

Shari Liu

CONTACT INFORMATION

Dept Brain and Cognitive Sciences
Massachusetts Institute of Technology
43 Vassar Street
Cambridge, MA 02139

shariliu@mit.edu
<http://shariliu.com>

EMPLOYMENT

Assistant Professor, Johns Hopkins (07/2023-)
Assistant Research Professor, Johns Hopkins (07/2021-06/2023)
Department of Psychological and Brain Sciences

NIH F32 (NRSA) Postdoctoral Fellow, MIT (10/2020-06/2023)
Postdoctoral Associate, MIT (07/2020-09/2020)
Advisor: Rebecca Saxe

EDUCATION

Ph.D. and M.A., Harvard University (2014-2020)
Thesis: Nature and origins of intuitive psychology in human infants
Advisor: Elizabeth Spelke

B.A., Dartmouth College (2010-2014)
Psychology and Education, *summa cum laude*
Advisors: Carolyn Parkinson, Thalia Wheatley

Publications

* = undergraduate or post-baccalaureate advisee

PREPRINTS

Cao, P., Tan, X., Scott, K. M., & **Liu, S.** (2021, working paper). iCatcher+: Robust and automatic gaze classification of infant webcam videos. doi:10.31234/osf.io/s8c4m. <https://psyarxiv.com/s8c4m/>

Liu, S., Pepe, W.*, Ullman, T. D., Tenenbaum, J. B., & Spelke, E. S. (2020, under revision). Dangerous ground: Thirteen-month-old infants are sensitive to peril in other people's actions. <https://psyarxiv.com/rvydk>

REFEREED CONFERENCE PROCEEDINGS

Shu, T., Bhandwaldar, A., Gan, C., Smith, K. A., **Liu, S.**, Gutfreund, D., Spelke, E., Tenenbaum, J. B., & Ullman, T. D. (2021). AGENT: A Benchmark for Core Psychological Reasoning. *38th International Conference on Machine Learning (ICML)*. <https://arxiv.org/abs/2102.12321>

Gjata, N. N.*, Ullman, T. D., Spelke, E. S., & **Liu, S.** (2020). Look before you leap: Quantitative tradeoffs between peril and reward in action understanding. *Proceedings of the 42nd Annual Meeting of the Cognitive Science Society*.

Liu, S., Cushman, F. A., Gershman, S. J., Kool, W., & Spelke, E. S. (2019). Hard choices: Children's understanding of the cost of action selection. *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*.

Liu, S., McCoy, J. P., & Ullman, T. D. (2019). People's perceptions of others' risk preferences. *Proceedings of the 41st Annual Meeting of the Cognitive Science Society*.

JOURNAL
ARTICLES

Liu, S., Ullman, T. D., Tenenbaum, J. B., & Spelke, E. S. (2017). What's worth the effort: Ten-month-old infants infer the value of goals from the costs of actions. *Proceedings of the 39th Annual Meeting of the Cognitive Science Society*.

Liu, S., Brooks, N. B. & Spelke, E. S. (2019). Origins of the concepts cause, cost, and goal in prereaching infants. *Proceedings of the National Academy of Sciences*, 116(36), 17747-17752. doi:[10.1073/pnas.1904410116](https://doi.org/10.1073/pnas.1904410116)

Liu, S., *Gonzalez, G., & Warneken, F. (2018). Worth the wait: Children trade off delay and reward in self- and other-benefiting decisions. *Developmental Science*, e12702. doi:[10.1111/desc.12702](https://doi.org/10.1111/desc.12702)

Liu, S., Ullman, T. D., Tenenbaum, J. B., & Spelke, E. S. (2017). Ten-month-old infants infer the value of goals from the costs of actions. *Science*, 358(6366), 1038-1041. doi:[10.1126/science.aag2132](https://doi.org/10.1126/science.aag2132)

Liu, S., & Spelke, E. S. (2017). Six-month-old infants expect agents to minimize the cost of their actions. *Cognition*, 160, 35-42. doi:[10.1016/j.cognition.2016.12.007](https://doi.org/10.1016/j.cognition.2016.12.007)

