

# Judith E. Fan

Assistant Professor  
Department of Psychology  
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URL: <https://cogtoolslab.github.io>

## Academic Positions

2023 – *Assistant Professor*, Psychology, Stanford University  
2019–2023 *Assistant Professor*, Psychology, University of California, San Diego  
*Affiliated Faculty*, Neurosciences Graduate Program, Halıcıoğlu Data Science  
Institute, The Design Lab, Computational Social Sciences Program  
2017–2019 *Postdoctoral Scholar*, Psychology, Stanford University  
2016 *Postdoctoral Research Associate*, Neuroscience Institute, Princeton University

## Education

2011–2016 *PhD*, Psychology, Princeton University  
2006–2010 *AB*, Neurobiology and Statistics, Harvard College  
*summa cum laude*

## Selected Honors

2021 Outstanding Faculty Mentorship Award, UC San Diego Graduate Student Association  
2017 Robert J. Glushko Prize for Outstanding Doctoral Dissertation, Cognitive Science Society  
2017 Finalist for the NIH Director’s Early Independence Award  
2015 Computational Modeling Paper Prize in Perception & Action, Cognitive Science Society  
2013 Early Graduate Student Researcher Award, American Psychological Association  
2013 Object Perception, Attention, and Memory (OPAM) Student Travel Award  
2009 Phi Beta Kappa, Harvard University  
2007–2008 John Harvard Scholar, Harvard University (top 5% of class)  
2006–2007 Harvard College Scholar, Harvard University (top 10% of class)  
2006 Presidential Scholar, U.S. Department of Education (1 of 2 selected from state)

## Research Grants

2023-2024	Generative AI & the Future of Learning Seed Grant Source: Stanford Accelerator for Learning and Stanford Institute for Human-Centered Artificial Intelligence (HAI) Title: Generating descriptions of data visualizations to improve accessibility and learning outcomes in STEM education Role: co-PI (w/ Chris Potts & Elisa Kreiss)
2022-2023	School of Social Sciences Research Grant Source: UC San Diego Title: Measuring, modeling, and improving graph comprehension Role: PI
2021-2026	Faculty Early Career Development Program (CAREER) Award Source: National Science Foundation Title: Mechanisms enabling the flexible expression of visual concepts Role: PI
2021-2024	Science of Autonomy Research Grant Source: Office of Naval Research Title: Harnessing human intelligence for adaptive human-robot collaboration Role: co-PI, w/ Dorsa Sadigh
2021-2023	Hoffman-Yee Research Grant Source: Stanford Institute for Human-Centered Artificial Intelligence Title: Curious, self-aware AI agents to build cognitive models and understand developmental disorders Role: co-PI, w/ Daniel Yamins, Mike Frank, Nick Haber, & Dennis Wall
2020-2021	Course Development and Instructional Improvement Program Grant Source: UC San Diego Title: Enhancing the Psychology core methods curriculum: a new emphasis on computational literacy, open-science practices, and project-based collaboration Role: PI, w/ Emma Geller and Celeste Pilegard
2015-2016	Council of the Humanities David A. Gardner '69 Magic Project Grant Source: Princeton University Title: Drawing as a window into the mind Role: PI, w/ Nick Turk-Browne

## Fellowships

2015-2016	Cognitive Science Graduate Student Fellowship, Princeton University
2015-2016	Cognitive Science Graduate Research Grant, Princeton University
2015-2016	Council on Science and Technology Research Grant, Princeton University
2013-2016	Graduate Research Fellowship, National Science Foundation
2011-2012	Andrew W. Mellon Foundation Research Fellowship in Cultural Policy, Princeton University

2011-2012	Walker McKinney '50 Life Sciences Fellowship, Princeton University
2010-2011	Michael C. Rockefeller Foundation Memorial Fellowship, Harvard University
2009	Mary G. Roberts Mind/Brain/Behavior Thesis Fellowship, Harvard University
2009	Program for Research in Science and Engineering Fellowship, Harvard University
2008	Weissman International Internship Program Fellowship, Harvard University
2008	Lowe Career Decision Loan Fund Recipient, Harvard University
2007	Museum of Comparative Zoology Grants-in-Aid Recipient, Harvard University
2007-2009	Harvard College Research Program Fellowship, Harvard University
2006-2010	T.W. Lewis Foundation Scholar & Robert C. Byrd Scholar

