Rachel Sharp

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PROFESSIONAL SUMMARY

Narrative-driven science writer and Neuroscience PhD Candidate passionate about strengthening bridges between research and our communities. As both a multi-disciplined scientist and community activist, I believe that scientists and community members are equal partners in driving societal change, and I aim to facilitate conversations that further these relationships. With proven expertise in translating complex research in neuroscience and genomics into clear, memorable, and actionable insights for broad audiences, I specialize in combining deep, hands-on research experience with direct outreach through powerful storytelling and editorial leadership.

EDUCATION

PhD University of North Carolina at Chapel Hill (UNC) | Neuroscience — August 2021 – Spring 2026
Certificate in Bioinformatics and Computational Biology
NSF Graduate Research Fellow

BS University of Oklahoma (OU) | Psychology, Criminology Minor — Aug 2016 – Dec 2019
Summa Cum Laude (4.0 GPA)

SCIENCE WRITING AND COMMUNICATION EXPERIENCE

Contributing Author | *BrainPost* — 2023 – Present

- Transform peer-reviewed neuroscience publications from top-tier journals into accessible summaries for non-specialized audiences
- Cover diverse topics from neuroplasticity to brain-computer interfaces, balancing scientific accuracy with engaging readability

Writer & Editor | *The Pipettepen* — 2022 – Present

- Author original articles on scientific topics of personal interest
- Edit submissions from fellow graduate students, providing feedback to enhance clarity, narrative flow, and accessibility

Blog Scheduler, Translation Coordinator, and Editor | *NC DNA Day Blog* — 2022-2023

- Broadened blog accessibility by developing and overseeing Spanish translation program, increasing translated content from 3 articles over two years, to 17 articles in a single semester
- Managed editorial calendar and coordinated communication between writers, editors, and translators

SELECTED WRITING PORTFOLIO

"**Finding Humanity in Health Data**" | *American Scientist* — 2025

- Interview-driven commentary exploring the integration of social context into health data systems

"When Practice Makes Perfect: The Neurons Behind Skilled Movement" | *The Pipettepen* — 2024

- Interview-based profile of ongoing research on NDNF neurons and their role in motor learning

"The Need for Diversity in Large-Scale Genetic Studies" | *The Pipettepen* — 2023

- Analytical commentary on demographic representation gaps in genomics and implications for health equity

"Neuroscience-Backed Strategies to Help You Learn More Effectively" | *BrainPost* — 2024

- Synthesis of recent cognitive neuroscience research into practical learning strategies

PROFESSIONAL DEVELOPMENT & MEMBERSHIPS

ComSciCon Triangle Workshop Attendee — 2025

Science Communicators of North Carolina Society Member — 2024-2025

RESEARCH AND PROFESSIONAL EXPERIENCE

Graduate Research Assistant | University of North Carolina at Chapel Hill 2021 – Present
Principal Investigator: Dr. Michael Love

Project: The Effects of Social Risk on Genetic Liability for Bipolar Disorder

- Integrate genomic data, social risk surveys, and electronic health record codes, to investigate the relationship between genetic risk, social risk, and clinical development of bipolar disorder
- Communicate with bioinformaticians, neuroscientists, epidemiologists, and geneticists, to combine information from multiple scientific fields into one cohesive, interdisciplinary, research project

Project: Statistical Validation of Genetic Variants Associated with Neuropsychiatric Disorders in Genome-wide Association Studies (GWAS)

- Use R, Bash, and other coding languages to identify genetic variants associated with neuropsychiatric disorders from GWAS and Massively Parallel Reporter Assay (MPRA) datasets.
- Integrate results with Quantitative Trait Loci datasets to interrogate genetic mechanisms contributing to disease penetrance.
- Demonstrated the statistical failure of commonly used algorithms to prioritize causal variants, a major contribution to the field.

Project: Statistical Pipeline Development for Standardized Analysis of MPRA Data Across Institutions within the International Impact of Genomic Variation on Function Consortium (IGVF)

- Develop streamlined pipelines to systematically and reproducibly analyze MPRA data across five internationally funded centers.
- Organize teams across centers to develop discrete pipeline portions. Led cross-center meetings to streamline communication and strategize next steps.