Parkinson, C., **Liu, S.,** & Wheatley, T. (2014). A common cortical metric for spatial, temporal, and social distance. *The Journal of Neuroscience*, 34(5), 1979-1987. doi:[10.1523/jneurosci.2159-13.2014](https://doi.org/10.1523/jneurosci.2159-13.2014)

Funding

NIH F32 National Research Service Award F32HD103363 (2020-2023)

Proposal: *Neural foundations of learning, reasoning, and surprise in human infants*

Role: Principal investigator

Total Amount: \$194,790

Knox Fund Large Grant (x2), Harvard University (2019, 2020)

Funds for conference attendance

Total Amount: \$7000

NSF Graduate Research Fellowship (2016-2019)

Proposal: *Leveraging a theory of rational action for understanding and planning behavior*

Total Amount: \$138,000

Restricted Funds Small Grant (x5), Harvard University (2016-2020)

Funds for conference attendance

Total Amount: \$2500

Stimson Research Grant, Harvard University, (2010)

First year graduate student grant

Total Amount: \$1000

Conference
Presentations

CHAired
SYMPOSIA

Liu, S., Ullman, T. D., Tenenbaum, J. B., & Spelke, E. S. (July 2020). Dangerous ground: Thirteen-month-old infants are sensitive to peril in other people's actions. In "Better safe than sorry: Infants' use of social information to reason and learn about threat". Symposium to be conducted at the biennial meeting of the *International Congress on Infant Studies (ICIS)*, held virtually due to COVID-19.

Liu, S., Brooks, N. B., & Spelke, E. S. (January 2020). Prereaching infants' understanding of others as causal agents. In "Making things happen: How infants and children understand agents' interventions on the physical world". Symposium conducted at the 10th annual *CEU Conference on Cognitive Development (BCCCD20)*, Budapest, Hungary.

TALKS

Liu, S. (July 2020). Origins of social intelligence in human infants. In "The origins of common sense in humans and machines". Workshop conducted at the 42nd Annual Meeting of the *Cognitive Science Society (CogSci)*, held virtually due to COVID-19. <https://ocs2020.github.io/>

Liu, S., Cushman, F., Gershman, S., Kool, W., & Spelke, E. S. (July 2019). Hard choices: Children's understanding of the cost of action selection. Slide session conducted at the 41st annual meeting of the *Cognitive Science Society*, Montreal, Canada.

Liu, S., McCoy, J., & Ullman, T. (July 2019). People's perceptions of others' risk preferences. Slide session conducted at the 41st annual meeting of the *Cognitive Science Society*, Montreal, Canada.

Liu, S., Ullman, T. D., Tenenbaum, J. B., & Spelke, E. S. (July 2018). Infants use risk and effort to infer what agents value. In "Effort and Persistence Across Early Development". Symposium conducted at the biennial meeting of the *International Congress on Infant Studies (ICIS)*, Philadelphia, PA, USA.

Liu, S., Ullman, T. D., Tenenbaum, J. B., & Spelke, E. S. (July 2017). What's worth the effort: Ten-month-old infants infer the value of goals from the costs of actions. Slide session conducted at the 39th annual meeting of the *Cognitive Science Society*, London, UK.

Liu, S., *Gonzalez, G., & Warneken, F. (April 2017). Children weigh the costs and rewards in altruistic decision-making. In Children's Reasoning about the Costs and Rewards of Prosocial Decisions. Symposium conducted at the biennial meeting of the *Society for Research in Child Development (SRCD)*, Austin, TX, USA.

Parkinson, C., **Liu, S.**, & Wheatley, T. (April 2013). A common cortical metric for spatial, temporal and social distance. In Social Networks & Reward. Symposium conducted at the annual meeting of the *Social & Affective Neuroscience Society (SANS)*, San Francisco, CA, USA.

Parkinson, C., **Liu, S.**, & Wheatley, T. (December 2012). The neural representation of psychological distance. Slide session conducted at the *Harvard University Social Brain Sciences Symposium*, Cambridge, USA.

POSTER PRESENTATIONS (SELECTED)

Gjata, N.*, Ullman, T. D., Spelke, E. S., & **Liu, S.** (July 2020). Look before you leap: Quantitative tradeoffs between peril and reward in action understanding. Poster to be presented at the 42nd Annual Meeting of the *Cognitive Science Society (CogSci)*, held virtually due to COVID-19.