## Publications

<i>under review</i>	Mukherjee, K., Huey, H., Lu, X., Vinker, Y., Aguina-Kang, R., Shamir, A., and <b>Fan, J.</b> ( <i>under review</i> ). SEVA: Leveraging sketches to evaluate alignment between human and machine visual abstraction.
<i>under review</i>	Brockbank*, E., Lloyd*, H., Tait, Z., Bear, A., Liao, S., and <b>Fan, J.</b> ( <i>under review</i> ). Measuring links between student attitudes, engagement, and learning in introductory data science courses.
<i>under review</i>	Holt, S., Barner, D., and <b>Fan, J.</b> ( <i>under review</i> ). Creating ad hoc representations of number.
<i>under review</i>	McCarthy, W., Kirsh, D., and <b>Fan, J.</b> ( <i>under review</i> ). Shared biases in reasoning about physical assembly.
<i>under review</i>	Long, B., <b>Fan, J.</b> , Chai, Z., and Frank, M. ( <i>under review</i> ). Parallel developmental changes in children's drawing and recognition of visual concepts.
<i>under review</i>	Allen, K., Brändle, F.,... <b>Fan, J.</b> , ... Schulz, E. ( <i>under review</i> ). Using games to understand the mind.
2023	<b>Fan, J.</b> , Bainbridge, W., Chamberlain, R., and Wammes, J. (2023). Drawing as a versatile cognitive tool. <i>Nature Reviews Psychology</i> .
2023	Hawkins, R., Sano, M., Goodman, N., and <b>Fan, J.</b> (2023). Visual resemblance and interaction history jointly constrain pictorial meaning. <i>Nature Communications</i> .
2023	Huey, H., Lu, X., Walker, C. and <b>Fan, J.</b> (2023). Explanatory drawings prioritize functional properties at the expense of visual fidelity. <i>Cognition</i> .
2023	Long, B., Wang, Y., Christie, S., Frank, M., and <b>Fan, J.</b> (2023). Developmental changes in drawing production under different memory demands in a U.S. and Chinese sample. <i>Developmental Psychology</i> .
2023	Lu, X., Wang, X., and <b>Fan, J.</b> . (2023). The photo-sketch correspondence problem: a new benchmark and a self-supervised approach. <i>International Conference on Machine Learning (ICML)</i> .

