

Haoxue Fan

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EDUCATION & PROFESSIONAL EXPERIENCE **Brown University**, Providence, RI, USA Sept 2024 - Present
Postdoctoral Researcher
Advisor: Dr. Matthew Nassar

Harvard University, Cambridge, MA, USA June 2024 - Aug 2024
Postdoctoral Researcher (Transitional Position)
Advisor: Dr. Samuel Gershman

Harvard University, Cambridge, MA, USA 2024
Ph.D., Psychology
Secondary Field in Computational Science and Engineering 2023
M.A. Psychology 2022
Advisor: Dr. Elizabeth Phelps

Peking University, Beijing, China 2019
B.S. in Psychology (Economics minor), *graduated with honors*

RESEARCH INTERESTS Structural Learning, Exploration, Information-seeking, Planning, Emotion, Computational Psychiatry

- PUBLICATION** (Trainee authors/presenters are underlined; *: Equal Contribution; Google Scholar)
- Chen, Y.Y., Rosenbaum, G., **Fan, H.**, Flournoy, J., Li, T., Cegarra L., Yousoufian, A., Grad-Freilich, M., Kordyban, L., Mair, P., & Somerville, L. (2025). Prosocial motives differentially override default risk preferences across adolescence. *Open Mind* pdf
 - Beech, A., **Fan, H.**, Shu, J., Oyarzun, J., Nadel, P., Karaman, O. T., Vranos, S., Phelps, E. A., & Kredlow, M. A. (2025). Using Natural Language Processing to Identify Patterns Associated with Depression, Anxiety, and Stress Symptoms During the COVID-19 Pandemic. *Journal of Affective Disorders* pdf
 - Castillo, J*., **Fan, H***., Karaman, O.T., Shu, J., Stussi, Y., Kredlow, M.A., Vranos, S., Oyarzun, J.P., Dorfman, H., Sambrano, D., Merskin, R., Hirst, W., & Phelps, E. A. (2024) Overestimating negative emotion in autobiographical memory: evidence from memories for the COVID-19 pandemic and 9/11 attacks. *Cognition and Emotion* [pdf]
 - Kredlow, M.A*., Oyarzun, J.P*., **Fan, H.**, Meskin, R., Hirst, W. & Phelps, E.A. (2024). Language use in narratives of the 9/11 attacks predicts long-term memory. *Emotion* [pdf]
 - Fan, H.**, Burke, T., Sambrano, D. C., Dial, E., Phelps, E. A., & Gershman, S. J. (2023) Pupil size encodes uncertainty during exploration. *Journal of Cognitive Neuroscience* [pdf]
 - Fan, H.**, Gershman, S. J., & Phelps, E. A. (2023) Trait somatic anxiety is associated with reduced directed exploration and underestimation of uncertainty. *Nature Human Behavior* [pdf]
 - Hart, B., Achakulvisut, T., Adeyemi, A., Akrami, A., Alicea, B., Alonso-Andres, A., ... **Fan, H.**, ... & Wallisch, P. (2022). Neuromatch Academy: a 3-week, online summer school in computational neuroscience. *Journal of Open Source Education* pdf

PREPINT

1. **Fan, H.**, Callaway, F., Gershman, S. J. (*submitted*) Uncertainty-driven exploration in planning. pdf
2. **Fan, H.**, Dong, B., Benkelman, D. G., Rodman, A. M., Dorfman, H. M., Glimcher, P. W., & Phelps, E. A. (*submitted*) Working just to know: exerting effort for non-instrumental information under risk. pdf
3. Chen, Y.Y., **Fan, H.**, Rosenbaum, G., Li, T., Flournoy, J., Mair, P., Cegarra L., Youssoufian, A., Grad-Freilich, M., Kordyban, L., Mair, P., & Somerville, L. (*submitted*). Developmental emergence of complex prosocial motives and their influence on risky decision making. pdf

MANUSCRIPT IN PREPARATION

1. Kasperek, W. S., **Fan, H.**, Cikara, M., & McLaughlin K. (*in prep*) Altered social categorization and affective attribution processes after childhood violence exposure as novel indicators of psychopathology risk. pre-registration
2. Dorfman H. M., **Fan H.**, Aime-Sityanin, & Phelps E. A. (*in prep*) Individual differences in seeking and avoiding threatening information.

