

# Engineering & Scientific Consulting Xinyu Liu, Ph.D. Scientist | Human Factors

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## **Professional Profile**

Dr. Liu is an expert in the field of cognitive psychology, with an emphasis on visual attention, visual search, perceptual learning and how humans integrate sensory information to inform and guide actions. He received his doctoral degree in experimental psychology with a supporting minor in statistics from the University of Minnesota. Specifically, Dr. Liu's doctoral work involved utilizing various behavioral, neural imaging and other methodologies to understand the capabilities and limitations of human vision. Dr. Liu utilizes his extensive research experience in human perception to address and offer optimal solutions to a variety of issues in human factors, including but not limited to vehicle and pedestrian safety, personal injury, and safe product interactions including the assessment of warning and instructions.

Prior to joining Exponent, Dr. Liu's research focused on addressing and understanding the limitations and imperfections of human vision including visual perception under low-light conditions, the role of attention allocation in different cognitive tasks, and in general how our perceptual system extracts useful information from a noisy environment. Additionally, Dr. Liu has extensive experience in display color calibration and evaluating display quality using various optical measurements, collecting and analyzing human behavioral and neural imaging data, building and training deep learning artificial neural networks, and other quantitative/data analytic skills.

## Academic Credentials & Professional Honors

- Ph.D., Psychology, University of Minnesota, 2022
- M.A., Social Sciences, University of Chicago, 2015
- B.A., Psychology, Clemson University, 2014

## Academic Appointments

Lecturer, Psychology, University of Minnesota, 2016-2022

Lecturer, Statistics, University of Minnesota, 2020-2022

## **Professional Affiliations**

Vision Science Society (VSS)

#### Languages

Mandarin

#### **Publications**

#### Presentations

Liu, X., & Engel, S. A. (2020). Higher-Level Meta-Adaptation Mitigates Visual Distortions Produced by Lower-Level Adaptation. Psychological Science, 31(6), 654–662. https://doi.org/10.1177/0956797620907090

Liu, X., Li, Y., & Engel, S. (2021). Training on groups of similar faces decreases similarity both within and between groups. Journal of Vision, 21(9), 2657-2657.

Liu, X., Mesik, J., & Engel, S. (2018). Later visual areas can adapt to adapted input from earlier visual areas. Journal of Vision, 18(10), 764-764.

Liu, X., Zhuang, X., & Shevell, S. (2016). Flicker adaptation and neural transmission speed in the human MC pathway. Journal of Vision, 16(12), 1225-1225.