Bioinformatic Analyst | OU Health Science Center Core Facilities Jan 2020 - Aug 2021
Principal Investigator: Dr. Kenneth Jones

- Independently produced custom scripts in R, Python, Bash, and other languages to process and analyze data from Single Cell and Bulk Sequencing Projects.
- Collaborated with 20+ PIs on diverse profjects including metastasis of glioblastomas, cancer subtypes in zebrafish models, cell morphology shifts in myopia, and genetic signatures of type 2 diabetes.
- Produced high-quality figures and descriptions for papers and grants.
- Monitored and employed new technologies and methods in the biological, statistical, computational, and analytic fields.

Lab Manager | OU Visual Neuroscience Lab Jan 2018 – Dec 2019
Principal Investigator: Dr. Michael Wenger

- Managed and directed 20+ undergraduate research assistants.
- Conducted studies examining the effects of iron deficiency on cognition in college-aged women, women undergoing smoking cessation, and perimenopausal women.
- Collected and analyzed EEG data from EGI nets and gel-based caps.
- Trained two graduate students and 20+ undergraduate research assistants on EEG net application and safety, data acquisition, and data processing.

SELECTED CONFERENCE PRESENTATIONS AND ABSTRACTS

1. **Sharp, R.R.**, Glover, L., Raffield, L., Love, M.I. (2024, Nov). *Assessing the Impact of Social Exposomes on Genetic Liability for Bipolar Disorder.* **Poster presentation** at the annual **American Society of Human Genetics Conference**; Denver, Colorado.

2. **Sharp, R.R.**, Glover, L., Raffield, L., Love, M.I. (2024, Sept). *Assessing the Impact of Social Exposomes on Genetic Liability for Bipolar Disorder.* **Speaker** at the annual **UNC Department of Genetics Retreat**; Myrtle Beach, South Carolina.

3. **Sharp, R.R.**, McAfee, J., Lee, S., Rosen, J., Love, M.I., Won, H. (2023, May). *Statistical Validation of GWAS-Identified Neuropsychiatric Variants.* **Poster presentation** at the Bi-annual **Genomics of Brain Disorders Conference**; Wellcome Genome Campus, UK.

4. **Sharp, R.R.**, Broadaway, K.A., McAfee, J.C., Mohlke, K.L., Love, M.I., Won, H. (2022, Sept). *Computing MPRA and QTL Variant Overlap for Schizophrenia-associated, Fine-mapped Variants.* **Selected for lightning talk and poster presentation** at the annual meeting for the **Impact of Genomic Variation on Function Consortium**; Bethesda, Maryland. **Recipient of award for best poster presentation.**

5. Wenger, M., **Sharp, R.R.**, McCollum, A., De Stefano, L., Rhoten, S., Worth, T. (2019, June). *Negative Impacts of Iron Deficiency on Visual Category Learning Quantified in Terms of Dopaminergic Status and Brain Energy Expenditure.* **Poster presentation** at the annual meeting of the **Vision Sciences Society**; St. Pete Beach, Florida. Published in *Journal of Vision* (2019)

6. **Sharp, R.R.**, Foster, S., Carvallo, M. (2017, May). *The Fundamental Attribution Error and Prejudice Reversal.* Poster presentation at the annual University of Oklahoma Psychology Conference; Norman, Oklahoma. **Recipient of award for Best Undergraduate Research Poster.**

GRANTS, HONORS, AWARDS, AND SCHOLARSHIPS

National Science Foundation Graduate Research Fellowship Program 2023
Research grant received covering $111,000 in stipend over 3 years, in addition to funds covering all costs for tuition, fees, insurance, and travel.

Genomics of Brain Disorders Conference Bursary Travel Awardee 2023

Best Poster Presentation Award (2nd place) 2022
Awarded at the annual Impact of Genomic Variation on Function Consortium meeting as a second-year graduate student in competition with post-docs from internationally funded centers.

UNC Department of Neuroscience T32 2022

Big Woman on Campus Award 2019
Awarded to individuals who have excelled in the areas of scholarship, character, leadership, and service to the OU community.