PROCEEDING AND PUBLISHED ABSTRACT

1. Chen, Y.Y., Rosenbaum, G., **Fan, H.**, Li, T., Flournoy, J., Mair, P., & Somerville, L. (2024). How beliefs around peers' risk preferences get incorporated into adolescents' decision making. In *Proceedings of the 46th Cognitive Science Society* [pdf]
2. Beech, A., **Fan, H.**, Shu, J., Oyarzun, J., Nadel, P., Phelps, E. A., & Kredlow, M. A. (2024). Differential language analysis of participant narratives and depression and anxiety symptoms during the COVID-19 pandemic. In *Abstracts from the 2023 Annual Meeting of the Society for Affective Science: Emotion and Mental Health. Affective Science*. [link]

INVITED TALK

(*upcoming*) Curiosity, Information Seeking & Exploration: From Neurons to Cognition (CISE) Conference website Sept 2025
Computational Cognitive Science Journal Club, University of Maryland May 2024
The Translational Lab (PI: Dr. Pete Hitchcock), Emory University Mar 2024
Radulescu Lab (PI: Dr. Angela Radulescu), Mount Sinai Center of Computational Psychiatry Dec 2023
Learning Memory & Decision Lab (PI: Dr. Matthew Nassar), Brown University Dec 2023
MindRL Hub recording (Chinese) Sept 2023
Social Decision Neuroscience Lab (PI: Dr. Patricia Lockwood), University of Birmingham Sept 2023
SPAN Lab (PI: Dr. Brian Knuston), Stanford University May 2023
Reviews Reading Group Mar 2023
Rutledge Lab (PI: Dr. Robb Rutledge), Yale University Mar 2023
Cognition, Brain, and Behavior Seminar, Harvard University Feb 2023
Goldenberg Lab (PI: Amit Goldenberg), Harvard University Feb 2023
Chinese Computational Psychiatry Association Oct 2022
Otto Lab (PI: Dr. Ross Otto), McGill University Oct 2021
Computational Psychiatry Journal Club, Max Planck Institute for Biological Cybernetics Oct 2021

CONFERENCE TALK

Fan, H., Xia, A., FeldmanHall, O., & Nassar, M. (May 2025). Resolving uncertainty fosters tie formation in real-world social networks. Data Blitz Talk at *Trends in Psychology Summit, Cambridge, MA*

Beech, A., **Fan, H.**, Shu, J., Oyarzun, J., Nadel, P., Phelps, E. A., & Kredlow, M. A. (Nov, 2023). Differential language analysis of participant narratives and depression and anxiety symptoms during the COVID-19 pandemic. Symposium talk presented as part of "When is it Helpful to Revisit the Anxious Past? The Relevance of Symptom-Related Autobiographical Memories in Anxiety and Related Disorders" at *the 57th*

annual convention of the Association for Behavioral and Cognitive Therapies (Seattle, WA)

Fan, H.*, Castillo, J.*, Karaman, O. T., Shu, J., Stussi, Y., Kredlow, M. A., Vranos, S., Oyarzun, J. P., Dorfman, H., Sambrano, D., & Phelps, E. A. (Nov, 2022). Over-estimating stress experienced early during the pandemic is associated with decreased emotional well-being. Symposium talk presented as part of "Exploring Relationships Between Various Cognitive Mechanisms and COVID-19 Emotional Distress" at *the 56th annual convention of the Association for Behavioral and Cognitive Therapies (New York, NY)*

Kredlow, M. A., Oyarzun, J. P., **Fan, H.**, Meskin, R., Hirst, W. & Phelps, E. A. (November, 2021). Do linguistic features of trauma narratives predict trauma-related emotions and memory over time? Symposium talk presented as part of "Making sense of trauma memories: Characteristics and responses to trauma narratives as predictors of PTSD outcomes" at *the 37th annual conference of the International Society for Traumatic Stress Studies (virtual)*

