

LILA (SHUCHEN) LIU

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EDUCATION

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- **Beijing Normal University (BNU)** Sep 2019 - Jun 2023
B.S. in Psychology, Department of Psychology GPA: 90.05/100
 - **University of California(UC), Berkeley** Jan 2022 - Jun 2022
Visiting Student GPA: 3.93/4.00
 - **University of Minnesota (UMN), Twin Cities** Sep 2023 - Apr 2024
Graduate Researcher, Department of Psychology GPA: 3.88/4.00

PUBLICATIONS & PREPRINTS

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- [2] **Liu, S.**, Zhou, K. (Submitted). Tunnel Vision and Beyond: Unveiling Implicit Spatial Learning with the “Mouse-Eye” Approach.
- [1] **Liu, S.** (Submitted). Serial Dependence in the Perception of Looming Stimuli. Preprint on *PsyArXiv*: <https://doi.org/10.31219/osf.io/w7vqs>

POSTERS & PRESENTATIONS

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- [3] **S. Liu**, S. Engel. (2024, May). *Observers Can Learn to Immediately Correct Spatial Distortions Produced by Prescription Lenses*. Poster presented at Vision Sciences Society 2024.
- [2] X. Wu, **S. Liu**, C. Liu. (2023, March). *Attention Modulation of Face-Selective Cortical Responses During Dynamic Degradation of Double-Exposure*. Poster presented at BNU Undergraduate Research Symposium 2023.
- [1] Y. Jin, **S. Liu**, L. Yan, Q. Gao, Y. Zhou. (2022, November). *Altered Social Learning from Losses in Major Depressive Disorder: Insights from Reinforcement Learning Models in the Trust Game*. Talk given at The 4th Annual Academic Conference of the Decision Psychology Division, Chinese Psychological Society..

RESEARCH EXPERIENCE

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- **Visual Perception & Attention Lab, Beijing Normal University** Mar 2023 - Sep 2024
Lab Manager & Research Assistant. Advisor: Dr.Ke Zhou Beijing, CN
Contextual Cueing Effect in Different Viewing Conditions Using “Mouse-Eye” Paradigm [pipeline]
 - Led a comprehensive study with gaze-contingent displays aimed to investigate the contribution of peripheral vision in implicitly guided spatial attention.
 - Designed and implemented a series of PsychoPy-based wrapper programs to fully automate end-to-end studies, from conducting online behavioral experiments to generating visualized core metrics.
 - Utilized the ‘Mouse-as-Eye’ method, an innovative alternative to traditional gaze-contingent eye tracking, to simulate various types of scotomas and provide an effective solution for scalable online experimentation.
 - Peripheral vision loss impaired the learning of spatial contexts under tunnel view search, but facilitation became manifest when the display was made fully visible.
 - **Vision & Imaging Lab, University of Minnesota, Twin Cities** Sep 2023 - Apr 2024
Research Assistant. Advisor: Dr.Stephen Engel Minneapolis, US
Visual Mode Switching: Repeated Adaptation to Spatial Distortions by Meridional-Size Lens [code]
 - Investigated long-term adaptation to optical distortions caused by astigmatism lenses and explored whether observers can learn to switch to a ‘skew mode’ when such configurations are repeatedly encountered.
 - Developed a Matlab-based rectangle adjustment task using the cancellation method to quantify individual spatial distortions resulting from wearing astigmatism spectacles, and measured idiosyncratic visual space distortion.
 - Coordinated participants wearing cylindrical lenses that magnified images along a 45-degree axis during two 2-hour sessions on each of five consecutive days, along with collecting subjective reports.
 - **Social Neuroscience Lab, IDG/McGovern Institute for Brain Research** Sep 2022 - Mar 2023
Research Intern. Advisor: Dr.Chao Liu Beijing, CN
Attention Modulation of Face-Selective Cortical Responses to Degraded Face-House Images [code]
 - Implemented a phase-shuffled double-exposure flow (JavaScript) to investigate attention modulation on hemodynamic signals, and performed fMRI brain scanning with subjects.

