

ZHIIHAO ZHANG

Curriculum Vitae

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Contact Information

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Academic Positions

Assistant Professor	Darden School of Business University of Virginia	2022-present
Postdoctoral Scholar	Haas School of Business Social Science Matrix University of California, Berkeley	2016-2022
	Department of Neurology University of California, San Francisco	2016-2017

Education

Ph.D.	Yale University	Neuroscience	2016
M.Phil.	Yale University	Neuroscience	2013
B.Sc.	Tsinghua University	Biological Sciences (with Distinction)	2010

Awards and Fellowships

<i>Best Talk Award</i>		2020
The 18th Annual Meeting of Society for Neuroeconomics		
<i>Best Poster Award</i>		2020
The 145th Annual Meeting of the American Neurological Association		
<i>Career Transition Award</i>		2019
Scientific Research Network for Decision Neuroscience & Aging		
<i>Award for Best Poster Presentation</i>		2017
The 7th Annual Interdisciplinary Symposium on Decision Neuroscience		
<i>Trainee Professional Development Award</i>		2015
Society for Neuroscience		
<i>Neuroeconomics Summer School Full Scholarship</i>		2015
New York University Shanghai		

<i>Conference Travel Fellowship</i> Yale Graduate Student Assembly	2014, 2015
<i>Kavli Graduate Fellowship in Neuroscience</i> The Kavli Foundation	2012-2013
<i>China Scholarship Council-Yale World Scholars Fellowship</i> The China Scholarship Council	2010-2012
<i>National Scholarship</i> The Ministry of Education, P. R. China	2009
<i>First-Class Scholarship</i> Tsinghua University	2005-2007, 2009

Research Interests

General Areas

Consumer Research
Marketing
Neuroeconomics
Cognitive Neuroscience
Natural Language Processing
Law and Neuroscience

Techniques

Computational modeling
Functional neuroimaging
Vector semantics
Neuropharmacology
Game theory

Publications

#denotes corresponding author(s) *denotes equal contribution §denotes mentee
Google Scholar profile: <https://scholar.google.com/citations?user=4qKYm5AAAAAJ&hl=en>

Articles in revision or under review

Zhang, Z.[#], §Good, M., §Kulikov, V., van Horen, F., Bartholomew, M., Kayser A. S.[#], & Hsu, M.[#] From scanner to court: Toward a neuroscientifically informed “reasonable person” test of trademark infringement.

Zhang, Z., Kayser A. S., & Hsu, M. Automated inference of consumer brand recall from large-scale text corpora.

§Sundaresan, A., Hsu, M., & **Zhang, Z.** Eliciting complex relational knowledge from masked language models.

Journal Articles

§Maboudian, S., Hsu, M., & **Zhang, Z**[#]. Visualizing and quantifying longitudinal changes in verbal fluency using recurrence plots. In press, *Frontiers in Aging Neuroscience*.

Zhang, Z[#], §Wang, S., §Good, M., §Hristova, S., Kayser A. S.[#], & Hsu, M.[#] (2021). Retrieval-constrained valuation: Toward prediction of open-ended decisions. *Proceedings of the National Academy of Sciences*, 118(20).

- Media coverage: *The Hill*, Medical XPress, *Guokr*

Furman, D. J., **Zhang, Z.**, Chatham, C., §Good, M., Badre, D., Hsu, M., & Kayser A. S. (2020). Augmenting frontal dopamine tone enhances maintenance over gating processes in working memory. *Journal of Cognitive Neuroscience*, 33(9), 1753-1765.

Zhang, Z., Chandra, S., Kayser, A. S., Hsu, M., & Warren, J. (2020). A hierarchical Bayesian implementation of the experience-weighted attraction model. *Computational Psychiatry*, 4, 40-60.

Zhang, Z[#], Coppin, G.[#]. (2018). To what extent memory could contribute to impaired food valuation and choices in obesity? *Frontiers in Psychology*, 9, 2523.

Zhang, Z., Fanning, J., §Ehrlich, D. B., §Chen, W., Lee, D., & Levy, I. (2017). Distributed neural representation of saliency controlled value and category during anticipation of rewards and punishments. *Nature Communications*, 8, 1907.

Zhang, Z., Mendelsohn, A., Manson, K. F., Schiller, D., & Levy, I. (2015). Dissociating value representation and inhibition of inappropriate affective response during reversal learning in the ventromedial prefrontal cortex. *eNeuro*, 2(6), ENEURO-0072.

- Featured in Viewpoints Q&A at *Nature Neuroscience*

Zhang, Z., Manson, K. F., Schiller, D., & Levy, I. (2014). Impaired associative learning with food rewards in obese women. *Current Biology*, 24(15), 1731-1736.