- 2023 Gweon, H., **Fan, J.**, Kim, B. (2023). Beyond imitation: Machines that understand and are understood by humans. *Philosophical Transactions of the Royal Society A*.
- 2023 Binder, F., Mattar, M., Kirsh, D., and **Fan, J.** (2023). Humans choose visual subgoals to reduce cognitive cost. *Proceedings of the 45th Annual Meeting of the Cognitive Science Society*.
- 2023 Mukherjee, K., Huey, H., Lu, X., Vinker, Y., Aguina-Kang, R., Shamir, A., and **Fan, J.** (2023). Evaluating machine comprehension of sketch meaning at different levels of abstraction. *Proceedings of the 45th Annual Meeting of the Cognitive Science Society*.
- 2023 Huey\*, H., Oey\*, L., Lloyd, H., and **Fan, J.** (2023). How do communicative goals guide which data visualizations people think are effective? *Proceedings of the 45th Annual Meeting of the Cognitive Science Society*.
- 2023 Martinez, J., Binder, F., Wang, H., Haber, N., **Fan, J.**, and Yamins, D. (2023). Humans choose visual subgoals to reduce cognitive cost. *Proceedings of the 45th Annual Meeting of the Cognitive Science Society*.
- 2022 Wong\*, C., McCarthy\*, W., Grand\*, G., Friedman, Y., Tenenbaum, J., Andreas, J., Hawkins, R., and Fan, J. (2022). Identifying concept libraries from language about object structure. *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*.
- 2022 Brockbank\*, E., Wang\*, H., Yang, J., Mirchandani, S., Erdem Bıyık, E., Sadigh, D., and Fan, J. (2022). How do people incorporate advice from artificial agents when making physical judgments? *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*.
- 2022 Huey\*, H., Long\*, B., Yang, J., George, K., and Fan, J. (2022). Developmental changes in the semantic part structure of drawn objects. *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*.
- 2022 Wang, H., Allen, K., Vul, E., and Fan, J. (2022). Generalizing physical prediction by composing forces and objects. *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*.
- 2022 Wang, H., Yang, J., Tamari, R., and Fan, J. (2022). Communicating understanding of physical dynamics in natural language. *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*.
- 2021 \*Bear, D., \*Wang, E., \*Mrowca, D., \*Binder, F., Tung, H.-Y., RT, P., Holdaway, C., Tao, S., Smith, K., Sun, F.-Y., Li, F.-F., Kanwisher, N., Tenenbaum, J., \*\*Yamins, D., and \*\***Fan, J.** (2021). Physion: Evaluating physical prediction from vision in humans and machines. *In Advances in Neural Information Processing Systems (Datasets & Benchmarks Track) 2021*.
- 2021 Binder, F., Mattar, M., Kirsh, D. and **Fan, J.** (2021). Visual scoping operations for physical assembly. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.
- 2021 Holdaway, C., Bear, D., Radwan, S., Frank, M., Yamins, D., and **Fan, J.** (2021). Measuring and predicting variation in the interestingness of physical structures. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.
- 2021 Holt, S., Barner, D., and **Fan, J.** (2021). Improvised numerals rely on 1-to-1 correspondence. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.
- 2021 Huey, H., Walker, C., and **Fan, J.** (2021). How do the semantic properties of visual explanations guide causal inference? *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.

2021 Kachergis, G., Radwan, S., Long, B., **Fan, J.**, Lingelbach, M., Bear, D., Yamins, D., and Frank, M. (2021). Predicting children’s and adults’ preferences in physical interactions via physics simulation. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.

2021 \*McCarthy, W., \*Hawkins, R., Wang, H., Holdaway, C., and **Fan, J.** (2021). Learning to communicate about shared procedural abstractions. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.

2021 McCarthy, W., Mattar, M., Kirsh, D. and **Fan, J.** (2021). Connecting perceptual and procedural abstractions in physical construction. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.

2021 Wang, H., Polikarpova, N., and **Fan, J.** (2021). Learning part-based abstractions for visual object concepts. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.

2021 Wang, H., Vul, E., Polikarpova, N., and **Fan, J.** (2021). Theory acquisition as constraint-based program synthesis. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.

2021 Yang, J. and **Fan, J.** (2021). Visual communication of object concepts at different levels of abstraction. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.

2020 McCarthy, W., Holdaway, C., Hawkins, R., and **Fan, J.** (2020). Emergence of compositional abstractions in human collaborative assembly. *NeurIPS Workshop on Object Representations for Learning and Reasoning*.

2020 McCarthy, W., and **Fan, J.** (2020). Rapid policy updating in human physical construction. *ICML Workshop on Object-Oriented Learning: Perception, Representation, and Reasoning*.

2020 Wang, H., and **Fan, J.** (2020). Library learning for structured object concepts. *ICML Workshop on Object-Oriented Learning: Perception, Representation, and Reasoning*.

2020 McCarthy W., Kirsh D., & **Fan J.** (2020). Learning to build physical structures better over time. *Proceedings of the 42nd Annual Meeting of the Cognitive Science Society*.

2020 **Fan J.**, Wammes J., Gunn J., Yamins D., Norman K., Turk-Browne N. (2020). Relating visual production and recognition of objects in human visual cortex. *Journal of Neuroscience*.

2020 Xu T., **Fan J.**, & Dow S. (2020). Schema and metadata guide the collective generation of relevant and diverse insights. *Proceedings of the 8th AAAI Conference on Human Computation and Crowdsourcing*.