- Analyzed and interpreted fMRI data using AFNI in FreeSurfer.
- **Perception & Action Lab, University of California, Berkeley** Feb 2022 - Sep 2022
Research Assistant. Supervisor: Dr. David Whitney Berkeley, US
Serial Dependence in Radiologists: Perception of Mammograms Using Naturalistic Stimuli [code]
 - Examined serial dependence in medical image perception and diagnostic errors among radiologists using GAN-generated mammogram stimuli.
 - Preprocessed raw data and assisted in feature tuning and temporal tuning analyses on response errors in Python.
 - Serial dependence biases perceptual judgments of realistic medical images up to 10 seconds in the past.
- **Social Cognition & Neuroimaging Lab, Chinese Academy of Sciences** Aug 2020 - Sep 2021
Reserach Intern. Advisor: Dr. Yuan Zhou Beijing, CN
The Dynamic of Interpersonal Trust: Evidence from the Repeated Trust Game [code]
 - Studied how personal experience and prior reputation influenced investment decisions in the trust game across different ages, and explored the potential link between personality traits and strategies used.
 - Proposed and designed an enhanced paradigm based on the Repeated Trust Game, with adjustable parameters such as agents' reputation levels and actual trustworthiness.
 - Implemented the entire experiment using E-Prime, launched it online for data collection, and fed the behavioral data into several candidate reinforcement learning models for comparison.

FUNDED PROJECTS

- **BrainCognit: A Region-Aware Contrastive Learning Framework for Functional MRI Analysis [code]**
AWS AI & ML Scholarship Apr 2024 - Present
 - Applied a region-aware graph attention mechanism that leverages the functional specificity, connectivity, and consistency of brain regions across individuals ROIs.
 - Introduced a transformer-based encoder-decoder architecture with contrastive learning to capture temporal dynamics from fMRI signals.
- **3D Percept Fusion: Exploring Depth Perception and Realism via Visual Cues Manipulation in XR [code]**
XR Bootcamp Scholarship Feb 2024 - Present
 - Enhanced a custom experimental framework for the Quest 3 in Unity (C#) and leveraged a VR reaching task to assess perceived depth.
 - Manipulated visual cues including binocular disparity, focus, and texture gradients to explore their integration in enhancing 3D perception in virtual reality.

HONORS & AWARDS

- AWS AI & ML Scholarship Apr 2024
- Elsevier Vision Research Travel Award Feb 2024
- Department of Psychology Graduate Fellowship 2023 - 2024
- Undergraduate Research Symposium Poster Award Mar 2023
- Cognitive Neuroscience Student Travel Award Jul 2021
- First-Class Beijing Normal University Scholarship(Top 5% GPA) 2020 - 2022

SKILLS SUMMARY

- **Programming Languages:** Matlab, R, Python (scikit-learn, Pandas, NumPy, SciPy, TensorFlow), JavaScript, C#
- **Software & Analytical Tools:** PsychoPy, SPSS, Mplus, JASP, E-Prime, Qualtrics, Git
- **Experimental Techniques:** fMRI, Eye tracker

TEACHING & LEADERSHIP

- **Instructor at Tencent Education** Online
Differential Geometry (note) May 2023 - Present
- **Associate Tournament Directors of US Go Congress** Portland, OR, US
Assisted translation, videography and registration coordination July, 2024
- **Teaching Assistant at BNU** Beijing, P.R.China
Matlab Technology in Psychology (code) Spring, 2021
- **Co-Chairman of BNU Go Chess Club** Beijing, P.R.China
Organized Colloquiums on Informatical Analysis of Go Oct 2020 - May 2022

LANGUAGE PROFICIENCY

• TOEFL 111:	Listening 27	Reading 30	Speaking 25	Writing 29
• GRE 332:	Verbal 164	Quant 168	Writing 4.0	