Fan, H., Gershman S.J., & Phelps E.A. (September, 2021). Trait somatic anxiety is associated with reduced directed exploration and underestimation of uncertainty. *Society for Neuroeconomics Annual Meeting (virtual)*. **silver best talk award**

CONFERENCE POSTER

Fan, H., & Nassar, M. (Oct 2025). Behavioral signatures of rotational transfer learning in a spatial predictive inference task. *Poster submitted to Society of Neuroeconomics Annual Meeting, Cambridge, MA*

Dorfman H. M, **Fan H.**, Aime-Sityanin, & Phelps E. A. (June 2025). Individual differences in seeking and avoiding threatening information under certainty. *Reinforcement Learning & Decision Making Conference, Dublin, Ireland*

Fan, H., Xia, A., FeldmanHall, O., & Nassar, M. (May 2025). Resolving uncertainty fosters tie formation in real-world social networks. *Trends in Psychology Summit, Cambridge, MA*

Fan, H., Xia, A., FeldmanHall, O., & Nassar, M. (April 2025). Resolving uncertainty fosters tie formation in real-world social networks. *Social and Affective Neuroscience Society Annual Meeting, Chicago, IL*

Kasperek, W. S., **Fan, H.**, Cikara, M., & McLaughlin K. (March 2025). Altered affective attributions after childhood violence exposure and psychopathology risk *Society of Affective Science, Portland, OR*

Chen, Y.Y., Rosenbaum, G., **Fan, H.**, Li, T., Flournoy, J., Mair, P., & Somerville, L. (July 2024). How beliefs around peers' risk preferences get incorporated into adolescents' decision making. *Cognitive Science Society, Rotterdam, Amsterdam*

Fan, H., Dong, B., Benkelman, D. G., Rodman, A., Dorfman, H. M., Glimcher, P., & Phelps, E. A. (Oct 2023). Bidding with Effort: Using Grip Force to Assess the Value of Information. *Society of Neuroeconomics Annual Meeting, Vancouver, Canada*

Fan, H., Gershman S. J., & Phelps E. A. (June, 2022). Trait somatic anxiety is associated with reduced directed exploration and underestimation of uncertainty. *20th Summer Institute on Bounded Rationality, Berlin, Germany*

Castillo, J.*, **Fan, H.***, Karaman, O. T., Shu, J., Stussi, Y., Kredlow, M. A., Vranos, S., Oyarzun, J. P., Dorfman, H., Sambrano, D., & Phelps, E. A. (May, 2022). Over-estimating stress experienced early during the pandemic is associated with decreased emotional well-being. *Social and Affective Neuroscience Society Annual Meeting (vir-*

tual)

Aslarus I., Kredlow, M.A., **Fan H.**, & Phelps, E.A. (May, 2022). Novelty Exposure Interferes with Visual Emotional Memory Consolidation. *Social and Affective Neuroscience Society Annual Meeting (virtual)*

Fan, H., Gershman S. J., & Phelps E. A. (Apr, 2021). Distinct Effects of Trait Anxiety Components on Exploration *Wisconsin Symposium on Emotion (virtual)*

Heffner, J., Son, J., **Fan, H.**, & FeldmanHall, O. (May, 2019). The Joy of Punishment: Early Emotional Reactions Predict Decisions to Restore Justice. *Social and Affective Neuroscience Society Annual Meeting, Miami Beach, Florida*

HONORS AND AWARDS

Derek Bok Center Teaching Certificate, Harvard University	2024
Restricted Fund, Department of Psychology, Harvard University	2023, 2024
Stimson Fund, Department of Psychology, Harvard University	2023
Certificate of Student Recognition of Teaching, Harvard University	2022
Certificate of Distinction in Teaching, Harvard University	2022
GSAS Professional Development Fund, Harvard University	2022
Silver Best Talk Award, Society for Neuroeconomics Annual Meeting	2021
Outstanding Graduate Award, Beijing Municipal Education Commission	2019
College Student Research Program, Beijing Municipal Education Commission	2017
National Scholarship, Ministry of Education of China	2017, 2018
Pacemaker to Merit Student, Peking University	2017, 2018
Xinhe Scholarship, Peking University	2016