2020 **Fan J.**, Hawkins R., Wu M., & Goodman N. (2020). Pragmatic inference and visual abstraction enable contextual flexibility during visual communication. *Computational Brain & Behavior*.

2019 Achlioptas, P., **Fan J.**, Hawkins R., Guibas L., & Goodman N. (2019). ShapeGlot: Learning language for shape differentiation. *International Conference on Computer Vision (ICCV)*.

2019 Hawkins R\*, Sano, M.\*, Goodman N., & **Fan J.** (2019). Graphical convention formation during visual communication. *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*.  
\* equal contribution; Sayan Gul Travel Award

2019 Mukherjee K., Hawkins R., & **Fan J.** (2019). Communicating semantic part information in drawings. *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*.

2019 Long B., **Fan J.**, Chai R., & Frank M. (2019). Developmental changes in the ability to draw distinctive features of object categories. *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*.

- 2019 **Fan J.**, Dinculescu M., & Ha D. (2019). Collabdraw: An environment for collaborative sketching with an artificial agent. *Proceedings of the 2019 ACM SIGCHI Conference on Creativity and Cognition*.
- 2018 Cullen S., **Fan J.**, van der Brugge E., & Elga A. (2018). Improving analytical reasoning and argument understanding: A quasi-experimental field study of argument visualization. *npj Science of Learning*.
- 2018 **Fan J.**, Yamins D., & Turk-Browne, N. (2018) Common object representations for visual production and recognition. *Cognitive Science*.
- 2018 Long, B., **Fan J.**, & Frank M. (2018) Drawing as a window into developmental changes in object representations. *Proceedings of the 40th Annual Conference of the Cognitive Science Society*.
- 2016 **Fan J.**, Hutchinson, J., and Turk-Browne, N. (2016) When past is present: Substitutions of long-term memory for sensory evidence in perceptual judgments. *Journal of Vision*. 16(8), 1-12.
- 2016 **Fan J.** and Turk-Browne, N. (2016) Incidental biasing of attention from long-term memory. *Journal of Experimental Psychology: Learning, Memory, & Cognition*. 42(6), 970-977.
- 2016 **Fan J.**, Turk-Browne, N., & Taylor, J. (2016) Error-driven learning in statistical summary perception. *Journal of Experimental Psychology: Human Perception and Performance*, 42(2), 266-280.
- 2015 **Fan J.**, Yamins D., & Turk-Browne, N. (2015) Common object representations for visual recognition and production. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*.
- 2015 **Fan J.** (2015) Drawing to learn: how producing graphical representations enhances scientific thinking. *Translational Issues in Psychological Science*. 1(2), 170-181.
- 2014 **Fan J.** and Suchow, J. (2014) The crowd is self-aware. *Behavioral and Brain Sciences*, 37(1), 81-82.
- 2013 **Fan J.** and Turk-Browne, N. (2013) Internal attention to features in visual short-term memory guides object learning. *Cognition*, 129(2), 292-308.
- 2013 **Fan J.**, Turk-Browne, N., & Taylor, J. (2013) Feedback-driven tuning of statistical summary representations. *Visual Cognition*, 21(6), 685-689.
- 2013 **Fan J.** (2013) Can ideas about food inspire real social change? The case of Peruvian gastronomy. *Gastronomica*, 13(2), 31-42.
- 2010 Strange B., Kroes M., **Fan J.**, & Dolan R. (2010) Emotion causes targeted forgetting of established memories. *Frontiers in Behavioral Neuroscience*. 4, 1-13.
- 2009 Sharot T., Shiner T. Brown A., **Fan J.**, & Dolan, R. (2009) Dopamine enhances expectation of pleasure in humans. *Current Biology*, 24(19), 2077-1080.

