Kristine X. Zheng

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Education

Massachusetts Institute of Technology *Cambridge, MA*

B.S. in Computer Science and Brain & Cognitive Sciences; GPA; 5.0/5.0 *Sept. 2020 – May 2024*

Minor in Women's and Gender Studies

Awards & Honors

2024 - **IRiSS Predoctoral Research Fellowship,** Stanford University

2023 - 2024 **EECS | CS + HASS Undergraduate Research & Innovation Scholar,** MIT

2024 **Phi Beta Kappa,** MIT Xi Chapter

2024 **Undergraduate Research Award,** MIT BCS

2023, 2024 **Academic Award,** MIT BCS

2023 **Eta Kappa Nu Society (IEEE-HKN),** MIT Beta Theta Chapter

Research Experience

Cognitive Tools Lab, Stanford

Predoctoral Research Fellow & Lab Manager. Advised by Judith Fan *July 2024 - Present*

- Leading projects designing field experiments with digital learning platforms to study how student background and engagement impact learning outcomes in college-level data science courses. Leveraging learning analytics and statistical modeling in R to analyze longitudinal student behavior. Developing and testing mindset interventions in classrooms.
- Designing online behavioral experiments and computational models to investigate how humans and multimodal language models collaborate in real-time to create visual depictions (i.e. line drawings and realistic images). Classified and evaluated outputs with CLIP models and regression models.
- Characterizing perceptual and experiential features underlying enjoyable game play by webscraping and analyzing an online Sokoban corpus.

Computational Cognitive Science Group, MIT

Research Assistant. Advised by Joshua Tenenbaum, Vivian Paulun, Max Siegel *Sept. 2022 - May 2024*

- Compared object shape and material property (e.g., elasticity, viscosity) reasoning in humans and deep neural networks by processing images and videos, extracting model features, and conducting analyses using Python and MATLAB.

Early Childhood Cognition Lab, MIT

Independent Study. Advised by Laura Schulz, Max Siegel *Sept. 2023 - May 2024*

- Led a project investigating children's intuitive stability judgments by designing and piloting a online Lookit experiment assessing 4–5-year-olds' responses to dynamic block-stacking stimuli. Developed a protocol to test hypotheses of intuitive physics by comparing experimental data against an Bayesian model.

Niv Lab, Princeton

Research Intern. Advised by Yael Niv, Rachel Bedder *June 2022 - Aug. 2022*

- Designed an online experiment to study the impact of positive and negative valence on latent state inference using jsPsych.
- Created a real-time stimulus rendering framework for online experiments that dynamically samples features from distributions.

DiCarlo Lab, MIT

Research Assistant. Advised by James DiCarlo, Kohitij Kar *Sept. 2021 - May 2022*

- Compared object size representation biases between macaque IT neural responses and deep neural networks features under the Ponzo Illusion. Developed benchmarks for primate-aligned vision models.

Publications

Zheng, K., Brockbank, E., Schwartz, S. T., Bryan, C., Dweck, C., and Fan, J. E. (2025). Linking student psychological orientation, engagement, and learning in college-level introductory data science. *Proceedings of the 47th Annual Meeting of the Cognitive Science Society.*

Chu, J., **Zheng, K.**, and Fan, J. E. (2025). What makes people think a puzzle is fun to solve? *Proceedings of the 47th Annual Meeting of the Cognitive Science Society.*

Vinker, Y., Shaham, T.R., **Zheng, K.**, Zhao, A., Fan, J., & Torralba, A. (2025). SketchAgent: Language-Driven Sequential Sketch Generation. *Computer Vision and Pattern Recognition (CVPR). Nashville, TN.*

Gong, Y., Liu, W., Wang, R., Brauer, M.H., **Zheng, K.**, & Li, W. (2020). Stability Performance Analysis of Various Packaging Materials and Coating Strategies for Chronic Neural Implants under Accelerated, Reactive Aging Tests. *Micromachines*, 11(9), 810.

