scoring protocol and performed behavioral analyses for study of exploratory behavior in giant pouched rats

2015–2016 **Cognitive Neuroscience Lab**

Role: Undergraduate Research Assistant

Cornell University, Ithaca, NY

Dr. Morten H. Christiansen

- Proctored undergraduate participants, transcribed audio data, and created spreadsheets for study of the role of statistical learning on language acquisition

2015 **Biogeochemistry Lab**

Role: Summer Research Assistant

Marine Biological Laboratory, Woods Hole, MA | Cornell University, Ithaca, NY

Dr. Robert W. Howarth & Ms. Melanie Hayn

- Mapped boundaries of sea-grass bed, collected water and soil samples, and performed biogeochemical analyses for study of longitudinal effects of anthropogenic nutrient waste on aquatic ecosystems

Journal Publications (reverse chronological order)

In Preparation:

- [8] Fricker, B. A., Ho, D., **Powell, J. M.**, & Kelly, A. M. Changes in social neuronal circuits associated with advanced aging. (*in prep for Aging Brain*)

Published:

- [7] Taylor, J. H., Campbell, N., **Powell, J. M.**, Albers, H. E., & Kelly, A. M. Distribution of vasopressin 1a and oxytocin receptor binding in the basal forebrain and midbrain of male and female Mongolian gerbils. *Neuroscience*. 522, 33-41. <https://doi.org/10.1016/j.neuroscience.2023.05.004>

- [6] **Powell, J. M.**, Garvin, M. M., Lee, N. S., & Kelly, A. M. (2022). Behavioral trajectories of aging prairie voles (*Microtus ochrogaster*): Adapting behavior to social context wanes with advanced age. *PLOS ONE*, 17(11), e0276897. <https://doi.org/10.1371/journal.pone.0276897>
- [5] **Powell, J. M.**, Inoue, K., Wallace, K. J., Seifert, A. W., Young, L. J., & Kelly, A. M. (2022). Distribution of vasopressin 1a and oxytocin receptor protein and mRNA in the basal forebrain and midbrain of the spiny mouse (*Acomys cahirinus*). *Brain Structure and Function*. <https://doi.org/10.1007/s00429-022-02581-z>
- [4] Sciolino, N. R., Hsiang, M., Mazzone, C. M., Wilson, L. R., Plummer, N. W., Amin, J., Smith, K. G., McGee, C. A., Fry, S. A., Yang, C. X., **Powell, J. M.**, Bruchas, M. R., Kravitz, A. V., Cushman, J. D., Krashes, M. J., Cui, G., & Jensen, P. (2022). Natural locus coeruleus dynamics during feeding. *Science Advances*, 8(33), eabn9134. <https://doi.org/10.1126/sciadv.abn9134>
- [3] Plummer, N. W., Chandler, D. J., **Powell, J. M.**, Scappini, E. L., Waterhouse, B. D., & Jensen, P. (2020). An intersectional viral-genetic method for fluorescent tracing of axon collaterals reveals details of noradrenergic locus coeruleus structure. *Eneuro*, 7(3), ENEURO.0010-20.2020. <https://doi.org/10.1523/ENEURO.0010-20.2020>
- [2] Tillage, R. P., Sciolino, N. R., Plummer, N. W., Lustberg, D., Liles, L. C., Hsiang, M., **Powell, J. M.**, Smith, K. G., Jensen, P., & Weinshenker, D. (2020). Elimination of galanin synthesis in noradrenergic neurons reduces galanin in select brain areas and promotes active coping behaviors. *Brain Structure and Function*, 225(2), 785–803. <https://doi.org/10.1007/s00429-020-02035-4>
- [1] **Powell, J. M.**, Plummer, N. W., Scappini, E. L., Tucker, C. J., & Jensen, P. (2019). DEFiNE: A method for enhancement and quantification of fluorescently labeled axons. *Frontiers in Neuroanatomy*, 12, 117. <https://doi.org/10.3389/fnana.2018.00117>

Conference Papers (reverse chronological order)

Published:

- [1] **Powell, J.M.**, Guo, Y., Sarker, A., McKay, J.L. (2023). Classification of Fall Types in Parkinson's Disease from Self-report Data Using Natural Language Processing. In: Juarez, J.M., Marcos, M., Stiglic, G., Tucker, A. (eds) Artificial Intelligence in Medicine. AIME 2023. Lecture Notes in Computer Science(), vol 13897. Springer, Cham. https://doi.org/10.1007/978-3-031-34344-5_20