## Invited Talks

- 2023 Cognitive tools for uncovering useful abstractions  
*National Taiwan University, August 2023*
- 2023 Learning to communicate about shared procedural abstractions  
*Computational Summer School on Modeling Social and collective behavior (COSMOS), July 2023.*

2023 Advancing cognitive science and AI through Cognitive-AI Benchmarking  
*Conference on Human-Compatible Artificial Intelligence, June 2023.*

2023 How do visual content and communicative context determine pictorial meaning?  
*Workshop on Imagistic Cognition, May 2023.*

2023 How do visual content and communicative context determine pictorial meaning?  
*Studies in Language, Information, Meaning, and Expression, May 2023.*

2023 Discovering abstractions that bridge perception, action, and communication  
*Workshop on Neurosymbolic Generative Models at ICLR, May 2023.*

2023 How do visual content and social context influence pictorial meaning?  
*Second Salzburg Workshop on Imagistic Cognition, May 2023.*

2023 Discovering abstractions that bridge perception, action, and communication  
*Invited Symposium on "Learning and generalization in humans and machines" at Cognitive Neuroscience Society, March 2023.*

2023 Cognitive technologies for uncovering useful abstractions  
*University of California, Santa Barbara, March 2023.*

2023 Cognitive technologies for uncovering useful abstractions  
*Carnegie Mellon University, February 2023.*

2023 Cognitive tools for uncovering useful abstractions  
*University of Oregon, January 2023.*

2022 Towards human-like understanding of 3D physical scenes  
*ECCV: Language for 3D Scenes Workshop, October 2022.*

2022 Physion: Evaluating physical prediction from vision in humans and machines  
*ECCV: Visual object-oriented Learning meets Interaction (VOLI) Workshop, October 2022.*

2022 Cognitive technologies for uncovering useful abstractions  
*University of California, Merced, September 2022.*

2022 Cognitive technologies for uncovering useful abstractions  
*Diverse Intelligences Summer Institute, August 2022.*

2022 Cognitive tools for uncovering useful abstractions  
*Max-Planck Institute for Biological Cybernetics, July 2022.*

2022 Learning to communicate about shared procedural abstractions  
*CVPR: Artificial Social Intelligence Workshop, June 2022.*

2022 Physion: Evaluating physical prediction in humans and machines  
*CVPR: Graph Machine Learning for Visual Computing Tutorial, June 2022.*

2022 Cognitive tools for uncovering useful abstractions  
*University of California, Irvine, April 2022.*

2022 Cognitive tools for uncovering useful abstractions  
*University of Wisconsin-Madison, March 2022.*

2022 Cognitive tools for uncovering useful abstractions  
*Dartmouth College, February 2022.*

2022 Cognitive tools for uncovering useful abstractions  
*Stanford University, February 2022.*

2022 Cognitive tools for uncovering useful abstractions  
*University of California, Los Angeles, January 2022.*

2021 Visual content and social context jointly determine pictorial meaning  
*Psychonomics Symposium: Beyond the Button Press: Studying the Mind Through Drawings, November 2021.*

2021 Cognitive tools for learning and communication  
*Configural Processing Consortium Keynote Talk, November 2021.*

2021 Cognitive tools for learning and communication  
*University of Edinburgh Computational Cognitive Science Seminar, October 2021.*

2021 Cognitive technologies for visual communication  
*CogSci 2021 Workshop: Symbolic and sub-symbolic systems in people and machines, July 2021.*

2021 Drawing games as a window into concepts, communication, and collaboration.  
*CogSci 2021 Workshop: Using games to understand intelligence, July 2021.*

2021 Cognitive technologies for making the invisible visible  
*Diverse Intelligences Summer Institute, July 2021.*

2021 Relating visual production and recognition in human visual cortex.  
*Wellcome Trust Centre for Neuroimaging, June 2021.*

2021 Cognitive tools for making the invisible visible.  
*Workshop on Sketch-Oriented Deep Learning, CVPR, June 2021.*

2021 Cognitive tools for learning and communication.  
*Nokia Bell Labs, February 2021.*

2021 Cognitive tools for learning and communication.  
*Department of Cognitive, Linguistic & Psychological Sciences, Brown University, February 2021.*