- Media coverage: BBC, *Los Angeles Times*, *The Baltimore Sun*, *The Orlando Sentinel*, *Capital Gazette*, *ScienceDaily*, *The Times of India*, *Guokr*, Canadian Broadcasting Corp., China National Radio, *News Ghana*

- Featured in commentary by neuroscientists Terry Davidson and Ashley Martin and in News & Comment at *Nature Reviews Neuroscience*

Invited Commentaries and Book Reviews

Zhang, Z. (2012). Book review for *The Age of Insight: The Quest to Understand the Unconscious in Art, Mind, and Brain, From Vienna 1900 to the Present*. *The Yale Journal of Biology and Medicine*, 85(4), 564.

Other Publications

Hsu, M., **Zhang, Z.**, & Kayser, A. S. (2021). What marketers often miss when measuring the value of being top of mind. *INSights - Consumer Neuroscience in Business*, 34, 14-17.

Selected Work in Progress

*denotes equal contribution §denotes mentee

Zhang, Z. Toward financially accountable brand awareness building: Connecting models of brand memory and consumer choice.

Zhang, Z., §Wang, S., Kayser A. S., & Hsu, M. I am not fickle, but my memory might be: Choice switches driven by imperfect memory recall.

Zhang, Z., §Maboudian, S., Jackson A., Ngo, S., Manivannan, M., Kayser, A. S., Hsu, M., & Chiong, W. Mechanistic contributions of memory to decision-making impairments in Alzheimer's disease.

§Chen, P.*, Hsu, M.* & **Zhang, Z.*** Mapping 25 years of brand knowledge evolution with vector semantics.

§Wu, Q., **Zhang, Z.,** Kayser A. S., & Hsu, M. Flexible reconfigurations of large-scale brain networks in decisions with predefined vs. self-generated options.

Research Grants

UC Berkeley Fisher Center of Business Analytics Research Grant 2019-2020
Predicting Brand Equity and Top-of-Mind Awareness using Large-Scale Text Corpora \$10,000

This proposal applies insights from cutting-edge big data methods, grounded in validated cognitive processes, to capture consumer awareness across segments and inform managerial actions.

Role: Co-Investigator (with Hsu)

Scientific Research Network for Decision Neurosci. & Aging Pilot Grant 2018-2019
Age-related changes in memory-based choices and its neural basis \$47,100

This proposal aims to understand the quantitative relationship between semantic memory, valuation, and choices and to characterize its changes across the lifespan.

Role: Subaward PI (from Samanez-Larkin parent award NIH/NIA R24-AG054355)

UC Berkeley Fisher Center of Business Analytics Research Grant 2018-2019
Big Data Approaches to Understanding Brand Memory \$10,000

This proposal aims to leverage recent advances in machine learning, natural language processing, and consumer neuroscience to improve predictive models of memory-based consumer choice.

Role: Co-Investigator (with Hsu)

Invited Talks

2022

School of Management

School of Psychology and Cog. Sci.

Anderson School of Management

Fudan University

East China Normal Univ.

UCLA

2021

School of Management

Univ. Sci. Tech. of China

<i>Department of Industrial Engineering</i>	University of Chile
<i>Darden School of Business</i>	University of Virginia
<i>Department of Marketing, Business Economics, and Law</i>	University of Alberta
<i>The Shansby Marketing Seminar</i>	UC Berkeley
<i>Behavioral Science Seminar</i>	UC Berkeley
2019	
<i>Neuroeconomics Forum</i>	Yale University
2018	
<i>The Business and Marketing Program</i>	New York Univ. Shanghai
<i>School of Management</i>	Zhejiang University
<i>The Shansby Marketing Seminar</i>	UC Berkeley
<i>Psychology and Economics Lunch</i>	UC Berkeley
2017 and before	
<i>College of Psychology</i>	Shenzhen University
<i>McGovern Institute for Brain Research</i>	Peking University
<i>Rotman School of Management</i>	University of Toronto

Select Conference Presentations

Association for Consumer Research (ACR)

- (Oct, 2021) Mapping 25 years of consumer knowledge from text corpora
- (Oct, 2021) Toward financially accountable brand awareness building: Predicting the effects of altering brand recall on choices.
- (Oct, 2019) Predicting consumer brand memory across demographic segments.
- (Oct, 2018) Predicting memory-based consumer choice from recall and preferences.
- (Oct, 2018) Predicting consumer brand recall and choice using large-scale text corpora.

Theory + Practice in Marketing Conference (TPM)

- (Jun, 2021) Mapping 25 years of consumer knowledge from text corpora.
- (May, 2019) Large-scale inference of brand memory from text corpora.

Society for Consumer Psychology (SCP)

- (Mar, 2020) Predicting consumer brand memory across demographic segments.

Future of Brands Conference

- (Dec, 2019) Predicting consumer brand recall using large-scale text corpora.

Behavioral Insights from Text Conference

- (Jan, 2019) Predicting consumer brand recall and choice using large-scale text corpora.

Society for Neuroeconomics & Consumer Neuroscience Satellite Symposium

- (Oct, 2021) Mechanistic contributions of memory to decision-making impairments in Alzheimer's disease
- (Oct, 2020) Retrieval-constrained valuation: Toward prediction of open-ended decisions.
- (Oct, 2018) Predicting memory-based decisions.

