Qingqing Yang

PhD student in Cognitive Neuroscience | The Ohio State University
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Education

The Ohio State University, OSU 08/2024 – Present
Ph.D. in Cognitive Neuroscience Columbus, OH
Advisors: Dr. Hsin-Hung Li & Dr. Julie Golomb

New York University, NYU 09/2021 – 05/2023
M.A. in Psychology New York, N.Y.
GPA: 3.97/4.0
Courses: Computational Cognitive Modeling (PhD level), Math Tools for Cognitive Science and Neuroscience (PhD level), Introduction to Machine Learning

Zhejiang University, ZJU 09/2017 – 06/2021
B.Sc. in Psychology Zhejiang, China
GPA: 3.92/4.0 (Rank 5%)
Honors: Zhejiang Province Government Scholarship (3%)
Math-Major Courses: Advanced Algebra, Calculus

Research Experience

Assistant Research Scientist, NYU 08/2023 – 04/2024
PI: Dr. Clayton E. Curtis .

***M.A. Thesis*: Modeling Working Memory Limit and Parietal Cortex Involvement**
- Designed a whole-report memory guided saccade (MGS) task in MATLAB;
- Developed a MATLAB package to analyze multi-item MGS eye-tracking data (iEye);
- Fitted Variable Precision, Mixture, and Slots models for working memory fidelity;
- Collected and analyzed fMRI data, identified visual population receptive field maps;
- Applied TMS to defined intraparietal sulcus (IPS) for causal inference.

Assistant Research Scientist, NYU 09/2022 – 04/2024
PI: Dr. Catherine Hartley | Supervisor: Dr. Noam Goldway

Computational Phenotyping of Decision Making in Adolescent Psychopathology
- Implementing behavioral online tasks using JavaScript;
- Adapted Reinforcement Learning Models in Python, to qualify decision making phenotypes and their test-retest reliability, with Bayesian modeling;
- Adapted and performed ABCD MRI procedure, relate computational phenotypes and clinical symptoms to neural connectivity;
- Perform administrative management of over 500 enrollments, with Git, Python and R.

Research Assistant, ZJU 05/2019 – 06/2021
PI: Dr. Hui Chen

***Undergraduate Thesis*: Working-Memory-Guided Attention Competes with Exogenous Attention but Not with Endogenous Attention.** [Published]
- Completed 2 behavioral experiments to test the mechanism of WM-guided attention.

Active Inhibition of Attended Information and its Neurocognitive Mechanism

- Designed 4 experiments in MATLAB to investigate neural mechanism of attribute amnesia, which dissociates the attention and working memory;
- Collected data from 15 subjects for each experiment, performed statistical analysis;
- Collected and analyzed EEG data, extracted N2pc, Pd, Decoded information with MVPA.

Active Inhibition Mechanism of Attended Information Based on Dual-Task Paradigms

- Completed 6 behavioral experiments and found an active suppression over the information that is used but no longer useful with memory-guided attention paradigm.

Skills

Code	:	MATLAB, Python, R, Bash, JavaScript.
Tools	:	Git (GitHub, GitLab), High-Performance Computing (Slurm), Software Containers (Docker), Conda, Qualtrics, Redcap.
Computational	:	Artificial Neural Networks (PyTorch), Reinforcement Learning, Bayesian Inference (Stan), Machine Learning (Scikit-learn).
Neuroscientific	:	Eye-tracking (EyeLink, iEye) ; TMS (Magstim, MagVenture, Brainsight); MRI (Siemens Prisma, AFNI, FSL, freesurfer); EEG (BrainVision, EEGLab).

Publications

* Denotes those authors contributed equally to the work

Han, H. W.*, Dhar, R.*, **Yang, Q.***, Behbahani, M. H., Martínez, M. A., Oladele, T., Dima, D. C., Li H., Søgaard, A., Mohsenzadeh, Y. (2024). Investigating the role of modality and training objective on representational alignment between transformers and the brain. *Unireps Workshop, NeurIPS*. [Final version in prep]

Xu, Y., **Yang, Q.** (2024). Attention redistribution during event segmentation in Large Language Model. *Behavioral ML Workshop, NeurIPS.* [Link]

Zhu, P.*, **Yang, Q.***, Chen, L., Guan, C., Zhou, J., Shen, M., & Chen, H. (2023). Working-Memory-Guided Attention Competes with Exogenous Attention but Not with Endogenous Attention. *Behavioral Sciences*, *13*(5), 426. https://doi.org/10.3390/bs13050426

Scientific Presentations

Goldway, N., **Yang, Q**., Nielsen, S., Solomyak, L., Zorowitz, S., Eldar, E., Niv, Y., Hartley, A., C. Correspondence between computational decision-making phenotypes and transdiagnostic clinical symptomatology across development. *Society for Neuroscience (SfN2024)*, Oct 2024. [Poster]

Goldway, N., Solomyak, L., Karni, G., Zorowitz, S., Stollar, R., **Yang, Q.**, Nielsen, S., Cuevas, R., Bizzell-Hatcher, G, Gal Shoval, Eldar, E., Niv, Y., & Hartley, A., C. Reliability of a Reinforcement-Learning Task Battery for Computational Phenotyping of Decision-Making

in Adolescent Psychopathology. Talk at *Computational Psychiatry Conference (cpconf)*, Jul 2023. [Poster]

Yang, Q., Li, M., & Curtis, C. Modeling Effects of Interrupting Parietal Cortex Neural Activity on Working Memory Limit. Flash Talk at *Neuromatch Conference (NMC)*, Sep 2022. [Poster]

Teaching

Teaching Assistant, NYU 01/2022 – 05/2022

Advanced Psychological Statistics (Undergraduate Course), Prof Andy Hilford

- Grade exams and homework, hold office hours;
- Lead 2 recitations sessions per week, teaching R and statistical analysis (70 students).