2020 Cognitive tools for learning and communication.  
*Institute for Cognitive Science, University of Michigan, December 2020.*

2020 Cognitive tools for making the invisible visible.  
*Department of Philosophy, University of Southern California, June 2020.*

2020 Emergence of graphical communication protocols.  
*Robotics: Science & Systems Workshop: Emergent Behaviors in Human-Robot Systems, July 2020.*

2020 Cognitive tools for making the invisible visible.  
*ICLR Workshop on Bridging AI and Cognitive Science, Addis Ababa, Ethiopia, April 2020.*

2019 Cognitive tools for learning and communication.  
*Design @ Large, UC San Diego, La Jolla, CA, May 2019.*

2019 Cognitive tools for learning and communication.  
*Halicioğlu Data Science Institute, UC San Diego, La Jolla, CA, January 2019.*

2018 Cognitive tools for learning and communication.  
*Hult International Business School, San Francisco, CA, April 2018.*

2018 Drawing as a window into the mind.  
*Netflix, Los Gatos, CA, April 2018.*

2018 Cognitive tools for learning and communication.  
*University of California Berkeley, Berkeley, CA, February 2018.*



- 2018 Cognitive tools for learning and communication.  
*University of California San Diego, La Jolla, CA, January 2018.*
- 2018 Cognitive tools for learning and communication.  
*Indiana University, Bloomington, IN, January 2018.*
- 2017 Drawing as a window into the mind.  
*Rhode Island School of Design, Providence, RI, November 2017.*
- 2017 Role of cognitive actions in learning.  
*Annual Meeting of the Cognitive Science Society, London, UK, July 2017.*
- 2016 Drawing as a window into the mind.  
*Princeton University Art Museum, Princeton, NJ, October 2016.*
- 2016 Drawing as cognitive technology.  
*Drawing and the Brain Symposium, Indiana University Center for Art + Design, Bloomington, IN, April 2016.*
- 2016 Drawing to learn: how visual production refines object representations.  
*Indiana University in Bloomington, IN, April 2016.*
- 2015 Drawing as a window into learning.  
*Educational Testing Service, Princeton, NJ, October, 2015.*
- 2015 Common object representations for visual recognition and production.  
*University of British Columbia, Vancouver, BC, March, 2015.*
- 2015 Drawing as a window into the mind.  
*Smart Design, New York City, NY, March, 2015.*
- 2013 Can ideas about food lead to real social change?  
*Princeton Woodrow Wilson School Bernstein Gallery Art Exhibit on “Cooking for Change”, Princeton, NJ, May 2013.*
- 2011 Apégate a la causa! La gastronomía peruana como fenómeno social total.  
*Faculty of Social Sciences, Pontificia Universidad Católica del Perú, Lima, Peru, July 2011.*

## Conference Presentations

- 2023 Cognitive Science Society.
- 2023 International Conference on Machine Learning (ICML).
- 2023 International Conference on Learning Representations (ICLR) Workshop on Neurosymbolic Generative Models.
- 2023 Cognitive Neuroscience Society.
- 2022 Cognitive Science Society.
- 2022 Computer Vision and Pattern Recognition (CVPR).
- 2022 Society for Philosophy and Psychology Annual Meeting.
- 2021 Annual Meeting of the Psychonomic Society.
- 2021 Cognitive Science Society.
- 2021 Computer Vision and Pattern Recognition (CVPR).
- 2021 Society for Philosophy and Psychology Annual Meeting.