RESEARCH TRAINING

Complexity-GAINs(UK) International Summer School(Aug, 2023), *Cambridge, UK*
Summer Institute on Bounded Rationality(June, 2022), *Berlin, Germany*

TEACHING EXPERIENCE

Instructor: Let me google it: Information seeking (avoidance) in everyday life, January 2021 (a five-lecture introductory psychology course)

Guest Speaker: PSYC 417: Data Science for Psychology and Neuroscience Majors, Department of Psychology, University of Maryland, Spring & Fall 2023

Teaching Assistant:

- PSY 1322: Decisions Big and Small: The Cognitive Science of Making Up Your Mind (Instructor: Dr. Tomer Ullman), Spring 2023
- PSY 1901: Methods of Behavioral Research (Instructor: Dr. Mina Cikara), Fall 2022
- PSY 1401: Computational Cognitive Neuroscience: Building Models of the Brain (Instructor: Dr. Samuel J. Gershman), Spring 2022
- AM 207: Stochastic Methods for Data Analysis, Inference and Optimization (Instructor: Dr. Weiwei Pan), Fall 2021
- online R workshop on Fundamentals of Tidyverse (Instructors: Drs. Kelly Bodwin & Hunter Glanz), Jan 2021

AD HOC REVIEW

(*: co-review with mentor)

Conference proceeding and abstract: CCN, Cogsci, SAS, RLDM

Journal: Cognitive Affective, & Behavioral Neuroscience, Communications Psychology, eLife, Emotion, Frontiers in Behavioral Neuroscience, Journal of Open Source Software, Nature Communication*, Neuroscience and Biobehavioral Reviews, PLOS Computational Biology, Psychological Review

SERVICE AND VOLUNTEER	Postdoc Community Event Planner , <i>Carney Institute for Brain Science, Brown University</i> , 2025
	Volunteer , <i>Brown Brain Fair</i> , 2025
	Mentoring Co-chair , <i>Harvard Graduate Women in Science and Engineering</i> , 2022 - 2024
	Event Coordinator , <i>Harvard Women in Psychology</i> , 2021 - 2023
	Graduate Student Interview Day Committee and Orientation Panelist , <i>Harvard University Department of Psychology</i> , 2022
	PPREP Mentor and Identity and Empowering Panelist , <i>Harvard Prospective PhD and RA Event in Psychology</i> , 2020-2023
	International Community Conversation Facilitator , <i>Harvard GSAS orientation</i> , Aug 2020
	Student Salon Host , Theme: Studying emotion in decision-making. co-hosted with Dr. Ian Robert. <i>Society for Neuroeconomics Annual Meeting 2021 (virtual)</i> , 2021
	Video Caption Editor , <i>Neuromatch Academy 2020</i> , Aug 2020
MENTORSHIP EXPERIENCE	Founding member of the Mentoring Group in Department of Psychology [Mentoring Resources for Trainees]
	Certificate in Mentoring Undergraduates in Science, <i>Harvard University</i> , Apr 2022
	Currently Mentored Undergraduates/Post-Bacs: Ellie Jeong (2024-present), Charlotte Derway (2025-present)
	Previously Mentored Undergraduates: Bryan Dong (2023-2024), Emily Dial (2022-2024), Dorothy Grace Benkelman (2023), Rachel Mehler (2023), Ecem Sena Uluegeci (2022-2023), Isabella Caterina Aslarus (2020-2021; Current: Graduate Student, Stanford University)
TECHNICAL SKILLS	R, Python, MATLAB, Javascript, Qualtrics, Git, L ^A T _E X
REFERENCES	Elizabeth Phelps Pershing Square Professor of Human Neuroscience, Harvard University Department of Psychology and Center for Brain Science phelps@fas.harvard.edu
	Samuel Gershman Professor, Harvard University Department of Psychology and Center for Brain Science gershman@fas.harvard.edu
	Paul Glimcher Julius Silver Professor of Neural Science, New York University NYU Langone School of Medicine paul.glimcher@nyu.edu
	Matthew Nassar Assistant Professor, Brown University Department of Neuroscience matthew_nassar@brown.edu