Presentations (reverse chronological order)

Conference Presentations:

- [8] **Powell, J. M.**, Guo, Y., Sarker, A., & McKay, J. L. (2023, June 14). Classification of fall types in Parkinson's disease from self-report data using natural language processing. [Conference talk]. 21st International Conference on Artificial Intelligence in Medicine. Portoroz, Slovenia.
- [7] **Powell, J. M.**, Genias, I., Skelton, G., White, M. S., Maney, D. L., & McKay, J. L. (2022, December 7). Results of clinical trials on Parkinson's disease are typically not reported stratified by sex. [Conference poster]. Emory University 3rd Annual Workshop on How to Incorporate Sex as a Biological Variable (SABV) in Your Research. Atlanta, Georgia, United States.
- [6] **Powell, J. M.**, Garvin, M. M., Lee, N. S., & Kelly, A. M. (2022, June 26–29). Social behavioral changes associated with advanced aging in prairie voles (*Microtus ochrogaster*). [Conference poster]. Society for Behavioral Neuroendocrinology Annual Meeting. Atlanta, Georgia, United States.
- [5] **Powell, J. M.**, Inoue, K., Young, L. J., & Kelly, A. M. (2021, June 28–July 2). Distribution of nonapeptide receptors in the forebrain and midbrain of spiny mice (*Acomys cahirinus*). [Conference poster]. Society for Behavioral Neuroendocrinology Annual Meeting. Virtual.
- [4] **Powell, J. M.**, Kloefkorn-Adams, H., & Kelly, A. M. (2021, February 1–3). The influence of chronic stressors on vasopressin-mediated physiology and social behaviors in the prairie vole. [Conference poster]. 11th Annual Meeting of the Society for Social Neuroscience. Virtual.
- [3] **Powell, J. M.**, Plummer, N. W., Scappini, E. L., Tucker, C. F., & Jensen, P. (2019, May 2). DEFiNE: A method for enhancement and quantification of axonal fibers. [Conference poster]. Postbaccalaureate Poster Day. NIH, Bethesda, MD. ([received Outstanding Poster Award](#))

- [2] **Powell, J. M.**, Plummer, N. W., Scappini, E. L., Tucker, C. F., & Jensen, P. (2019, April 4). DEFINE: A method for enhancement and quantification of axonal fibers. [Conference poster]. Neuroscience Spring Meeting. Triangle Society for Neuroscience, Research Triangle Park, North Carolina, United States.
- [1] **Powell, J. M.**, Prounis, G. S., & Ophir, A. G.. (2017, June 12–16). The ontogeny of independence: Nest egression in prairie voles. [Conference talk]. 54th Annual Conference of the Animal Behavior Society. Toronto, Ontario, Canada.*

Invited Presentations:

- [2] **Powell, J. M.**, Genias, I., Skelton, G., White, M. S., Maney, D. L., & McKay, J. L. (2023, January 17). Sex as a biological variable in Parkinson's disease: Preliminary results from a systematic review. [Invited talk]. Emory University School of Medicine, Department of Geriatrics and Gerontology. Atlanta, Georgia, United States.
- [1] **Powell J. M.**, Plummer, N. W., Scappini, E. L., Tucker, C. F., & Jensen, P. (2019, March 29–30). DEFINE: A method for enhancement and quantification of axonal fibers. [Invited poster]. 6th Annual Mechanisms of Learning Forum. Emory University, Atlanta, Georgia, United States.

Interdisciplinary Research Presentations:

- [2] **Powell, J. M.** & McKay, J. L. (2023, January 19). Sex as a biological variable in Parkinson's disease. [Oral presentation]. Woodruff Scholars & Fellows Lunch and Learn Series. Emory University, Atlanta, Georgia, United States.
- [1] **Powell J. M.** & Kelly, A. M. (2021, April 5). Nonapeptide receptor distribution in the African spiny mouse brain. [Oral presentation]. Woodruff Scholars & Fellows Lunch and Learn Series. Emory University, Atlanta, Georgia, United States.

