Qingfang Liu, Ph.D.

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Academic Appointments

Research Fellow *December 2023 – present*
Learning and Decision-Making Section, National Institute on Drug Abuse   PI: Thorsten Kahnt, Ph.D.

Postdoctoral Fellow *April 2022 – December 2023*
Learning and Decision-Making Unit, National Institute on Drug Abuse   PI: Thorsten Kahnt, Ph.D.

Postdoctoral Scholar *February 2021 – March 2022*
Kahnt Laboratory, Feinberg School of Medicine, Northwestern University   PI: Thorsten Kahnt, Ph.D.

Graduate Researcher *August 2016 – December 2020*
Model-based Cognitive Neuroscience Lab, The Ohio State University   PI: Brandon M. Turner, Ph.D.

Education

Ph.D., Psychology, The Ohio State University *January 2021*
Thesis: *Dynamics of Multi-attribute Decision Making Revealed by Eye-tracking*

M.A., Psychology, The Ohio State University *August 2018*
Thesis: *Extensions of Multivariate Dynamical Systems to Simultaneously Explain Neural and Behavioral Data*

MAS, Applied Statistics, The Ohio State University *May 2019*
B.S., Psychology, Beijing Normal University, Beijing, China *June 2016*
(*Outstanding Undergraduate Award*)

Journal Publications

Liu, Q., Porter, D., Damra, H., Zhao, Y., Voss, J. L., Schoenbaum, G., & Kahnt, T. (2025). Distinct contributions of anterior and posterior orbitofrontal cortex to outcome-guided behavior. *Current Biology*, 35(22), 5549–5559.

Liu, Q., Zhao, Y., Attanti, S., Voss, J. L., Schoenbaum, G., & Kahnt, T. (2024). Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Nature Communications*, 15(1), 1704.

Han, C., Li, M., Haihambo, N., Babuna, P., **Liu, Q.**, Zhao, X., ... & Yang, S. (2021). Mechanisms of recurrent outbreak of COVID-19: a model-based study. *Nonlinear Dynamics*, 1-17.

Liu, Q., Petrov, A. A., Lu, Z.-L., & Turner, B. M. (2020). Extensions of Multivariate Dynamical Systems to simultaneously explain neural and behavioral data. *Computational Brain and Behavior*, 3, 430-457.

Molloy, M. F., Galdo, M., Bahg, G., **Liu, Q.**, & Turner, B. M. (2019). What's in a response time?: On the importance of response time measures in constraining models of context effects. *Decision*, 6(2), 171.

Turner, B. M., Rodriguez, C. A., **Liu, Q.**, Molloy, F. M., Hoogendijk, M., & McClure, S. M. (2018). On the Neural and Mechanistic Bases of Self Control. *Cerebral Cortex*, 29(2), 732-750.

Book Chapters

Turner, B. M., Bahg, G., Galdo, M., & **Liu, Q.** (2023). Advancements in Joint Modeling of Neural and Behavioral Data. In *An Introduction to Model-Based Cognitive Neuroscience* (pp. 211-239). Cham: Springer International Publishing.

Awards

- NIDA Women in Science, Research Recognition Award *April 2024*
- Fellowship from the Center on Compulsive Behavior (CCB), NIH *October 2024 – September 2025*

- NIH Award to Mentor a Summer Intern *January 2024*
- Outstanding Poster Award at the 2023 NIDA Poster Day *May 2023*
- NIDA Women in Science, Promising Postdoc Award *April 2023*
- The Baltimore Brain Series Award *March 2023*
- **Travel Awards:** The Annual Meeting of the Society for NeuroEconomics, Arlington, VA *(September 2022)*; Graduate Student Conference Presentation Award, Department of Psychology, The Ohio State University *(March 2020, March 2019, May 2018)*; 50th Annual Meeting of the Society for Mathematical Psychology, Coventry, UK *(July 2017)*
- **Student Awards:** Interdisciplinary Research Awards, Department of Psychology, The Ohio State University *(Summer 2020)*; Summer Research Excellence Awards, Department of Psychology, The Ohio State University *(Summer 2019)*; College of Social and Behavioral Sciences Fellowship, The Ohio State University *(August 2017)*
- Distinguished University Fellowship, Graduate School, The Ohio State University *2016, 2020*
- Outstanding Graduate Award, Beijing Normal University *June 2016*

