

# JIALIN LI

New York University, New York, NY, 10003

[jl16057@nyu.edu](mailto:jl16057@nyu.edu) | [jialinli0822.github.io](https://jialinli0822.github.io)

## EDUCATION

**Department of Psychology, New York University (NYU)**

*M.A. in Psychology (Concentration in Cognition/Perception & Neuroscience)*

**New York, USA**

*Sep 2024 – Present*

**School of Psychological and Cognitive Sciences, Peking University (PKU)**

*B.S. in Psychology (with Distinguished Graduation thesis Honor)*

**Beijing, China**

*Sep 2020 - July 2024*

## RESEARCH EXPERIENCE

**Research Interest:** Human's decision can be shaped and biased by their preceding experience due to limited memory capacity. However, human also exhibits superior learning and generalization ability with few samples. I try to reveal the neural and computational mechanism of memory-guided decision making and learning process by combining the architecture of reinforcement learning.

**The Description-Experience Gap in Exploration-Exploitation tradeoff**

*Independent Researcher | Advisor: Prof. Jian Li, Department of Psychology, PKU*

**Beijing, China**

*November 2023- Present*

- Designed a minimalistic exploration-exploitation paradigm to investigate the interaction between context and exploration behavior.
- Revealed via computational modelling that human adaptively adjust their exploration behavior based on selectively preceding experience on both within-trial and across-trial level. Exploration behavior also influence the human representation to the environment.

## SELECTED COURSE PROJECT

**Limited Categorization Adaptive Discount in Overharvesting Behavior**

*Collaborator | Introduction to Cognitive Modeling | Advisor: Prof. Hang Zhang*

**Beijing, China**

*Mar. 2023 - June 2023*

- Built computational model that incorporate limitation memory and probability distortion on patch foraging task to investigate human structural learning and adaptive planning behavior.

**Planning with Linear Reinforcement learning and Successor Representation**

*Collaborator | Artificial Intelligence for Psychology | Advisor: Prof. Si Wu*

**Beijing, China**

*Mar. 2023 - June 2023*

- Compared the difference between linear reinforcement learning and successor representation algorithm on representation matrix, value function estimation by running model simulation on different environment.

## RELATED RESEARCH EXPERIENCE

**Neural Mechanism of Sound-Induced Flash Illusion**

*Independent Researcher | Advisor: Prof. Ladan Shams, Department of Psychology, UCLA*

**Los Angeles, USA**

*July 2023- Dec 2023*

- Conducted ERP analysis and time-frequency analysis, which discovered ERP components such as P100, P200 and oscillatory activity of the alpha-band and theta-band and related to SIFI.
- Built CNNs and trained the classifier to decode the environmental stimuli based on EEG signals.

**Selective Attention Mechanism in Auditory Working Memory**

*Researcher | Advisor: Prof. Huan Luo, McGovern Institute for Brain Research, PKU*

**Beijing, China**

*Sep. 2022 - Dec. 2023*

- Conducted eye-tracking experiment to investigate how people allocate their attention in multiple auditory streams with diverse acoustic features.
- Revealed via behavioral analysis and built drift-diffusion model that the auditory stream with greater attention resources led to improved auditory working memory performance.

## RESEARCH SKILLS

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- **Code:** Python (Proficient), R(Proficient), MATLAB(Proficient), LATEX(Proficient), Julia (Elementary), JavaScript/CSS/HTML(Intermediate)
- **Data Collection:** Behavior (Lab/Online), Eye-tracking (EyeLink), EEG(BrainVision)
- **Computational:** Reinforcement learning, Hierarchy Bayesian Inference, Artificial Neural Networks
- **Others:** Music (Logic Pro, Sibelius, Musescore), 3D-Modeling (Blender)
- **Language:** Mandarin (Native), English (Fluent), Spanish (Elementary)

## TEACHING EXPERIENCE

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### Psychological Statistics

Beijing, China

Teaching Assistant | Instructor: Prof. Jian Li, School of Psychological and Cognitive Sciences, PKU Sep. 2023 - Dec 2023

- Lead weekly recitations and practice about statistical inference with R, proctor exams, grade assignments, and hold office hours (Course materials could be found in this [link](#))

## INTERNSHIP

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### Twirling

Beijing, China

Internship

Jan. 2024 – May 2024

- Participated in building a large-scale language model (LLM) for psychological counseling through the langchain-chatchat, using Retrieval-Augmented Generation (RAG) to achieve knowledge base LLMs.
- Drafted a research plan for multimodal recognition of psychological disorders, providing insights by integrating machine learning methods and psychological knowledge.

## SCHOLARSHIPS

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- Undergraduate Study Scholarship in School of Psychological and Cognitive Sciences, PKU Oct 2024
- Undergraduate Study Scholarship in School of Psychological and Cognitive Sciences, PKU Oct 2023
- Undergraduate Study Scholarship in School of Psychological and Cognitive Sciences, PKU Oct 2022
- QunZheng Research Funding, PKU(筹政研究基金) April 2023