Economic Science Association (ESA)

- (Oct, 2019) Predicting memory-based choices.

Interdisciplinary Symposium on Decision Neuroscience (ISDN)

- (Jun, 2019) Mnemonic constraints on value-based decision making.
- (Jun, 2017) Distributed neural representation of value, saliency, and category during anticipation of rewards and punishments.

Text Analysis Across Domains Conference (TextXD)

- (Dec, 2019) Predicting consumer brand recall and choice using large-scale text corpora.

Teaching Experience

Guest lecturer

Intellectual Property: Current Controversies (instructor: Mira T. Sundara Rajan) <i>School of Law, UC Davis</i>	2020
Marketing Research (instructor: Ming Hsu) <i>Haas School of Business, UC Berkeley</i>	2019
Neuromarketing (instructor: Ming Hsu) <i>Haas School of Business, UC Berkeley</i>	2019
Empirical Research Seminar (instructor: Tom R. Tyler) <i>Yale Law School</i>	2016

Teaching Fellow

Neuroeconomics for Economists (instructor: Ifat Levy) <i>Department of Economics, Yale University</i>	2016
The Human Brain (instructor: Gregory McCarthy) <i>Department of Psychology, Yale University</i>	2014
Introduction to the Human Brain: Brain and Thought (instructor: Amy Arnsten) <i>Department of Psychology & Cognitive Science Program, Yale University</i>	2011, 2012

Patent

Hsu, M., Kayser, A., and **Zhang, Z.** System for determining trademark similarity. U.S. patent pending.

Industry Experience

Instructor for corporate training programs <i>Data Wise Academy</i>	2019
Contributor to the <u>Neuromarketing Yearbook 2018</u> <i>Neuromarketing Science & Business Association</i>	2018
External consultant on behavioral nudging and analytics <i>Ecometricx</i>	2017
Project consultant on strategy and marketing <i>US-Brazil Connect & National Confederation of Industry of Brazil</i>	2014

Select Undergraduate Mentees

- Pei-Ming (Vincent) Chen (National Taiwan Univ. '19; visiting student at UCB; currently Ph.D. student in marketing at UCB)
- Peter (Shichun) Wang (UC Berkeley '19; currently Ph.D. student in operations research and financial engineering at Princeton)
- Samira Maboudian (UC Berkeley '20; honors thesis mentee; currently Ph.D. student in neuroscience at UCB)
- Qianying Wu (Univ. of Sci. & Tech of China '20; visiting student at UCB; currently Ph.D. student in behavioral and social neuroscience at Caltech)

Professional Activities

Ad Hoc Reviewer - Journals

Appetite; Cerebral Cortex; Cognitive, Affective, and Behavioral Neuroscience; Communications Biology; eNeuro; Frontiers in Neuroscience; Heliyon; Journal of Alzheimer's Disease; Journal of Behavioral Decision Making; Journal of Interactive Marketing; Journal of Neuroscience; Journal of Neuroscience, Psychology, and Economics; Journal of the Association for Consumer Research; Molecular Psychiatry; Neuropsychologia; PLoS Computational Biology; PLoS One; PNAS; Progress in Neurobiology; Psychonomic Bulletin and Review; Psychophysiology; Scientific Reports; Yale Journal of Biology and Medicine

Ad Hoc Reviewer - Conferences

Association for Consumer Research (2022-present); Society for Consumer Psychology (2018-present); American Marketing Association Academic Conference (2022); Multidisciplinary Conference on Reinforcement Learning and Decision Making (2019, 2022)

Conference Planning

Multidisciplinary Conference on Reinforcement Learning and Decision Making, 2019
Member, *Program Committee*

The Association of Consumer Research Conference, 2019
Co-Chair, *Special Session “Extracting Behavioral Insights from Big Data: Novel AI and NLP Approaches”*

Grant Reviewer

Scientific Research Network for Decision Neuroscience & Aging Pilot Grant (2019)

Professional Society Memberships

Association for Consumer Research
Economic Science Association
Society for NeuroEconomics
Society for Neuroscience
Society for Consumer Psychology
Cognitive Neuroscience Society
New York Academy of Science
American Association for the Advancement of Science
National Postdoctoral Association

Services

Darden School of Business, University of Virginia

Member, *Faculty Recruitment Committee (Marketing Area)* 2022

University of California, Berkeley

Co-President, *Berkeley Postdoctoral Association* 2019-2020
Member, *Advisory Committee for Postdoc Housing* 2018

Interdepartmental Neuroscience Program, Yale University

Member & PhD Student Representative, *Executive committee* 2011-2016
Member, *NeuroDay organizing committee* 2014
Member, *Graduate curriculum committee* 2012

Yale University

Alumni Interviewer, *Yale College Admissions Office* 2019-present
Departmental representative, *Graduate Student Assembly* 2012-2013