

CURRICULUM VITAE **Jiefeng Jiang, Ph.D**

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Email: jiefeng-jiang@uiowa.edu

Phone: +1-319-467-4565

Address: 373 Psychological & Brain Sciences Building, University of Iowa, Iowa City, IA 52242, USA

Website: <https://myweb.uiowa.edu/jiefjiang/index.html>

Education and Academic Positions

2025- **Associate Professor**, Department of Psychological & Brain Sciences, **University of Iowa**

2020-2025 **Assistant Professor**, Department of Psychological & Brain Sciences, **University of Iowa**

2016-2019 **Postdoctoral Research Associate**, Department of Psychology, **Stanford University**
Advisor: **Anthony Wagner**

2014-2016 **Postdoctoral Research Associate**, Center for Cognitive Neuroscience, **Duke University**
Advisor: **Tobias Egner**

2009-2014 **Ph.D** in Psychology, Department of Psychology & Neuroscience, **Duke University**
Advisor: **Tobias Egner**
Dissertation: A Bayesian Framework of Cognitive Control

2009-2012 **M.A** in Psychology, Department of Psychology & Neuroscience, **Duke University**
Advisor: **Tobias Egner**

2006-2009 **M.E** in Pattern Recognition and Intelligent Systems, **Institute of Automation, Chinese Academy of Sciences**
Advisor: **Tianzi Jiang**

1999-2003 **B.E** in Computer Science, **Zhejiang University**

Preprints and Manuscripts in Preparation

Leach, S. C., Morrow, H., **Jiang, J.***, & Hwang, K.* (equal contribution) (in review). How task representations integrate information from multiple sources.

Lee, W-T., Hazeltine, E., & **Jiang, J.** (under review). Decoding task representations supporting composition and generalization in hierarchical task learning

Publications

Bustos, B., **Jiang, J.***, & Kool, W.* (equal contribution) (2025). Reward masks the learning of cognitive control demand. *Cognitive Neurodynamics*, 19(1): 114

Teng, C., Fulvio, J. M., Pietrelli, M., **Jiang, J.**, Postle, B. R. (2025). Temporal dynamics and representational consequences of the control of processing conflict between visual working memory and visual perception. *Journal of Cognitive Neuroscience*, 37(8): 1328-1348

Yang, G., **Jiang, J.** (2025). Cost-benefit tradeoff mediates the transition from rule-based to memory-based processing during practice. *PLOS Biology*, 23(1): e3002987.

Bustos, B., Mordkoof, J-T., Hazeltine, E., & **Jiang, J.** (2024). Task switch costs scale with dissimilarity between task rule. *Journal of Experimental Psychology: General*, 153(7): 1873-1886