Regent's Award for Outstanding Juniors 2019

Dean's Award for Outstanding Honors College Leadership 2019

John Benjamin Rotary Scholarship 2019
For high-achieving students and children of Tulsa first responders.

President's Award for Outstanding Sophomores 2018

Ruby Brakebill Scholarship 2018
For students with a strong social conscience and leadership abilities.

Patti Johnson Wilson Scholarship 2017
For high-achieving students in the liberal arts who also maintain employment.

President's International Travel Fellowship 2017
National Merit Scholar 2016

TEACHING EXPERIENCE

Volunteer R Instructor | UNC School of Medicine 2022 – 2024

- Teach the R programming language and general coding practices to 40 students enrolled in the How to Learn to Code R course.
- Teach students how to load and work with packages, debug code, use APIs, and organize their scripts.

Writing Assistant | OU Honors College 2018 - 2019

- Taught advanced written language skills to 25 students in various Honors College writing courses which aim to develop critical thinking and a broad world-view.
- Assisted students in developing tools for persuasion, clarity, and emotion in writing.

Peer Learning Assistant | OU University College 2018 - 2019

- Tutored 50+ students in Intro Biology, Java I and II, Research Methods, Intro Psychology, and Study Skills.
- Worked individually and with teams of tutors to facilitate a student-lead learning experience based on Socratic questioning.
- National Tutor Certification.

Ceramics Instructor | San Miguel Middle School 2016

- Independently developed a ceramics program for an underprivileged middle school in Tulsa, Oklahoma
- Fundraised and purchased all necessary supplies for teaching and implementing a ceramic class.
- Wrote lesson plans and independently instructed twelve students on the basics of ceramics and 3D art at their middle school over the course of a semester.
- Seeded the school with program details, supplies, and additional funds to continuing running the program.

LEADERSHIP, MENTORSHIP, AND SCIENCE OUTREACH

Student Neuroscience Executive Committee | President 2022 - 2025

Act as a bridge between neuroscience students and program officials to advocate for student needs, adjust classes and events accordingly, and promote community. Rewrote the Neuroscience program qualifying exam, ran and organized the annual retreat, and facilitated interactions between trainees and administration year-round.

Human Functional Regulatory Genomics Group Organizer 2023 – 2025

Plan, organize, recruit speakers for, and facilitate monthly trainee-focused meetings with presentations and discussions on topics in the field of functional genomics.

ASHG Session Moderator and Abstract Reviewer 2024

Review and score submitted abstracts for the annual American Society of Human Genetics conference. Lead and moderate the conference session "Phenomenal PheWAS"

Culbreth Middle School STEAM Day Volunteer Instructor 2024

Lead a presentation to rotating classes of middle schoolers on DNA, graduate education, and career paths in science.

Women in Science Promoting Inclusion in Research Experiences Student Recruitment Team 2022 - 2024

Recruit high school students from the research triangle area to participate in our summer mentorship program aimed at creating a space where students from minoritized genders can gain confidence in their ability to pursue a career in STEM by doing real scientific research with the help of early-career scientists. Mentor the students during the duration of the program and lead workshops on science communication to a broad audience.

Peer Mentor 2022 - 2024

Mentor first year graduate students to guide them through rotations, classes, and adjusting to life in graduate school.

Letters to a Pre-Scientist 2022 - 2024

Exchange letters with a middle-school pen pal from an underprivileged school to humanize STEM professionals, demystify STEM careers, and inspire future exploration in STEM.

BBSP In-Person Visits Planning Committee 2022 - 2025

Work with the graduate admissions office to plan and organize events for incoming graduate students.

UNC Summer Undergraduate Research Experience Mentor 2023

Mentor undergraduate students participating in a summer research internship to guide them through the process of choosing a post-undergraduate career path, applying to graduate schools, and finding their place in academia.

Triangle Brain Bee 2022 – 2023

Write questions for, judge, and organize tutoring sessions for the Brain Bee, an annual spelling-bee style competition engaging middle school students with topics in Neuroscience.

Honors Mentorship Program Director 2018 - 2019

Independently expanded and directed the program, assembled an executive team, organized events, secured funding sources, and provided mentoring opportunities for Honors College Freshmen.

