Louisa Schilling

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Website

GitHub

Summary

Final-year PhD candidate in computational neuroscience with expertise in statistical modeling and large-scale biomedical data analysis. Skilled in MATLAB/Python/R, with experience building analytical pipelines and generating insights, with publications in high-impact journals and conferences. Strong record of skillful scientific writing, peer review, and mentorship. Motivated to leverage data-driven approaches to understand complex systems.

Skills

CODING LANGUAGES

MATLAB, Python, R, SPSS

Professional Memberships

Women's Health Research Cluster
2025 - Present

New York Academy of Science
2021 - Present

Organization of Human Brain Mapping
2022 - Present

Awards & Fellowships

WCGS Student Service/Outreach Award
Weill Cornell Medicine
5/2025

Ann S. Bowers Women's Brain Health Initiative Research Fellow
2024-Present

T32 Training Gran "Genetic and environmental influences on addiction"
National Institute on Drug Abuse
2023-2024

Masters Scholarship for All Disciplines
Deutscher Akademischer Austauschdienst
2018-2019

Education

Weill Cornell Medicine	8/ 2021 – Current
Neuroscience	Doctor of Philosophy (in progress)
4.0 (of 4.0)	
Anticipated graduation: May 2026	
Humboldt-Universität zu Berlin, Berlin School of Mind & Brain	9/2017 – 12/2020
Neuroscience	Master of Science
1.0 (of 1.0)	
University of Toronto	9/2013 – 5/2017
Neuroscience & Cognitive Science	Honours Bachelor of Science
3.7 (of 4.0)	

Experience

Computational Connectomics Lab, Weill Cornell Medicine   5/ 2022 – present
Graduate Thesis Student (Supervisor: Dr. Amy Kuceyeski)   New York, USA

- Applied **quantitative research and multivariate statistical modeling** to model neuropsychiatric illness risk.
- Developed **analytical pipeline in MATLAB, Python, and R** using network control theory framework.
- **Characterized sex-specific biomarkers** for risk of substance use disorder in children.
- **Integrated multi-modal data** including neuroimaging (fMRI/DTI/PET), genetic, demographic, psychological, environmental, and clinical data from **large, public datasets** (e.g., ABCD, HCP, and NCANDA datasets).

Indigo Research   04/2025 - Present
Research Mentor

- Guided 10+ high school students through entire research project lifecycle, from initial question development to final publication.

Rajadhyaksha Lab, Weill Cornell Medicine   10/2021 - 1/2022
Graduate Rotational Researcher   New York, USA

- Developed a MATLAB analytical pipeline to process fiber photometry data for use by lab personnel.

Lak Lab, University of Oxford   1/2020 – 12/2021
Master's Thesis Student (Supervisor: Dr. Armin Lak)   Oxford, Uk

- Developed **analytical pipelines in MATLAB/Python** to clean, align and analyze photometry-derived and behavioral features to determine the dopaminergic and behavioral markers of learning in mice using **reinforcement learning models.**
- Trained, recorded and analyzed data from 15+ mice.

Max Planck Institute of Human Development   1/2018 – 8/2018
Research Assistant (Supervisor: Dr. Ralf Kurvers)   Berlin, DE

- Utilized **MATLAB/R** for pre-processing and preliminary analysis of human behavioral data, investigating the impact of group size on collective decision-making in skin lesion diagnosis for 100+ human subjects.

National Center on Addiction & Substance Abuse (CASA)   5/2016 – 9/2016
Research Intern   New York, NY

- Wrote report on childhood substance exposure sources, including literature review and interviews with experts in poison control.
- Supported interpretation of longitudinal statistical analyses of Medicaid claims data to evaluate health outcomes for patients living with HIV/AIDS.

University of Rochester School of Medicine   5/2015 – 9/2015
Research Intern (Supervisor: Dr. John Markman)   Rochester, NY

- Primary author of medical chapter on the efficacy of corticosteroids in pain management.

Publications

Schilling, L., Singleton, S. P., Tozlu, C., Hédo, M., Zhao, Q., Pohl, K. M., ... & Kuceyeski, A. Sex-specific differences in brain activity dynamics of youth with a family history of substance use disorder. Nature Mental Health (in press)   2024
https://pmc.ncbi.nlm.nih.gov/articles/PMC11398379/

Liebana, S., Laffere, A., Toschi, C., Schilling, L., Moretti, J., Podlaski, J., ... & Lak, A. (2025). Dopamine encodes deep network teaching signals for individual learning trajectories. Cell.
https://www.cell.com/cell/fulltext/S0092-8674(25)00575-6

Singleton, S. P., Velidi, P., Schilling, L., Luppi, A. I., Jamison, K., Parkes, L., & Kuceyeski, A. (2024). Altered structural connectivity and functional brain dynamics in individuals with heavy alcohol use. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging.   2024
https://www.biologicalpsychiatrycnni.org/article/S2451-9022(24)00139-3/abstract