- Yang, G., Wu, H., Li, Q., Liu, X., Fu, Z., & **Jiang, J.** (2024). Conflicts are parametrically encoded: initial evidence for a cognitive space view to reconcile the debate of domain-general and domain-specific cognitive control. *eLife*, 13:e87126
- Jiang, J.**, Bruss, J., Lee, W-T., Tranel, D., & Boes, A. (2023). White matter disconnection of left multiple demand network is associated with post-lesion deficits in cognitive control. *Nature Communications*, 14:1740
- Fernandez, C., **Jiang, J.**, Wang, S. F., Choi, H., & Wagner, A. D. (2023). Representational integration and differentiation in the human hippocampus following goal-directed navigation. *eLife*, 12:e80281
- Teng, C., Fulvio, J., **Jiang, J.**, & Postle, B. (2022). Flexible top-down control in the interaction between working memory and perception. *Journal of Vision*, 22(11):3 1-19
- Lee, W-T., Hazeltine, E., & **Jiang, J.** (2022). Interference and integration in hierarchical task learning. *Journal of Experimental Psychology: General*, 151(12): 3028-3044
- Bramao, I., **Jiang, J.**, Wagner, A. D., & Johansson, M. (2022). Encoding contexts are incidentally reinstated during competitive retrieval and track the temporal dynamics of memory interference. *Cerebral Cortex*, 32(22): 5020-5035
- Wessel, J.*, **Jiang, J.*** (equal contribution), & Stolley, J. (2022). Action errors impair active working memory maintenance. *Journal of Experimental Psychology: General*, 151(6): 1325-1340
- Madore, K. P., Khazenzon, A. M., Backes, C. W., **Jiang, J.**, Uncapher, M., Norcia, A. M., & Wagner, A. D. (2020). Memory failure predicted by attention lapsing and media multitasking. *Nature*, 587(7832): 87-91
- Jiang J, von Kriegstein K, & **Jiang J.** (2020). Brain mechanisms of eye contact during verbal communication predict autistic traits in neurotypical individuals. *Scientific Reports*, 10:14602.
- Trelle, A. N., Carr, V. A., Guerin, S. A., Thieu, M. K., Jayakumar, M., Guo, W., Nadiadwala, A., Corso, N. K., Hunt, M. P., Litovsky, C. P., Tanner, N. J., Deutsch, G. K., Bernstein, J. D., Harrison, M. B., Khazenzon, A. M., **Jiang, J.**, Sha, S. J., Fredericks, C. A., Rutt, B. K., Mormino, E. C., Kerchner, G. A., & Wagner, A. D. (2020). Hippocampal and cortical mechanisms at retrieval explain variability in episodic remembering in older adults. *eLife*, 9:e55335
- Jiang, J.**, Wang, S. F., Guo, W., & Wagner, A. D. (2020). Proactive control in context: Context-cued predictions of task demands facilitate perceptual decisions in virtual environments. *Nature Communications*, 11:2053
- Jiang, J.**, Bramao, I., Khazenzon, A., Wang, S. F., Johansson, M., & Wagner, A. D. (in press). Temporal dynamics of memory-guided cognitive control and generalization of control via mnemonic integration. *Journal of Neuroscience*, 40(11): 2343-2356
- Sali, T. W., **Jiang, J.**, & Egner, T. (2020). Neural mechanisms of strategic adaptation in attentional flexibility. *Journal of Cognitive Neuroscience*, 32(5): 989-1008
- Jiang, J.**, Wagner, A. D., & Egner, T. (2018). Integrated externally and internally generated task predictions jointly guide cognitive control in prefrontal cortex. *eLife*, 7:e39497
- Muhle-Kabre, P. S., **Jiang, J.**, & Egner, T. (2018). Causal evidence for learning-dependent frontal-lobe contributions to cognitive control. *Journal of Neuroscience*, 38(4): 962-973
- Korb, F. M., **Jiang, J.**, King, J. A., & Egner, T. (2017). Hierarchically organized medial frontal cortex-basal ganglia loops selectively control task- and response-selection. *Journal of Neuroscience*, 37(33): 7893-7905
- Chiu, Y. C., **Jiang, J.**, & Egner, T. (2017). The caudate nucleus mediates learning of stimulus-control state associations. *Journal of Neuroscience*, 37(4): 1028-1038
- Jiang, J.**, Summerfield, C., & Egner, T. (2016). Visual prediction error spreads across object features in human visual cortex. *Journal of Neuroscience*, 36(50): 12746-12763
- Jiang, J.**, Brashier, N. M., & Egner, T. (2015). Memory meets control in hippocampal and striatal binding of

stimuli, responses, and attentional control states. *Journal of Neuroscience*, 35(44): 14885-14895.

Jiang, J., Beck, J., Heller, K., & Egner, T. (2015). An insula-frontostriatal network mediates flexible cognitive control by adaptively predicting changing control demands. *Nature Communications*, 6:8165

Weissman, D., **Jiang, J.**, & Egner, T. (2014). Determinants of congruency sequence effects without learning and memory confounds. *Journal of Experimental Psychology: Human Perception and Performance*, 40(5): 2022–2037.

Jiang, J., Heller, K., & Egner, T. (2014). Bayesian modeling of flexible cognitive control. *Neuroscience and Biobehavioral Reviews*, 46: 30-43.