COMMUNITY OUTREACH

Community Organizer 2024 – 2026

Work with local community-support organizations to maintain food distribution networks, table at rallies, and engage the public in discussions about supporting the local community

Crisis Text Line 2018 – 2019

Certified Crisis Counselor volunteer providing de-escalation services to individuals in crisis.

Oklahoma Department of Corrections 2017

Volunteer with the OK Messages Project connecting incarcerated parents to their children.

Honors at Oxford Study Abroad Program 2017

SELECTED PEER REVIEWED PUBLICATIONS **GOOGLE SCHOLAR**

1. Bruxel, E. M., Rovaris, D. L., Belangero, S. I., B., A., J., J., Nagamatsu, S. T., Nievergelt, C. M., L., D., Ota, V. K., Peterson, R. E., Sloofman, L. G., Adams, A. M., Albino, E., Alvarado, A. T., Y., P., Bandeira, C. E., Bau, C. H., Bulik, C. M., Buxbaum, J. D., . . . L., J. (2025). Psychiatric genetics in the diverse landscape of Latin American populations. *Nature Genetics*, *57*(5), 1074-1088.

2. Consortium, I. (2023). The Impact of Genomic Variation on Function (IGVF) Consortium. ArXiv, arXiv:2307.13708v1.

3. Yashchenko, A., Bland, S. J., Song, C. J., Ahmed, U. K. B., **Sharp, R.**, Darby, I. G., Cordova, A. M., Smith, M. E., Lever, J. M., Li, Z., Aloria, E. J., Khan, S., Maryam, B., Liu, S., Crowley, M. R., Jones, K. L., Zenewicz, L. A., George, J. F., Mrug, M., … Zimmerman, K. A.. "Cx3cr1 Controls Kidney Resident Macrophage Heterogeneity," *Frontiers in Immunology* 14 (2023)

4. Larabee, J. L., Doyle, D. A., Ahmed, U. K. B., Shadid, T. M., **Sharp, R. R.**, Jones, K. L., Kim, Y. M., Li, S., & Ballard, J. D.. "Discovery of Hippo Signaling as a Regulator of CSPG4 Expression and as a Therapeutic Target for Clostridioides Difficile Disease," *PLOS Pathogens* 19, no. 3 (2023)

5. Nelson, B. N., Daugherty, C. S., **Sharp, R. R.**, Booth, J. L., Patel, V. I., Metcalf, J. P., Jones, K. L., & Wozniak, K. L.. "Protective Interaction of Human Phagocytic APC Subsets with Cryptococcus Neoformans Induces Genes Associated with Metabolism and Antigen Presentation," *Frontiers in Immunology* 13 (2022)

6. De Jong, N. P., Rudolph, M. C., Jackman, M. R., **Sharp, R. R.**, Jones, K., Houck, J., Pan, Z., Reusch, J. E. B., MacLean, P. S., Bessesen, D. H., & Bergouignan, A.. "Short-Term Adaptations in Skeletal Muscle Mitochondrial Oxidative Capacity and Metabolic Pathways to Breaking up Sedentary Behaviors in Overweight or Obese Adults," *Nutrients* 14, no. 3 (2022)

7. Matye, D. J., Wang, H., Luo, W., **Sharp, R. R.**, Chen, C., Gu, L., Jones, K. L., Ding, W.-X., Friedman, J. E., & Li, T.. "Combined ASBT Inhibitor and FGF15 Treatment Improves Therapeutic Efficacy in Experimental Nonalcoholic Steatohepatitis," *Cellular and Molecular Gastroenterology and Hepatology* 12, no. 3 (2021)

8. Scalzo, R. L., Foright, R. M., Hull, S. E., Knaub, L. A., Johnson-Murguia, S., Kinanee, F., Kaplan, J., Houck, J. A., Johnson, G., **Sharp, R. R.**, Gillen, A. E., Jones, K. L., Zhang, A. M. Y., Johnson, J. D., MacLean, P. S., Reusch, J. E. B., Wright-Hobart, S., & Wellberg, E. A.. "Breast Cancer Endocrine Therapy Promotes Weight Gain With Distinct Adipose Tissue Effects in Lean and Obese Female Mice," *Endocrinology* 162, no. 11 (2021)