Liu, S., Brooks, N. B., & Spelke, E. S. (October 2019). Origins of the concepts *cause*, *cost*, and *goal* in prereaching infants. Poster presented at the biennial meeting of the *Cognitive Development Society (CDS)*, Louisville, KY, USA.

Liu, S., *Aguirre, A., Cushman F. A., Gershman, S. J., Kool, W., and Spelke, E. S.

(October 2017). Children's sensitivity to the cost of action selection. Poster presented at the biennial meeting of the *Cognitive Development Society (CDS)*, Portland, OR, USA.

Liu, S., Ullman, T. D., Tenenbaum, J. B., & Spelke, E. S. (April 2017). Ten-month-old infants infer value from effort. Poster presented at the biennial meeting of the *Society for Research in Child Development (SRCD)*, Austin, TX, USA.

Liu, S., Brooks, N. B., & Spelke, E. S. (May 2016). Pre-reaching infants expect causal agents to act efficiently without motor training. Poster presented at the biennial *International Conference on Infant Studies (ICIS)*, New Orleans, LA.

Liu, S., & Spelke, E. S. (January 2016). Continuous representations of action efficiency in infancy. Poster presented at the *CEU Conference on Cognitive Development (BCCCD16)*, Budapest, Hungary.

Liu, S., & Spelke, E. S. (October 2015). Six-month-old infants represent action efficiency on a continuous scale. Poster presented at the biennial meeting of the *Cognitive Development Society (CDS)*, Columbus, OH, USA.

Liu, S., & Warneken, F. (October 2015). Rational optimism in children's social reasoning. Poster presented at the biennial meeting of the *Cognitive Development Society (CDS)*, Columbus, OH, USA.

Parkinson, C., **Liu, S.**, & Wheatley, T. (April 2013). A common neural encoding of spatial and semantic distance. Poster presented at the annual meeting of the *Cognitive Neuroscience Society (CNS)*, San Francisco, USA.

Parkinson, C., **Liu, S.**, & Wheatley, T. (October 2012). Multivoxel pattern analysis reveals a domain-general neural encoding of psychological distance. Poster presented at the annual meeting of the *Society for Neuroscience (SfN)*, New Orleans, USA.

Parkinson, C., **Liu, S.**, & Wheatley, T. (October 2012). Multivoxel pattern analysis reveals a domain-general neural encoding of psychological distance. Poster presented at the annual meeting of the *Society for Social Neuroscience (SfN satellite event)*, New Orleans, USA.

Honors and Awards

2021	Glushko Dissertation Prize, Cognitive Science Society
2019	Bok Center Certificate of Distinction in Teaching (Sophomore Tutorial)
2019	George W. Goethals Teaching Prize (Sophomore Tutorial)
2018	Bok Center Certificate of Distinction in Teaching (Social Psychology)
2017	Cognitive Science Society Student Travel Award
2017	Society for Research in Child Development Student Travel Award
2014	Phi Beta Kappa, Dartmouth College
2014	Escobosa Family Honors Thesis Prize in Psychology, Dartmouth College
2014	Nickerson 1964 Psychological and Brain Sciences Prize, Dartmouth College
2014	James O. Freedman Presidential Scholar, Dartmouth College
2014	Honorable Mention, NSF Graduate Research Fellowship