Jiang, J. & Egner, T. (2014). Using neural pattern classifiers to quantify the modularity of conflict-control mechanisms in the human brain. *Cerebral Cortex*, 24: 1793-1805.

Jiang, J., Summerfield, C., & Egner, T. (2013). Attention sharpens the distinction between expected and unexpected percepts in the visual brain. *Journal of Neuroscience*, 33(47): 18438-18447.

Li, J., Liu, Y., Qin, W., **Jiang, J.**, Qiu, Z., Xu, J., Yu, C., & Jiang, T. (2012). Age of onset of blindness affects brain anatomical networks constructed using diffusion tensor tractography. *Cerebral Cortex*, 23: 542-551.

Jiang, J., Schmajuk, N., & Egner, T. (2012). Explaining neural signals in human visual cortex with an associative learning model. *Behavioral Neuroscience*, 126(4): 575-581.

Jiang, J., Zhu, W., Shi, F., Liu, Y., Li, J., Qin, W., Li, K., Yu, C., & Jiang, T. (2009). Thick visual cortex in the early blind. *Journal of Neuroscience* 29(7): 2205–2211.

Cheng, J., Shi, F., Wang, K., Song, M., **Jiang, J.**, Xu, L., & Jiang, T. (2009) Nonparametric mean shift functional detection in the functional space of task and resting-state fMRI. *Workshop on fMRI data analysis: statistical modeling and detection issues in intra-and inter-subject functional MRI data analysis, in conjunction with the MICCAI 2009*.

Jiang, J., Zhu, W., Shi, F., Zhang, Y., Lin, L., & Jiang, T. (2008). A robust and accurate algorithm for estimating the complexity of the cortical surface. *Journal of Neuroscience Methods* 172: 122–130.

Jiang, X., Liu, B., **Jiang, J.**, Zhao, H., Fan, M., Zhang, J., Fan, Z., Jiang, T. (2008). Modularity in the genetic disease-phenotype network. *FEBS Letters* 582: 2549–2554.

Jiang, T., Liu, Y., Shi, F., Shu, N., Liu, B., **Jiang, J.**, & Zhou, J. (2008). Multimodal Magnetic Resonance Imaging for Brain Disorders: Advances and Perspectives. *Brain Imaging and Behavior* 2: 249–257.

Zhang, Y., **Jiang, J.**, Lin, L., Shi, F., Zhou, Y., Yu, C., Li, K., & Jiang, T. (2008). A Surface-Based Fractal Information Dimension Method for Cortical Complexity Analysis. in T. Dohi, I. Sakuma, and H. Liao (Eds.): *MIAR 2008, LNCS 5128, pp. 133–141, Springer-Verlag Berlin Heidelberg*.

Li, X., **Jiang, J.**, Zhu, W., Yu, C., Sui, M., Wang, Y., & Jiang, T. (2007). Asymmetry of prefrontal cortical convolution complexity in males with attention-deficit/hyperactivity disorder using fractal information dimension. *Brain & Development* 29: 649–655.

Shi, F., Liu, Y., Jiang, T., Zhou, Y., Zhu, W., **Jiang, J.**, Liu, H., & Liu, Z. (2007). Regional Homogeneity and Anatomical Parcellation for fMRI Image Classification: Application to Schizophrenia and Normal Controls. in N. Ayache, S. Ourselin, A. Maeder (Eds.): *MICCAI 2007, Part II, LNCS 4792, pp. 136–143, Springer-Verlag Berlin Heidelberg*.

