# Zhenan Shao

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## EDUCATION

**University of Illinois, Urbana-Champaign**                      Champaign, Illinois
Ph.D., Psychology, Cognitive Neuroscience Area                   August 2020-Present
Advisor: Diane M. Beck                                           GPA: 4.0/4.0

**University of Illinois, Urbana-Champaign**                      Champaign, Illinois
Master of Computer Science                                       Jan 2024-Present
                                                                 GPA: 4.0/4.0

**University of Minnesota, Twin-Cities**                          Minneapolis, Minnesota
Bachelor of Science, Psychology                                  August 2016-May 2020
Minor in Statistics and Integrative Neuroscience                 GPA: 4.0/4.0
Advisor: Sheng He

## HONORS AND AWARDS

**Elsevier/Vision Research Travel Award**                         2023
The 23th Annual Meeting of the Vision Sciences Society (VSS2023)
**Graduate College Conference Presentation Awards**              2023
Department of Psychology, UIUC
**Illinois Distinguished Fellowship**                            2020-2023
Graduate College, UIUC
**Graduate with high distinction**                               2020
University of Minnesota, Twin-Cities
**Dean's List**                                                  2016-2020
University of Minnesota, Twin-Cities
**Maroon Global Excellence Scholarship**                         2016-2020
University of Minnesota, Twin-Cities

## PUBLICATIONS AND PRESENTATIONS

[1] **Shao, Z.**, Ma, L., Li, B., Beck, D. M., Does Leveraging the Human Ventral Visual Stream Improve Neural Network Robustness? (2024). Oral Presentation at *Vision Science Society (VSS)*, St. Pete Beach, FL.

[2] **Shao, Z.**, Beck, D. M. (2024). Is Attention Necessary for the Representational Advantage of Good Exemplars over Bad Exemplars? *European Journal of Neuroscience*, in print.

[3] **Shao, Z.**, Beck, D. M. (2023). Is Attention Necessary for the Representational Advantage of Good Exemplars over Bad Exemplars? Poster presented at *Vision Science Society (VSS)*, St. Pete Beach, FL. [Link]

[4] Yang, P-L., **Shao, Z.**, Beck, D. M. (2023). The similarity of CNN, behavioral, and PPA feature spaces. Poster presented at *Vision Science Society (VSS)*, St. Pete Beach, FL. [Link]

[5] Castro, M., **Shao, Z.**, Engstrom, M., Teoh, J. Y., Quevedo, K. (2019). Neural correlates of maltreatment timing during self-processing in depressed adolescents. Poster presented at *Minnesota Supercomputing Institute (MSI) Research Exhibition*, Minneapolis, MN.

## Research Experience

**Attention and Perception Lab**, UIUC                                     Champaign, Illinois
Advisor: Diane M. Beck                                                      2020-Present

- Led interdisciplinary projects integrating machine learning with vision neuroscience to unravel the mechanisms behind human object recognition invariance.
- Conducted functional Magnetic Resonance Imaging (fMRI) studies to explore human scene perception, demonstrating proficiency in designing neuroimaging experiment and managing participant sessions.
- Applied various multi-variate pattern analysis (MVPA) methods such as RSA, SVM, and ICA to neuroimaging data to build the theoretical framework of predictive visual processing.

**Vision and Attention Lab**, UMN                                          Minneapolis, Minnesota
Advisor: Sheng He                                                          January 2019- May 2020

- Designed experimental paradigms to examine the temporal properties of visual crowding effect.
- Developed and coded the experimental procedure in Matlab while configuring the necessary experimental equipment for optimal performance.
- Conducted comprehensive statistical analysis on human behavioral data and designed advanced visualization of experimental results.

**Health and Emotions in Adolescent Trajectories laboratory**, UMN        Minneapolis, Minnesota
Advisor: Karina Quevedo                                                    May 2018-May 2020

- Ran data analysis using SPM, Matlab and FSL: extracting, denoising, and reconstructing both anatomical and functional fMRI data obtained from adolescents with major depression disorder.
- Performed statistical tests using SPSS and created visualization using Photoshop.

## Professional Experiences and Acitivities

**Instructor for PSYC 100: Intro to Psychology**                          Champaign, Illinois
University of Illinois, Department of Psychology                           August 2022-December 2022

- Designed the course curriculum and taught two sections independently.
- Graded students' writing assignments and provided feedback for developing transferable writing skills.

**Teaching Assistant for PSYC 489: Neural Network Modeling Lab**          Champaign, Illinois
University of Illinois, Department of Psychology                           Janurary 2022-May 2022

- Conducted office hours to assist and mentor students with programming assignments, emphasizing neural network concepts and debugging techniques.
- Graded weekly assignments and final projects and provided constructive feedback.
- Collaborated with the course instructor to develop and refine programming assignments, enhancing the practical application of course content.

**Office Assistant Student Staff / Direct Service Advocate**              Minneapolis, Minnesota
The Aurora Center for Advocacy and Education, University of Minnesota      February 2017-May 2020

- Completed 40-hour sexual assault and domestic violence prevention advocacy certification training as required by the state of Minnesota.

- Served on 24/7 hotline for victims and survivors of sexual assault, stalking, and domestic violence and responded to medical advocacy for the three hospitals on campus when patients are in need of a sexual violence exam.
- Coordinated outreach events and collaborated with student organizations on campus to promote awareness of women's rights.

**Teaching Assistant for NSCI 2100 Human Neuroanatomy**    Minneapolis, Minnesota
University of Minnesota, Department of Neuroscience    Januarary 2020-May 2020

- Prepared lab materials including sheep and human brains for the 12 lab sections of the class.
- Led and coordinated the lab sections, leading discussions, guiding the dissection of the sheep brains, and quizzing students on anatomical structures.

**Program Coordinator / Volunteer**    Guangzhou & Inner Mongolia, China
DreamNovation (NGO)    March 2017-August 2017

- Organized and promoted the recruitment of 30 volunteers from universities in both North America and China for summer camps held in 5 different provinces each year.
- Worked with 2 local schools to Investigate the dynamics and atmosphere of local communities to be incorporated in future education of the students.

## Skills

Language Skills: Native in Chinese, fluent in English.
Technical Skills: Python, C/C++, Matlab, R, Java, SPSS