2020 Robotics: Science & Systems Workshop: Emergent Behaviors in Human-Robot Systems.  
 2020 Cognitive Science Society.  
 2020 ICML Workshop on Object-Oriented Learning: Perception, Representation, and Reasoning.  
 2020 ICLR Workshop on Bridging AI and Cognitive Science.  
 2019 Cognitive Science Society. *Sayan Gul Travel Award*.  
 2019 Society for Philosophy and Psychology Annual Meeting.  
 2019 ACM SIGCHI Conference on Creativity and Cognition.  
 2018 Vision Sciences Society.  
 2018 Society for Neuroscience.  
 2017 Vision Sciences Society.  
 2017 Cognitive Science Society. *Glushko Dissertation Prize*.  
 2016 Vision Sciences Society.  
 2015 Vision Sciences Society.  
 2015 Cognitive Science Society. *Computational Modeling Paper Prize*.  
 2014 Vision Sciences Society.  
 2014 ACM SIGGRAPH.  
 2013 Vision Sciences Society.  
 2013 Annual Meeting on Object Perception, Attention, and Memory (OPAM). *Student Travel Award*  
 2013 Annual Meeting of the Psychonomic Society.  
 2012 Vision Sciences Society.  
 2012 New School for Social Research Sociology Conference.  
 2010 Vision Sciences Society.

## Advising

### STUDENTS

#### UC San Diego

##### *Graduate Students*

2019 — Haoliang Wang  
 2019 — Holly Huey (co-advised by Caren Walker)  
 2019 — Will McCarthy (co-advised by David Kirsh)  
 2019 — Sebastian Holt (co-advised by David Barner)  
 2020 — Felix Binder (co-advised by David Kirsh)  
 2020 — 2022 Cameron Holdaway (co-advised by Ed Vul)  
 2021 — Hannah Lloyd (co-advised by Celeste Pilegard)  
 2022 — Lauren Oey (co-advised by Ed Vul)  
 2022 — Erik Brockbank (co-advised by Ed Vul)

##### *Qualifying Exam Committee*

2021 Mohan Gupta

2021 Yang Wang  
 2021 Cameron Holdaway  
 2021 James Qi  
 2022 Hyojeong (Jenny) Yoo

#### *Dissertation Committee*

2022 Helen Wang (UCSD, Neuroscience)  
 2022 Elias Wang (Stanford, Electrical Engineering)  
 2023 Zheng Guo (UCSD, Computer Science & Engineering)  
 2023 Tone Xu  
 2023 Sunyoung Park  
 2023 Isabella DeStefano  
 2023 James Qi  
 2023 Aubrey Lau

#### *Selected Undergraduates*

2019 — 2022 Justin Yang, Honors: *UCSD Chancellor's Research Scholarship, HDSI Research Scholarship, Triton Research & Experiential Learning Scholarship*  
 2019 — Xuanchen Lu, Honors: *UCSD Psychology Research Perseverance During COVID Award*  
 2019—20 Julia Xu, Honors: *HDSI Research Scholarship*  
 2020 — 2023 Sirui Tao, Honors: *HDSI Research Scholarship*  
 2020 — 2021 Zhe Huang, Honors: *Triton Research & Experiential Learning Scholarship*  
 2021 — 2022 Jane Yang, Honors: *Triton Research & Experiential Learning Scholarship*  
 2022 — Zoe Tait, Honors: *UCSD Chancellor's Research Scholarship*

#### Stanford

Renata Chai (Master's, Stanford, 2018-19), Xin Yuan (Master's, Tsinghua University, 2018-19), Kushin Mukherjee (undergraduate, Vassar, 2018-19), Megumi Sano (undergraduate, Stanford, 2018-19; *Sayan Gul Travel Award*), Karl Mulligan (undergraduate, Rutgers, 2017)

#### Princeton

Laura Herman (undergraduate, Princeton, 2015-16), Jessica Ji (undergraduate, Princeton, 2016), Jordan Gunn (undergraduate, Princeton, 2015), Rachel Klebanov (undergraduate, Princeton, 2015), Ryan O'Connell (undergraduate, Princeton, 2013-14), Annie Chen (undergraduate, Carnegie Mellon, 2013), Max Luo (undergraduate, University of Pennsylvania, 2012-2013)

#### APPOINTMENTS

2017-2018 Stanford Center for the Study of Language & Information, Mentor  
 2012-2016 Princeton Wilson College, Resident Graduate Advisor

2015-2016 Princeton Cognitive Science Program Graduate Student Fellow  
 2013-2014 Princeton Psychology Senior Thesis Writing Group Leader