Departmental Presentations:

- [8] **Powell, J. M.** & McKay, J. L. (2022, November 9). Sex in Parkinson's disease clinical research. [Oral presentation]. Brain Health Center Meeting. Department of Neurology, Emory University, Atlanta, Georgia, United States.
- [7] **Powell, J. M.** & Kelly, A. M. (2021, September 2). Distribution of nonapeptide receptors in the forebrain and midbrain of the spiny mouse (*Acomys cahirinus*). [Oral presentation]. Seminar A Series. Psychology Department, Emory University, Atlanta, Georgia, United States.
- [6] **Powell, J. M.** & Kelly, A. M. (2020, November 19). The impact of chronic stress on social behavior and brains in prairie voles. [Oral presentation]. Seminar A Series. Psychology Department, Emory University, Atlanta, Georgia, United States
- [5] **Powell, J. M.**, Prounis, G. S., & Ophir, A. G. (2019, September 6). Parental nest attendance impacts juvenile nest egression in prairie voles (*Microtus ochrogaster*). [Poster presentation]. From Genes to the Environment: Factors Influencing Behavior; Department of Psychology 12th Annual Research Festival. Emory University, Atlanta, Georgia, United States.
- [4] **Powell, J. M.** & Kelly, A. M. (2019, September 12). The impact of social conditions on juvenile nest egression. [Oral presentation]. Neuroscience and Animal Behavior Program Seminar Series. Psychology Department, Emory University, Atlanta, Georgia, United States.
- [3] **Powell, J. M.**, Plummer, N. W., Chandler, D. J., Scappini, E. L., Tucker, C. J., Waterhouse, B. D., & Jensen, P. (2018). [Poster presentation]. Tracing axon collaterals of locus coeruleus neurons projecting to defined targets. Board of Scientific Counselors Review. National Institute of Environmental Health Sciences, National Institutes of Health, Research Triangle Park, North Carolina, United States.
- [2] **Powell, J. M.**, Prounis, G. S., & Ophir, A. G. (2016, December 5–6). The impact of early social environments on juvenile egression in prairie voles (*Microtus ochrogaster*). [Poster presentation]. 41st Ecology & Evolutionary Biology Graduate Student Symposium. Cornell University, Ithaca, New York, United States.

- [1] **Powell, J. M.**, Prounis, G. S., & Ophir, A. G. (2016, August 8). The impact of early social environments on juvenile egression in *Microtus ochrogaster*. [Oral presentation]. Cornell Summer Institute for Life Sciences Sixth Annual Undergraduate Symposium. Cornell University, Ithaca, New York, United States.

PROFESSIONAL DEVELOPMENT

Spring 2023 **NIH Bridge2AI CHoRUS program: AI in Clinical Care Bootcamp**

Additional Skills and Training

Coding Languages:

R | Python | ImageJ Macro Language | VBA

Software:

EthoVisionXT | Photoshop | GIMP | SPSS | Prism | BORIS | InkScape | FIJI | QuPath | Fusion360

Natural Language Processing Packages:

Pandas | NumPy | SciKitLearn | NLTK | Matplotlib

Pre-clinical Bench Science:

Animal Handling | Husbandry | Behavioral Scoring | Injection | Perfusion | Euthanasia | Brain Dissection | Brain Slicing via Cryostat | Fluorescent Immunohistochemistry | Immunostaining with DAB | RNAscope *In Situ* Hybridization | Imaging via Confocal & Epifluorescence Microscopes | Cell Counting

Grants, Honors, & Awards (reverse chronological order)

2023	Student Travel Grant for the Artificial Intelligence in Medicine 2023 Conference (€450)
2023	NIH Bridge2AI CHoRUS program: AI in Clinical Care Bootcamp Travel Grant (\$1000)
2019–2024	George W. Woodruff Fellowship (\$25,000)
2019	Postbac Poster Day Award for outstanding poster
2017	Cynthia K. Sherman Award for outstanding undergraduate honors thesis in behavior (\$100)
2017	<i>Cum laude</i> in Biological Sciences
2016	Tanner Dean's Scholars Summer Research Grant (\$3000)
2016–2017	Howard Milstein Scholarship
2016–2017	Arts & Sciences Tanner Dean's SSE
2016–2017	Howard Milstein Book Award
2015–2017	Cornell University College of Arts and Sciences Dean's List
2013–2017	Irving and Tanner Dean's Scholar
2013–2017	NYS TAP Merit Scholarship
2014–2015	Ada Howe Kent Foundation Scholarship
2013–2014	Arts & Sciences Tanner Dean's Award
2013–2014	NYPD Scholarship