Schilling L, Markman JD. Corticosteroids for Pain of Spinal Origin: Epidural and Intra-articular Administration. Rheumatic Disease Clinics of North America   2016
https://pubmed.ncbi.nlm.nih.gov/26611556/

Invited Oral Presentations

"Network Control Theory & Substance Use Disorders."   06/2025
Organization of Human Brain Mapping Annual Meeting 2025   Brisbane, AU

"Sex-specific differences in brain activity dynamics of youth with a family history of substance use disorder."   10/2024
T32 Retreat: Genetic and Environmental Influences on Addiction, Weill Cornell Medicine   New York, NY

Editing and Writing

Reviewer   10/2025 - Present
Convergence Journal, International Journal of High School Research

- Conducted monthly peer-reviews of scientific publications, recommending publication decisions to editors.
- Evaluated manuscripts for rigor, accuracy, and novelty, providing constructive feedback and detailed edits to authors.

Publication Support   10/2025 - Present
Indigo Research

- Provided publication support to refine student's research papers for journal-ready submission.

Contributing author and editor   2019 - 2020
Charité Neuroscience Newsletter

- Authored articles on neuroscientific topics and edited for quality and consistency. Received "Best Article" award for a piece on prion diseases.

Leadership & Teaching Experience

Co-organizer – Brain Awareness Day   2024 – Present

- Designed and implemented a brain science curriculum for 250+ 4th graders in NYC public schools.
- Expanded program into a campus club, recruiting volunteers and developing branding.
- Presented program outcomes to government officials, securing continued support, and received the WCGS Student Service/Outreach award.

Teaching Assistant & Research Mentor - Indigo Research Innovator Global Lab   10/2025 - 03/2026
    Pasadena, CA

- Mentor pilot cohort of students through the **full research pipeline** — developing research questions, designing methods, analyzing data, and producing **publication-ready empirical papers**.

Teaching Assistant - Progress in Neuroscience, Weill Cornell Medicine   2025 - Present

- Helped organize and facilitate a graduate course for first-year PhD neuroscience students to connect them with external and internal neuroscience faculty.

Instructor - "Masterclass on STEM Essay Writing" - Crimson Education   June 2025

- Designed and delivered a STEM essay writing course to 20+ high school students, resulting in improved essay quality and engagement with Crimson services.

Co-organizer – Machine Learning in Medicine Virtual Seminar Series   5/2024 – 9/2025

- Organized an inter-campus virtual seminar series, inviting and hosting 20+ external experts on machine learning from academia and industry. Facilitated speaker introduction and Q&A sessions.
- Enhanced visibility via social media, email, and website.

Teaching Assistant – Addiction & Society, Weill Cornell Medicine   3/2024 –7/2024

- Helped organize and facilitate an 8-week graduate course for PhD neuroscience students that examines the connections between sociocultural, neurobiological, and genetic risk factors for substance use.

Mentor - iMentor NYC Program, Marble Hill High School, NY.   9/2023 – Present

Closely mentor a 11th grade high school student to determine and pursue academic/career goals with weekly communication and monthly in-person mentoring sessions.

Student Project Mentor

- Emerson Moore - B.Sc., Cornell University (1/25 - Present)
- Aaliyah Yang - M.Sc., Cornell University (1/24 - 12/24)

Abstracts (Presented)

Schilling, L. Singleton, P., Hédo, M., Tozlu, C., Jamison K.,, and Kuceyeski A. Divergent effects of family history of substance use disorder on brain dynamics in males and females.	06/2025 Brisbane, AU
Organization of Human Brain Mapping Annual Meeting	
Schilling, L., Singleton, S. P., Hedo, M., Tozlu, C., Zhao, Q., Pohl, K., ... & Kuceyeski, A. Family History of Substance Use Disorder Alters Brain Dynamics in a Sex-Dependent Manner in Substance-Naïve Youth: Findings From the ABCD Study.	04/2025 Toronto, ON
Society of Biological Psychiatry Annual Meeting	
Schilling, L., Singleton P., Hedo M., Tozlu C., Jamison, K., Kuceyeski, A. "Sex-specific differences in brain activity dynamics of youth with a family history of substance use disorder."	10/2024 Lakeville, CT
Weill Cornell BMRI Retreat.	
Schilling, L., Singleton P., Jamison, K., Kuceyeski, A. "Altered brain dynamics in youth with family history of substance use disorder vary by sex."	06/2024 Seoul, South Korea
Organization of Human Brain Mapping Annual Meeting	
Schilling, L., Singleton P., Jamison, K., Kuceyeski, A. "Altered brain dynamics in youth with family history of substance use disorder vary by sex."	03/2024 Washington DC, USA
ABCD Insighs & Innovation Meeting	
Schilling, L., Singleton P., Jamison, K., Kuceyeski, A. "Sex-dependent brain activity dynamics in adolescents with family history of substance use disorder."	06/2023 Montreal, QC
Organization of Human Brain Mapping Annual Meeting.	