Gong, Y., Brauer M.H., **Zheng, K.** & Li, W. (2020). Accelerated, Reactive Aging Tests of Parylene C, SiO2, and Si3N4 Packages for Chronic Neural Implants. *IEEE 15th International Conference on Nano/Micro Engineered and Molecular System (NEMS)*. San Diego, CA.

Presentations

Zheng, K., Brockbank, E., Schwartz, S. T., Bryan, C., Dweck, C., and Fan, J. E. (2025). What do patterns in student engagement dynamics reveal about the relationship between mindsets, attitudes, and learning outcomes? *CourseKata DREAM Workshop for Advancing Data Science Education.*

Zheng, K., Brockbank, E., Schwartz, S. T., Bryan, C., Dweck, C., and Fan, J. E. (2024). How does student mindset impact engagement and learning outcomes in introductory data science? *CourseKata DREAM Workshop for Advancing Data Science Education.*

Paulun, V.C., Siegel, M.H., **Zheng, K.**, & Tenenbaum, J. (2024). Perceiving materials and objects from semi-visible interactions. *Annual meeting of the Vision Science Society (VSS), St. Petersburg, FL.*

Zheng, K. & Yu, I. (2023). Jenga as a Performance Art: Computational Generation of Surprisingly Stable Structures. *IEEE MIT Undergraduate Research Technology Conference (URTC). Cambridge, MA.*

Paulun, V.C., **Zheng, K.**, Kar, K., (2022). Distributed population activity in the macaque inferior temporal cortex but not current deep neural networks predict the ponzo illusion. *Annual meeting of the Vision Science Society (VSS), St. Pete Beach, Florida.*

Zheng, K., Bedder, & R., Niv, Y. (2022). How do Humans Generalize and Discriminate Between Experiences? *Society for Neuroscience, FUN Undergraduate Poster Session. San Diego, CA.*

Invited Talks

2025, May **Teaching and Learning Lab (TALL), UCLA.**

Teaching

Courses

2025 **PSYCH 10 / Stats 60 Intro to Statistical Methods, Stanford.** Research & Course design
2024 **PSYCH 10 / Stats 60 Intro to Statistical Methods, Stanford.** Research & Course design
2024 **9.00 Introduction to Psychology, MIT.** Teaching Assistant
2023 **9.00 Introduction to Psychology, MIT.** Teaching Assistant

Guest Lectures

2025 **Data Visualizations in Python** Workshop for the Stanford Educational Impact fellows

Mentoring

2025 **Nanxi Jiang,** Statistics Undergraduate Research Program, Stanford

Professional Experience

TigerGraph

Developer Advocate Intern *Jan. - Aug. 2022*

- Developed full-stack recommendation applications using graph databases; provided support to clients and user community; led workshops on graph databases and algorithms

Service & Outreach

University Service

2024	**MIT BCS Visiting Committee** Student Representative
2023 - 2024	**MIT Ad Hoc Committee on Arts, Culture, and DEI** Student Representative
2023 - 2024	**MIT Voxel Lab (Art & Music Innovation Makerspace)** Staff & Mentor
2021 - 2024	**MIT Peers Leading Education About Sexuality and Speaking Up for Relationship Empowerment (PLEASURE)** Workshop Leader & Community Facilitator
2020 - 2024	**MIT Undergraduate Association** Innovation Committee Exec.; Lead for *Banana Lounge* and Craft Market

Community Outreach

2024, 2025	**Stanford Psychology Paths to PhD program** Mentor & Volunteer
2024 - 2025	**Stanford Science Penpals Program** Penpal & Mentor
2025	**Stanford Brain Day** Volunteer TA for local middle school students
2023	**Neuroscience behind perceptual illusions** Workshop designer & instructor for HS students with MIT ESP Splash
2023	**Jenga as a Performance Art** MIT Presidential Inauguration Weekend Exhibit – Garden of the Mind: Reflections & explorations of the mind through its physical creations.

Field Service

2025	**Cognitive Science Symposium: Minds at School** Co-Organizer

Conference Reviewing

2025	**Cognitive Science Society**