EDUCATION

**PhD Student, Behavioral and Systems Neuroscience** 08/2019–Pres.

Advisor: Dr. Aubrey M. Kelly

Emory University, Laney Graduate School, Atlanta, GA

**BA, Biological Sciences (*cum laude*) and Psychology** 08/2013–01/2017

Advisor: Dr. Alexander G. Ophir

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

RESEARCH EXPERIENCE

**Comparative Social Neuroscience Lab** 08/2019–Pres.

Emory University, Atlanta, GA

Graduate Student | Dr. Aubrey M. Kelly

* Performing a meta-analysis using the machine learning algorithm Word2Vec to identify relationships between the social brain and social behavior based on all literature published since 1990 (n = 24,000)
* Using a novel, non-invasive method to measure heart rate and respiration, exploring how environmental constraints put on the peripheral vasopressin (VP) system in turn puts constraints on central VP and centrally mediated social behavior in Mongolian Gerbils
* Employing RNAscope to identify V1aR and OTR receptors in the spiny mouse brain
* Managing a team of five undergraduates to explore aging and behavioral phenotypes in prairie voles

**Developmental Neurobiology Group**  07/2017–06/2019

Neurobiology Lab, NIEHS-NIH, Research Triangle Park, NCPost-baccalaureate IRTA Fellow | 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 (published)
* 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 (published)

**Integrative Neuroethology Lab** 01/2016–06/2017

Cornell University, Ithaca, NY

Honors Student & Research Assistant | 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

**Cognitive Neuroscience Lab** 08/2015–12/2016

Cornell University, Ithaca, NY

Undergraduate Research Assistant | Dr. Morten H. Christiansen

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

**Biogeochemistry** **Lab** 06/2015–08/2015

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

Summer Research Assistant | 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

ADDITIONAL SKILLS AND TRAINING

**Technical Skills:** Animal Handling | Husbandry | Behavioral Assays & Scoring | Injection | Perfusion | Euthanasia | Brain Dissection | Brain Sectioning via Cryostat | Fluorescent Immunohistochemistry | Immunostaining with DAB | RNAscope In Situ Hybridization | Imaging via Confocal & Epifluorescence Microscopes | Cell Counting | Trunk Blood Collection

**Software:** EthoVisionXT | Photoshop | GIMP | SPSS | Prism | BORIS | FIJI/ImageJ

**Languages:** R | ImageJ Macro Language | VBA | Python | MATLAB

PUBLICATIONS (reversed chronological order)

*A. In Preparation:*

4. Sciolino, N. R., Mazzone, C. M., Plummer, N. W, Evsyukova, I., 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. A role for the locus coeruleus in the modulation of feeding. (*in revision for Nature Metabolism and submitted to BioRxiv). doi: https://doi.org/10.1101/2019.12.18.881599*

*B. Published:*

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).

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.

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.

PRESENTATIONS

9. **Powell, J. M.**, Kloefkorn-Adams, H., Kelly, A. M. (2021). The influence of chronic stressors on vasopressin-mediated physiology and social behaviors in the prairie vole. Annual meeting (virtual) of the Society for Social Neuroscience (poster).

8. **Powell, J. M.**, Prounis, G. S., Ophir, A. G. (2019). Parental nest attendance impacts juvenile nest egression in prairie voles (Microtus ochrogaster). Emory Department of Psychology 12th Annual Research Festival (poster).

7. **Powell, J. M.**, Plummer, N. W., Scappini, E. L., Tucker, C. J., Jensen, P. (2019). DEFiNE: A method for enhancement and quantification of axonal fibers. NIH Postbaccalaureate Poster Day (poster).

6. **Powell, J. M.**, Plummer, N. W., Scappini, E. L., Tucker, C. J., Jensen, P. (2019). DEFiNE: A method for enhancement and quantification of axonal fibers. Annual meeting of the Triangle Chapter of the Society for Neuroscience (poster).

5. **Powell, J. M.**, Plummer, N. W., Scappini, E. L., Tucker, C. J., Jensen, P. (2019). DEFiNE: A method for enhancement and quantification of axonal fibers. Emory University’s 6th Annual Mechanisms of Learning Forum (poster).

4. **Powell, J. M.**, Plummer, N. W., Chandler DJ, Scappini, E. L., Tucker, C. J., Waterhouse, B.D., Jensen P. (2018). Tracing axon collaterals of locus coeruleus neurons projecting to defined targets. NIH Annual Board of Scientific Counselors Review (poster).

3. **Powell, J. M.**, Prounis, G. S., Ophir, A. G. (2017). The ontogeny of independence: Nest egression in prairie voles. 54th Annual Conference of the Animal Behavior Society (talk).

2. **Powell, J. M.**, Prounis, G. S., Ophir, A. G. (2016). The impact of early social environments on juvenile egression in prairie voles (Microtus ochrogaster). Cornell University 41st Ecology & Evolutionary Biology Graduate Student Symposium (poster).