Academic & Professional Training

Practical Applications in Machine Learning, Cornell Tech	Spring 2025 New York, NY
NeuroMatch Academy – Computational Neuroscience Summer School	Summer 2023 Virtual
Personal Animal Research License Training, University of Oxford	Winter 2020 Oxford, UK
Winter School in Ethics & Neuroscience, Bernstein Center for Computational Neuroscience	Winter 2018 Berlin, DE
Summer School in Global Health Challenges, University of København	Summer 2014 Copenhagen, DK

Abstracts (Not Presented)

Avendano-Prieto, N., Jamison, K., Kuceyeski, A., Schilling, L., Faghihroohi, S. Sex differences in the functional connectomes of individuals with ADHD
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Neumann, D., Razlighi, Q., Stern, Y., Devanand, D., Schilling, L., Jamison, K., Kuceyeski, A., Tozlu, C. Disrupted Energy Landscape in Individuals with Mild Cognitive Impairment: Insights from Network Control Theory
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Keith, L., Gaines, C., Jamison, K., Schilling, L., Tozlu, C. Mapping Structural and Functional Connectivity Alterations Across the Menopause Transition
2025
Brisbane AU

Organization of Human Brain Mapping Annual Meeting

Bukhari, H., Schilling, L., Singleton, P., Tozlu, C., Brzezinksi, A., Concha, L., Garza-Villareal, Liston, C., Kuceyeski, A. Using Network Control Theory to understand Brain dynamics in individuals with cocaine use disorder
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Chong, D., Jamison, K., Schilling, L., Sabuncu, M., Kuceyeski A. A NeuroGen extension: synthetic generation of images towards precise visual system activation
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Tozlu, C., Schilling, L., Singleton, P., Prischet, L., Jacobs, E., Kuceyeski, A.Mapping the Interplay Between Hormones, Neurotransmitters, and Brain Energy Dynamics in Aging Women
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Tozlu, C., Jamison, K., Kang, Y., Schilling, L., Kauzner, U., Sweeny, E., Kuceyeski, A., Gauthier, S. Paramagnetic rim lesions are associated with higher white matter inflammation in MS
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Hedo, M., Schilling, L., Singleton, P., Jamison, K., & Kuceyeski, A. Network control insights into psychopathology and sex differences in youth
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Zhang, Y., Schilling, L., Sabuncu, M., Kuceyeski, A. Movies Illuminate Minds: Functional Connectivity-Based Behavior Mapping During Naturalistic Viewing
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Gillies, C., Jamison, K., Schilling, L., Kuceyeski, A. Developing a Predictive Connectome-Based Tool for Personalized Stroke Recovery: A Sex-Specific, Multimodal Approach
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Radanovic A., Jamison, K., Schilling, L., Kuceyeski, A. Multimodal Longitudinal Neuroimaging after TBI - a PET, MRI, and fMRI Study
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Villegas, A., Singleton, P., Jamison, K., Tozlu, C., Schilling, L., Kuceyeski, A. Age and sleep quality's impact on brain dynamics is correlated with a4B2 receptor density
2025
Brisbane, AU

Organization of Human Brain Mapping Annual Meeting

Tozlu, C., Schilling, L., Singleton P., Jamison, K., Kuceyeski, A. "The brain's functional activation dynamics are associated with female hormone levels."
2024

Organization of Human Brain Mapping Annual Meeting

Hedo, M., Schilling, L., Singleton, P., Jamison, K., & Kuceyeski, A. "Brain activity dynamics in childhood psychopathology and in children with and without ADHD."
2024

Organization of Human Brain Mapping Annual Meeting

Tozlu, C., Singleton P., Schilling, L., Liu, C., Gauthier, S., Jamison, K., Kuceyeski, 2024
A. "Functional connectivity upregulation in post-menopause in healthy
females."

Organization of Human Brain Mapping Annual Meeting

Singleton, S. P., Velidi, P., Schilling, L., Luppi, A. I., Jamison, K., Parkes, L., & 2024
Kuceyeski, A. "Altered structural connectivity and functional brain dynamics in
individuals with heavy alcohol use elucidated via network control theory"

Organization of Human Brain Mapping Annual Meeting

Liebana Garcia, S., Laffere, A., Toschi, C., Schilling, L., … Lak, A. "Striatal 2023
Dopamine Reflects Long-term Learning Trajectories."

Conference on Cognitive Computational Neuroscience.

Liebana Garcia, S., Laffere, A., Toschi, C., Schilling, L., Podlaski, J., … Lak, A. 2024
"Striatal dopamine reflects individual long-term learning trajectories."

Computational and Systems Neuroscience (CoSyNe) Annual Meeting. Lisbon,
Portugal.

Laffere, A., Toschi, C., Liebana Garcia, S., Zatka-Haas, P., Schilling, L., … Lak, A. 2022
"Dopaminergic computations underlying learning of a perceptual task from
naïve to expert."

Federation of European Neuroscience Societies Annual Meeting. Paris, France.