Invited Talks

	2021	Social AI Gathering, International Conference on Learning Representations
	2021	Mind and Development Lab, UCSD
	2020	Comparative Cognition Lab, Yale
	2020	Colloquium, Department of Psychological and Brain Sciences, Johns Hopkins
	2019	Colloquium, Department of Psychology, Stanford
	2019	Ma Lab, NYU
	2019	Computational Cognitive Science Group, MIT
	2019	Snedeker Lab, Harvard
	2019	Social Cognitive Neuroscience Lab, MIT
	2019	Early Childhood Cognition Lab, MIT
	2018	Visual Attention Lab, Harvard Medical School
	2017	Early Childhood Cognition Lab, MIT
	2017	Cognition, Brain and Behavior Research Seminar, Harvard
	2016	Boston Area Psychology Graduate Student Symposium, Northeastern
	2016	Center for Brain Minds and Machines Annual Retreat, MIT
	2016	Boston Area Moral Cognition Group, Harvard
Other Training	2020	Paths of Professorship Workshop, MIT
	2020	Virtual fNIRS Course Neurophotonics Center, Boston University
	2020	Academics for Black Lives Training (https://www.academics4blacklives.com/)
	2018	Computational Social Cognition Bootcamp (Cambridge MA)
	2017	Brains, Minds & Machines Summer Course (Woods Hole, MA)
Teaching	2014-	Guest Lecturer, Lab in Early Cognitive Development (Harvard PSY 1652r)
	2019-20	Co-Supervisor, Senior Thesis (Harvard PSY 991)
	2019	Teaching Assistant, Brains Minds and Machines Summer School
	2019	Course Instructor, Sophomore Tutorial (Harvard PSY 971)
	2018	Teaching Fellow, Social Psychology (Harvard PSY 15)
	2017	Co-Supervisor, Independent Research (Harvard PSY 910r)
Professional Service	2019-20	Co-organizer, Harvard-Yale Workshop in Developmental Psychology (postponed due to COVID-19)
	2018-9	Co-organizer, Developmental Studies Seminar (Harvard)
	Reviews:	Behavior Research Methods
		Child Development
		Cognition
		Cognitive Science
		Cognitive Science Society
		Developmental Science
		Emotion
		European Journal of Social Psychology
Student Advisees		Aracely Aguirre (Harvard, Spring 2015-2017)
		Melyssa Almeida (Harvard, Fall 2020-present)
		Amelia Andrews (Tufts, Spring-Summer 2017)
		Hannah Becker (Washington University in St. Louis, Summer 2015)
		— Graduate student, University of Michigan
		Kendall Carr (Wesleyan, Summer 2019)
		— Graduate student, Wesleyan University
		Sara Dablouk (University of Bath, Fall 2018-Summer 2019)
		— Undergraduate Dissertation score 85/95. Graduate student, UCL

Spencer Daus-Haberle (Bates, Summer 2016)
 Daisy Evariz (Harvard, Spring 2018-Spring 2019)
 Manasa Ganesh Kumar (University of Bath, Fall 2020-present)
 — Current thesis student
 Nensi Gjata (Harvard, Summer 2018-Fall 2020)
 — Thesis Student, *summa cum laude* thesis, Psychology Faculty Prize
 Gorana Gonzalez (University of Florida, Fall 2015)
 — Graduate student at UMass Amherst
 Juliet Isselbacher (Harvard, Spring 2019)
 Caroline Kerwin (Harvard, Fall 2015-Fall 2017)
 Linette Kunin (MIT, Summer 2020-present)
 Kexin Que (University of Bath, Fall 2019-present)
 — Current thesis student
 Jane Rhee (Harvard, Fall 2019)
 Jordyn Ricard (Northwestern University, Summer 2018)
 — Research assistant, Harvard
 Chrystal Spencer (Rutgers, Summer 2017)
 — Graduate student, University of Pittsburgh
 Akshita Srinivasan (University of Hyderabad, Summer 2017-2018)
 — Graduate Student, Harvard
 Connie Wong (University of Pennsylvania, Summer 2015)
 — Clinical Research Assistant, Children's National Research Institute

Technical Skills

Programming: R, Python, JavaScript
Statistics: R
Graphics: Illustrator, Blender

References

Rebecca Saxe (Dept of Brain and Cognitive Sciences, MIT), saxe@mit.edu
 Elizabeth Spelke (Dept of Psychology, Harvard), spelke@wjh.harvard.edu
 Josh Tenenbaum (Dept of Brain and Cognitive Sciences, MIT), jbt@mit.edu
 Susan Carey (Dept of Psychology, Harvard), scarey@wjh.harvard.edu
 Laura Schulz (Dept of Brain and Cognitive Sciences, MIT), lschulz@mit.edu
 Hyowon Gweon (Dept of Psychology, Stanford), hyo@stanford.edu