Professional Memberships

Society for Neuroscience (2021-2024) · Society for NeuroEconomics (2020-2022) · Psychonomic Society (2019-2022) · Society for Judgment and Decision Making (2020-2023) · Society for Mathematical Psychology (2017-2020) · Cognitive Neuroscience Society (2019-2021)

Talks

Liu, Q., Porter, D., Damra, H., Zhao, Y., Voss, J. L., Schoenbaum, G., & Kahnt, T. (2025). Distinct contributions of anterior and posterior orbitofrontal cortex to outcome-guided behavior. *Presented at The National Institute on Drug Abuse, Fellows Research Lunch*, Baltimore, MD. *May 2025*

Liu, Q. (2024). Roles of the human orbitofrontal cortex and hippocampus in inference-based decision-making. *Presented at the Center on Compulsive Behaviors (CCB) Annual Retreat*, Bethesda, MD. *September 2024*

Liu, Q., Zhao, Y., Attanti, S., Voss, J. L., Schoenbaum, G., Kahnt, T. (2023). Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Presented as part of Postdoc Data Blitz at Special One-day Symposium (20 Years of the Jacob P. Waletzky Award), The National Institute on Drug Abuse*, Baltimore, MD. *November 2023*

Liu, Q., Zhao, Y., Attanti, S., Voss, J. L., Schoenbaum, G., Kahnt, T. (2023). Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Presented at The National Institute on Drug Abuse, Fellows Research Lunch*, Baltimore, MD. *June 2023*

Liu, Q., Zhao, Y., Attanti, S., Voss, J. L., Schoenbaum, G., Kahnt, T. (2023). Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Invited talk as a recipient of the Baltimore Brain Series Award at the John Hopkins University School of Medicine*, Baltimore, MD. *April 2023*

Liu, Q., Kahnt, T. (2022). Orbitofrontal network-targeted TMS disrupts midbrain signaling of identity prediction errors. *Presented at the Annual Meeting of the Society for NeuroEconomics*, Crystal City, Arlington, VA. *October 2022*

Liu, Q. (2020). Interpreting behavioral and neural data together: from a two-step correlational approach to an integrative approach. *Invited talk for Cognitive Neuroscience Colloquium of the University of California, Berkeley*, Virtual. *October 2020*

Liu, Q. (2020). Differentiating between option-wise and attribute-wise representation in multi-attribute decision making under a generative modeling framework. *Presented at the Virtual Process Tracing Conference*, Virtual. *September 2020*

Liu, Q., Turner, B. M. (2020). Extensions of Multivariate Dynamical Systems for simultaneous explanations of neural and behavioral data. *Presented as part of the Computational Model-Based Cognitive Neuroscience Symposium at the 53rd Annual Meeting of the Society for Mathematical Psychology*, Virtual. *July 2020*

Liu, Q. (2019). A spatio-temporal analysis on neural correlates of intertemporal choice. *Presented as part of the Graduate Research Forum, Department of Psychology, The Ohio State University*, Columbus, Ohio. *November 2019*

Liu, Q., Turner, B. M. (2018). Extensions of Multivariate Dynamical Systems for simultaneous explanations of neural and behavioral data. *Presented at the 51st Annual Meeting of the Society for Mathematical Psychology*, Madison, Wisconsin. *July 2018*

Liu, Q., Turner, B. M. (2017). Informing Cognitive Models of Self-control and Impulsivity in Intertemporal Choice. *Presented at the 50th Annual Meeting of the Society for Mathematical Psychology*, Coventry, UK. *July 2017*

Posters

Liu, Q., Porter, D., Damra, H., Zhao, Y., Kahnt, T. (2024). Anterior and posterior lateral OFC networks make dissociable contributions to stimulus-outcome learning and goal-directed choice. *Presented at the Annual Meeting of the Society for Neuroscience (SfN)*, Chicago, IL. *October 2024*