TEACHING EXPERIENCE

Spring 2023 **Biostatistics for Machine Learning**

Role: Lecture Development

Department of Biomedical Informatics, Emory University, Atlanta, GA

Dr. J. Lucas McKay

- Lecture: Creating Sankey diagrams in R

Spring 2022 **Animal Behavior**

Role: Graduate Teaching Assistant

Department of Psychology, Emory University, Atlanta, GA

Dr. Donna L. Maney

- Lecture: Altruism, Cooperation, and Eusociality
- Additional responsibilities: technical support during lectures, weekly office hours, test preparation

Fall 2021 **Introduction to Biopsychology**

Role: Graduate Teaching Assistant

Department of Psychology, Emory University, Atlanta, GA

Dr. David Edwards

- Lecture: Text mining neuroscience literature using natural language processing

Spring 2021 **Research Methods in Psychology**

Role: Graduate Teaching Assistant; Lab Section Lead

Department of Psychology, Emory University, Atlanta, GA

Dr. Elizabeth Kim

- Responsibilities: Led weekly 12-person lab section, designed new teaching materials each week, hosted weekly office hours, graded weekly assignments

Fall 2020 **Introduction to Psychology**

Role: Graduate Teaching Assistant

Department of Psychology, Emory University, Atlanta, GA

Dr. Elizabeth Kim

- Responsibilities: technical support during lectures, weekly office hours, graded assignments

Spring 2020 **Introduction to Psychology**

Role: Guest Lecturer

Department of Psychology, Emory University, Atlanta, GA

Dr. Sandra Goulding

- Lecture: Social Influence Part 2: Obedience and how the individual influences the group

Fall 2016 **Neurobiology and Behavior I: Introduction to Behavior**

Role: Undergraduate Teaching Assistant

Department of Neurobiology and Behavior, Cornell University, Ithaca, NY

Dr. Robert A. Raguso

- Responsibilities: Led a 15-person review group each week meant to clarify lecture material

Spring 2015 **Personal Genomics and Medicine**

Role: Undergraduate Teaching Assistant

Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY

Dr. Charles F. Aquadro

- Responsibilities: Led a 10-person discussion group each week meant to show how lecture material translated to real-world ethical scenarios and held monthly office hours

Mentoring & Leadership

2023–Pres. **Woodruff Student-Alumni Committee**

Role: Member

Emory University, Atlanta, GA

- Served on committee to connect Woodruff fellow and scholars alumni with current fellows and scholars

2020–Pres. **Association For Women in Science, Graduate Chapter**

Role: Outreach Chair

Emory University, Atlanta, GA

- Coordinated outreach events, managed and attended monthly general body meetings

2019 **Psychology Department Curriculum Committee**

Role: Neuroscience and Animal Behavior Program Student Representative

Department of Psychology, Emory University, Atlanta, GA

- Served as Neuroscience & Animal Behavior Student representative in curriculum restructuring discussions

2018–2019 **Triangle Chapter of the Society for Neuroscience**

Role: Webmaster

Research Triangle Park, NC

- Maintained the website, mailing list, and membership information for the chapter
- Solicited sponsorships to support local conference from Society for Neuroscience vendors

2017 **Young Researchers Program**

Role: Mentor

Cornell University, Ithaca, NY

- Mentored one high school student and taught her to code in R

2014–2017 **Peer Advising Program**

Role: Advisor

Cornell University, Ithaca, NY

- Advised 33 freshmen, providing support and advice throughout their transition into Cornell University

2013–2017 **Bread Club**

Role: President

Cornell University, Ithaca, NY

- Organized events, maintained inventory, served as liaison between collaborators, and managed the budget

Public Engagement: Service, Outreach, and Volunteering

2022–Pres. **Atlanta Brain Bee**

Role: Volunteer

Atlanta, GA

- Developed and graded qualifying exam questions
- Created a five-minute science communication video explaining autoradiography

2019–Pres. **Association for Women in Science, Emory Chapter**

Role: Outreach Chair/Member

Emory University, Atlanta, GA

- Manage all outreach events for organization, including virtual talks, the Atlanta Science Festival, and nights at museums
- Served on committee to organize return of Expanding Your Horizons to the greater Atlanta area (disrupted by COVID-19 pandemic)
- Served as peer mentor to three undergraduate students interested in graduate school

2023 **Computing in Cardiology 2023 Conference: PhysioNet Challenges (SCHEDULED May 2023)**