## Teaching

UC SAN DIEGO

### Instructor-of-Record

2022 PSYC 201A: Quantitative Methods in Psychology, Instructor  
 2022 PSYC 60: Introduction to Statistics, Instructor  
 2022 PSYC 193L: Science of Learning Data Science, Instructor  
 2021 PSYC 230: Computational Approaches to Visual Abstraction, Instructor  
 2021 PSYC 60: Introduction to Statistics, Instructor  
 2021 PSYC 230: Computational Approaches to Visual Abstraction, Instructor  
 2020 PSYC 193: Perception & Computation, Instructor  
 2020 PSYC 60: Introduction to Statistics, Instructor  
 2019 PSYC 272: Computational Approaches to Visual Abstraction, Instructor

### Guest Lectures

2021 PSYC 523b: Cognitive Psychology (Yale)  
 2021 PHIL 281: Non-Linguistic Representation (UCLA)  
 2020 NEU 200C: Basic Neuroscience  
 2020 PSYC 111A: Research Methods  
 2020 COGS 200: Faculty Research Seminar

## Professional Service

### SERVICE TO THE UNIVERSITY AND BROADER COMMUNITY

2020 UCSD Marshall College Commencement Representative  
 2020- UCSD Pathways2AI Initiative, Co-Founder  
 2020- UCSD Psychology Undergraduate Research Assistant Common Application Initiative, Co-Chair

## SERVICE TO THE FIELD

### Workshops Organized

2023	CogSci Workshop: How does the mind discover useful abstractions?
2022	CogSci Workshop: Advancing Cognitive Science and AI through Cognitive-AI Benchmarking ECCV Workshop: 1st Challenge on Machine Visual Common Sense: Perception, Prediction, Planning
2022	CogSci Workshop: Images2Symbols: Drawing as a Window into the Mind
2022	CCN Generative Adversarial Collaboration: To what extent does the brain simulate the external world?
2022	CogSci Discussion Group: Neural Network Models of Cognition
2022	CVPR Sketch Deep Learning Workshop

### Program and Awards Committees

2020-2023	Program Committee, Cognitive Science Society
2022	Program Committee, Cognitive Computational Neuroscience (CCN) Meeting
2021	Program Committee, Conference on the Theory and Application of Diagrams
2021	Program Committee, ACM Creativity and Cognition
2020	Program Committee, NeurIPS Object Representations for Learning and Reasoning Workshop
2020	Program Committee, ICML Object-Oriented Learning Workshop
2020	Awards Committee, Cognitive Science Society

### Mentorship

2020	Mentor, Científico Latino Graduate Student Mentorship Initiative
2019-2022	Faculty Mentor, Cognitive Science Society Annual Meeting

### Editorial Service

Guest Editor, *Memory & Cognition*

### Grant Reviewing

Panelist, NSF Integrative Strategies for Understanding Neural and Cognitive Systems (NCS)  
Panelist, NSF Perception, Action & Cognition  
Panelist, NSF Cognitive Neuroscience  
Panelist, NSF EDU Core Research

## Journal Reviewing

Cognition

Cognitive Research: Principles and Implications

Cognitive Science

Developmental Science

Frontiers in Psychology

Gastronomica

Journal of Experimental Psychology: General

Journal of Experimental Psychology: Human Perception and Performance

MIT Handbook of Attention

Nature Human Behaviour

PLoS Computational Biology

Proceedings of the National Academy of Sciences

Psychonomic Bulletin & Review

Psychological Review

Quarterly Journal of Experimental Psychology

Thinking Skills & Creativity

Translational Issues in Psychological Science

## Conference Reviewing

ACM Creativity and Cognition, ACM SIGGRAPH, Conference on the Theory and Application of Diagrams, NeurIPS Datasets & Benchmarks

## AFFILIATIONS

Cognitive Science Society (2015–), Association for Psychological Science (2014–), American Psychological Association (2011–), Vision Sciences Society (2010–), Society for Neuroscience (2008–), American Association for the Advancement of Science (2008–), Association for Computing Machinery (2019–)

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