1. **Powell, J. M.**, Prounis, G. S., Ophir, A. G. (2016). The impact of early social environments on juvenile egression in Microtus ochrogaster. Cornell Summer Institute for Life Sciences Sixth Annual Undergraduate Symposium (talk).

GRANTS, HONORS, AND AWARDS

Emory University George W. Woodruff Fellowship 2019–2024

NIH Postbac Poster Day Outstanding Poster Award 2019

Cornell University Cynthia K. Sherman Award for Outstanding Undergraduate Honors Thesis in Behavior 2017

Cornell University *Cum laude* in Biological Sciences 2017

Cornell University Howard Milstein Scholarship 2016–2017

Cornell University College Arts & Sciences Tanner Dean’s SSE 2016–2017

Cornell University Howard Milstein Book Award 2016–2017

Cornell University College of Arts and Sciences Dean’s List 2015–2017

Cornell University Irving and Tanner Dean’s Scholar 2013–2017

NYS TAP Merit Scholarship 2013–2017

Cornell University Tanner Dean’s Scholars Summer Research Grant 2016

Cornell University Ada Howe Kent Foundation Scholarship 2014–2015

Cornell University College Arts & Sciences Tanner Dean’s Award 2013–2014
NYPD Scholarship 2013–2014

PROFESSIONAL MEMBERSHIPS

Society for Behavioral Neuroendocrinology 2021–Pres.
Society for Neuroscience 2018–2019

Triangle Chapter of the Society for Neuroscience 2018–2019

Animal Behavior Society 2017–2018

TEACHING EXPERIENCE

**Research Methods in Psychology Lab**  Spring 2021

Emory University, Atlanta, GA

Graduate Teaching Assistant | Dr. Elizabeth Kim

* Developed lab instructional materials, taught weekly lab sections, met individually with students, and graded assignments

**Introduction to Psychology**  Fall 2020

Emory University, Atlanta, GA

Graduate Teaching Assistant | Dr. Elizabeth Kim

* Provided support during lecture, hosted weekly office hours, and graded assignments

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

Cornell University, Ithaca, NY

Undergraduate Teaching Assistant | Dr. Robert A. Raguso

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

**Personal Genomics and Medicine** Spring 2015

Cornell University, Ithaca, NY

Undergraduate Teaching Assistant | Dr. Charles F. Aquadro

* 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 AND LEADERSHIP

**Graduate Student Mentor** 2019–Pres.

Mentor | Emory University, Atlanta, GA

* Mentoring six undergraduates to help perform research across two projects

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

Outreach Chair | Emory University, Atlanta, GA

* Coordinating various volunteer events as Outreach Chair
* Serving as mentor to undergraduate students interested in graduate school

**Psychology Department Curriculum Committee** 2019

NAB Student Representative | Emory University, Atlanta, GA

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

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

Webmaster | Research Triangle Park, NC

* Maintained the website, mailing list, and membership information for the chapter

**Young Researchers Program** 2017

Mentor | Cornell University, Ithaca, NY

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

**Peer Advising Program** 2014–2017

Advisor | Cornell University, Ithaca, NY

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

**Bread Club** 2013–2017

President | Cornell University, Ithaca, NY

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

OUTREACH AND VOLUNTEERING

**Online SAT and College Essay Tutor** 2020–Pres.

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

* Virtually tutoring students amid COVID-19 pandemic

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

Outreach Chair | Emory University, Atlanta, GA

* Partnered with the Decatur Education Foundation to provide virtual tutoring amid COVID-19 pandemic
* Manage all outreach events for organization, including virtual coding tour for high school students
* Serving on committee to organize return of Expanding Your Horizons to the greater Atlanta area
* Serving as peer mentor to three undergraduate students interested in graduate school

**Community Band** 2009–Pres.

Saxophonist | Valley Stream, NY | Falmouth, MA | Chapel Hill, NC | Atlanta, GA

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

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

Volunteer | Wake County, NC

* Aided in construction projects

**Sip, Science, and Civility** 2018

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
* Ran registration table

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

Organizer | NIEHS | Research Triangle Park, NC

* Planned and ran two interactive tables

**Ephesus Elementary School Career Day**2018

Presenter | Chapel Hill, NC

* Presented about my experience as a post-baccalaureate researcher

**Uncommon Preparatory Charter High School Visit**2017

Tour guide & speaker | Cornell University, Ithaca, NY

* Gave tour of university and answered questions about student involvement in extra-curricular activities

**Getting Started in Research Panel** 2017

Panelist | Cornell University, Ithaca, NY

* Served on panel in Investigative Biology Lab (430 students) to discuss how to get involved in research

**Expanding Your Horizons** 2016–2017

Chaperone | Cornell University, Ithaca, NY

* Escorted middle school girls to their assigned STEM workshops

**Tanner Dean’s Scholars Research Chat** 2016

Panelist | Cornell University, Ithaca, NY

* Served on panel for Tanner Dean’s Scholar underclassmen to discuss how to get involved in research