Role: Abstract Reviewer

Department of Biomedical Informatics, Emory University, Atlanta, GA

- Will review abstracts submitted the the PhysioNet Challenges

2023 **Fernbank After Dark: Around the World**

Role: Coordinator/Volunteer

Department of Biomedical Informatics & Association for Women in Science, Emory University, Atlanta, GA

- Assisted in scheduling, development, and presentation of demos about wearable technology deployed internationally by the department

2023 **Fernbank After Dark: Booze and Botanicals**

Role: Coordinator/Volunteer

Association for Women in Science, Emory University, Atlanta, GA

- Assisted in scheduling, development, and presentation of demos about misleading sensory inputs to the brain, featuring women in STEM whose work help us to understand these concepts

2023 **Atlanta Science Festival Exploration Expo 2023: Women in science, what can't they do?!**

Role: Coordinator/Volunteer

Association for Women in Science, Emory University, Atlanta, GA

- Assisted in scheduling, development, and presentation of demos about the contributions of women in STEM as they relate to UV radiation, DNA, and neuroplasticity

2023 **Atlanta Science Festival 2023: AI can recognize us?! Demo**

Role: Coordinator/Volunteer

Department of Biomedical Informatics, Emory University, Atlanta, GA

- Assisted in scheduling, development, and presentation of demos about bias in AI

2022 **Atlanta Science Festival Exploration Expo 2022: Wonder Women in STEM**

Role: Coordinator/Volunteer

Association for Women in Science, Emory University, Atlanta, GA

- Assisted in scheduling, development, and presentation of demos about the contributions of women in STEM as they relate to UV radiation, DNA, and enzymes.

2021–2022 **Research Methods in Psychology Poster Session**

Role: Poster grader

Emory University, Atlanta, GA

- Served as a grader for the end-of-semester undergraduate research poster session

2021–2022 **WiSTEM Networking Night**

Role: Panelist

Emory University, Atlanta, GA

- Served as a panelist to discuss my journey and career as a woman in STEM to an undergraduate audience

2021–2022 **Code Your Own Scientific Snapchat Filter**

Role: Developer/Organizer

Association for Women in Science, Emory University, Atlanta, GA

- Developed & hosted a 'Code Your Own Scientific Snapchat Filter' workshop for high school girls

2020 **Volunteer Online SAT and College Essay Tutor**

Role: Tutor

Atlanta Public Schools, Atlanta, GA | IHCI Bilingual School, New York, NY

- Tutoring students from low SES backgrounds amid COVID-19 pandemic

2009–2019 **Community Band**

Role: Saxophonist

Valley Stream, NY | Falmouth, MA | Chapel Hill, NC

- Performed in community bands for various community events, fundraisers, and holiday celebrations

2017–2019 **Habitat for Humanity of Wake County**

Role: Volunteer

Wake County, NC

- Aided in construction projects

2018 **Sip, Science, and Civility**

Role: Organizer

Triangle Chapter of the Society for Neuroscience, Durham, NC

- Event promoted local musicians and voting, as well as taught about the effect of music on the brain

2018 **NIEHS Bring Your Child to Work Day**

Role: Organizer

NIEHS-NIH, Research Triangle Park, NC

- Planned and ran two interactive demo tables targeted at elementary-aged children

- 2018 **Ephesus Elementary School Career Day**
Role: Presenter
 Chapel Hill, NC
- Presented about my experience as a post-baccalaureate researcher
- 2017 **Uncommon Preparatory Charter High School Visit**
Role: Tour guide & speaker
 Cornell University, Ithaca, NY
- Gave tour of university and answered questions about student involvement in extracurricular activities
- 2017 **Getting Started in Research Panel**
Role: Panelist
 Cornell University, Ithaca, NY
- Served on panel in Investigative Biology Lab (430 students) to discuss how to get involved in research
- 2016–2017 **Expanding Your Horizons**
Role: Chaperone
 Cornell University, Ithaca, NY
- Escorted middle school girls to their assigned STEM workshops
- 2016 **Tanner Dean's Scholars Research Chat**
Role: Panelist
 Cornell University, Ithaca, NY
- Served on panel for Tanner Dean's Scholar underclassmen to discuss how to get involved in research

Professional Memberships

2020–2022	Society for Behavioral Neuroendocrinology
2020–2021	Society for Social Neuroscience
2018–2019	Society for Neuroscience
2018–2019	Triangle Chapter of the Society for Neuroscience
2017	Animal Behavior Society