Liu, Q., Zhao, Y., Attanti, S., Voss, J. L., Schoenbaum, G., Kahnt, T. (2024). Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Presented at the 5th Quadrennial Meeting on Orbitofrontal Cortex (OFC) Function*, Paris, France. *April 2024*

Liu, Q., Zhao, Y., Attanti, S., Voss, J. L., Schoenbaum, G., Kahnt, T. (2023). Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Presented at the Annual Meeting of the Society for Neuroscience (SfN)*, Washington, DC. *November 2023*

Liu, Q., Zhao, Y., Attanti, S., Voss, J. L., Schoenbaum, G., Kahnt, T. (2023). Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Presented at the Interdisciplinary Symposium on Decision Neuroscience (ISDN)*, Philadelphia, PA. *July 2023*

Liu, Q., Zhao, Y., Attanti, S., Voss, J. L., Schoenbaum, G., Kahnt, T. (2022). Orbitofrontal network-targeted TMS disrupts midbrain signaling of identity prediction errors. *Presented at the Annual Meeting of the Society for Neuroscience (SfN)*, San Diego, CA. *November 2022*

Liu, Q., Kahnt, T. (2022). Orbitofrontal network-targeted TMS disrupts midbrain signaling of identity prediction errors. *Presented at the 9th Consumer Neuroscience Satellite Symposium*, Arlington, VA. *September 2022*

Liu, Q., Turner, B. M. (2020). Differentiating between option-wise and attribute-wise representation in multi-attribute decision making under a generative modeling framework. *Presented at the 18th Annual Meeting of the Society for NeuroEconomics*, Virtual. *October 2020*

Liu, Q., Turner, B. M. (2020). A spatio-temporal analysis on neural correlates of intertemporal choice. *Presented at the 27th Annual Meeting of the Cognitive Neuroscience Society*, Virtual. *March 2020*

Liu, Q., Turner, B. M. (2019). Extensions of Multivariate Dynamical Systems for simultaneous explanations of neural and behavioral data. *Presented at the 26th Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, California. *March 2019*

Liu, Q., Turner, B. M. (2018). Simultaneous simulations of behavioral and neural data in an extension of Multivariate Dynamical Systems framework. *Presented at the 7th Annual Midwest Cognitive Science Conference*, Bloomington, Indiana. *May 2018*

Teaching Experience

Guest Lecturer, National Institutes of Health _September 2024_
Introduction to Transcranial Magnetic Stimulation (1-hour lecture on TMS technology, principles, and applications)

Teaching Assistant, Department of Psychology, The Ohio State University _2017-2020_
Courses: Statistical Methods & Data Analysis, Research Methods, Psychology of Gender

Mentorship

Research Mentor, Kahnt Lab _2021-present_
Guided postbac students through research design, data analysis, and scientific communication

NIH Summer Intern Research Mentor _July – August 2024_
Mentored two summer students on independent cognitive neuroscience projects; taught Python programming

Neuromatch Mentor _2021-2023_
Provided one-on-one mentoring on neuroimaging data analysis and computational techniques

Skills

Programming & Tools: Python, MATLAB, R, C, Git, LaTeX

Machine Learning: Scikit-learn, PyTorch, deep generative models, reinforcement learning

Statistics: Bayesian inference, GLMs, mixed-effects models, model comparison, simulation-based inference

Cognitive & Computational Modeling: Drift diffusion models, RL models, model-based fMRI analysis

Neuroimaging & Neuromodulation: fMRI (SPM), searchlight decoding, RSA, TMS

Service

Ad Hoc Journal Reviewer: Journal of Neuroscience, Elife, Journal of Mathematical Psychology, Brain Sciences, Brain and Cognition

Organizing Committee, Baltimore Brain Series _2022 – 2024_

Judge: 2024 NIH Summer Internship Poster Day, 2023 NIH Postbac Poster Day

Lead Judge: 19th Annual NIH Graduate Student Research Symposium _February 2023_

Reviewer: NIDA Summer Research Internship Program _February 2024_