

# Kristine Zheng

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## Education

### Massachusetts Institute of Technology

B.S. IN COMPUTER SCIENCE AND BRAIN & COGNITIVE SCIENCES; GPA: 5.0/5.0

- Minor in Women's and Gender Studies

Cambridge, MA

Sept. 2020 – May 2024

## Awards & Honors

- 2024 - Pres. **IRISS Predoctoral Research Fellowship**, Stanford
- 2023 - 2024 **EECS | CS + HASS Undergraduate Research & Innovation Scholarship**, 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**, MIT Beta Theta Chapter
- 2021 - 2023 **Undergraduate Research Opportunities Program (UROP) Grant**, MIT
- 2022 **Princeton Neuroscience Institute Summer Internship Program (PNI-SIP)**

## Research Experience

### Cognitive Tools Lab, Stanford

ADVISED BY JUDITH FAN

July 2024 - Present

- Investigating social and cognitive mechanisms that support the development of statistics reasoning (e.g. problem solving, visualization, programming, natural language) in formal education through large-scale field experiments

### Computational Cognitive Science Group, MIT

ADVISED BY JOSHUA TENENBAUM, VIVIAN PAULUN, MAX SIEGEL

Sept. 2022 - Present

- Characterizing childhood development of physical stability and support reasoning, co-advised by Laura Schulz (MIT ECCL)
- Evaluated human and neural network model perception of nonrigid objects' physical properties (e.g. elasticity, viscosity)
- Leveraged a Bayesian theory-based intuitive physics model to assess the stability of programmatically generated 3D structures

### Niv Lab, Princeton

ADVISED BY Yael Niv, Rachel Bedder

June 2022 - Aug. 2022

- Developed a real-time stimulus generator pipeline and studied the effects of valence on latent state inference
- Simulated reinforcement learning models (e.g. Markov decision processes, actor-critic) for human behavioral studies

### DiCarlo Lab, MIT

ADVISED BY JAMES DICARLO, KOHITIJ KAR

Sept. 2021 - May 2022

- Evaluated object size representation bias in DCNNs and primate IT, and contributed benchmarks for primate-aligned vision models

## Presentations & Publications

Paulun, V.C., Siegel, M., **Zheng, K.**, Tenenbaum, J. (2024). Perceiving materials and objects from semi-visible interactions. *Journal of Vision*, 24(11).

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

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

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. *Journal of Vision*, 22(14).

Gong, Y., Brauer M.H., **Zheng, K.** and Li, W. (2020). Accelerated, Reactive Aging Tests of Parylene C, SiO<sub>2</sub>, and Si<sub>3</sub>N<sub>4</sub> Packages for Chronic Neural Implants. *IEEE 15th International Conference on Nano/Micro Engineered and Molecular System (NEMS)*. San Diego, CA.

Gong, Y., Liu, W., Wang, R., Brauer, M.H., **Zheng, K.**, and 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.

## Teaching Experience

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### TEACHING ASSISTANT

Fall '24 **PSYCH 10 Introduction to Statistical Methods** Stanford

Sp. '23, '24 **9.00 Introduction to Psychology** MIT

## Professional Experience

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### TigerGraph

DEVELOPER ADVOCATE INTERN

Jan. - Aug. 2022

- Developed full-stack applications, worked with clients and user community, and led workshops (Women Who Code)

### Optum

SOFTWARE ENGINEERING INTERN WITH THE ADVANCED TECHNOLOGY COLLABORATIVE

June - Aug. 2021

- Constructed recommendation systems with machine learning graph algorithms

## Service & Outreach

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### OUTREACH

Fall '23 **"Neuroscience behind perceptual illusions"** seminar for HS students with MIT ESP Splash

Sp '23 **"Jenga as a Performance Art"** MIT Presidential Inauguration Weekend Exhibit – Garden of the Mind: Reflections & explorations of the mind through its physical creations.

### UNIVERSITY & COMMUNITY SERVICE

Sp '24 **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)** Facilitator

2020 - 2024 **MIT Undergraduate Association** Exec. and Project Lead (Banana Lounge, Craft Market)

## Skills & Misc

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**Programming:** Python, JavaScript, R, MATLAB, SQL/GSQL, HTML & CSS

**Research Tools:** PyTorch, jsPsych, ROS, Blender, Realflow, Qualtrics, Adobe Creative Suite

**Misc:** Design – created logos and merchandise for various orgs. at Umich, MIT, and Stanford