Research Grants

Under review

Co-PI *Task representations shaped by task organization, goals and control demands*

R01 proposal with Co-PI Eliot Hazeltine

Co-PI *Neural and Cognitive Integration for Flexible Task Control*

R01 proposal with Co-PI Kai Hwang

Co-PI *Task representation geometry shaped by rule structure and high-level statistical regularities*

R21 proposal with Co-PI Eliot Hazeltine

Ongoing

2022-2027	PI	NIH R01MH131559	\$1,859,147
		<i>Neurocognitive mechanisms of task representation reorganization during task learning</i>	

Completed

2020	PI	Old Gold Summer Fellowship, University of Iowa	\$6,000
2018-2020	Co-I	NIH R21AG058111	\$431,750
		<i>Age-related decline in interactions between context, cognitive control, and memory</i>	
2017	PI	Stanford Center for Cognitive and Neurobiological Imaging Innovation Award	\$4,725
2017-2019	PI	NIH NRSA Postdoctoral Fellowship, NIA	\$174,090

Talks

2025 Rising star session talk, “*How is task knowledge organized along an axis of complexity?*”
Cognitive Neuroscience Society annual conference

2024 Invited keynote address, “*On the Learning and Organization of Task Representations*”.
Chinese Psychological Society, General Psychology and Experimental Psychology Division
annual conference

2022 Symposium talk, “*Interference and Integration in Hierarchical Task Learning*”. Cognitive
Neuroscience Society annual conference

Symposium talk, “*Interference and Integration in Hierarchical Task Learning*”. Society for
Psychophysiological Research annual conference

2020 Invited talk, “*Neural substrates supporting the associative memory of cognitive control*”.
University of Oregon

Invited talk, “*Prefrontal reinstatement of contextual task demand is mediated by separable
hippocampal patterns*”, Neurochat conference

Conference Poster Presentations

Huang, B., & **Jiang, J.** (2025). Both stimulus-control state associations and stimulus-response associations contribute to item-specific proportion congruency effect. *Annual Meeting of the Cognitive Neuroscience Society*, Boston, MA.

Lee, W.T., Hazeltine, E. & **Jiang, J.** (2025). Changes in task representation via association is linked to hierarchical task learning, *Annual Meeting of the Cognitive Neuroscience Society*, Boston, MA.

- Bustos, B., & **Jiang, J.** (2025). Hippocampo-cortical contributions to the structured organization of task knowledge, *Annual Meeting of the Cognitive Neuroscience Society*, Boston, MA
- Yang, G. & **Jiang, J.** (2024). Dynamics of Multi-form Task Representations during Sequence Learning, *Cognitive Computational Neuroscience Annual Conference*, Boston, Massachusetts.
- Yang, G. & **Jiang, J.** (2024). Learning Dynamics of Multi-form Working Memory Representations, *the Virtual Working Memory Conference*, Online.
- Bustos, B., Mordkoof, J-T., Hazeltine, E. & **Jiang, J.** (2024). Temporal Dynamics of Parametric Task Switching, *Annual Meeting of the Cognitive Neuroscience Society*, Toronto, ON, Canada.
- Lee, W.T., Hazeltine, E. & **Jiang, J.** (2024). Decoding Composition and Generalization of task representations in hierarchical task learning, *Annual Meeting of the Cognitive Neuroscience Society*, Toronto, ON, Canada.
- Yang, G., & **Jiang, J.** (2024). Multi-level dynamics of task representation during learning. *Annual Meeting of the Cognitive Neuroscience Society*, Toronto, ON.
- Huang, B., & **Jiang, J.** (2024). Both stimulus-control state associations and stimulus-response associations contribute to item-specific proportion congruency effect. *Annual Meeting of the Cognitive Neuroscience Society*, Toronto, ON.
- Yang, G., & **Jiang, J.** (2023). Flexible Rule and Memory -based Representation in Task Sequences. *Annual Meeting of the Society for Neuroscience*, Washington, DC.
- Bustos, B., Mordkoff, J-T., Hazeltine, E., & **Jiang, J.** (2023). Multimodal Evidence for the Reorganization of Task Rules. *Annual Meeting of the Society for Neuroscience*, Washington, DC.
- Yang, G., & **Jiang, J.** (2023). Flexible Rule and Memory -based Representation in Task Sequences. *Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.
- Bustos, B., Mordkoff, J-T., Hazeltine, E., & **Jiang, J.** (2022). Task switch costs scale with dissimilarity between task-rules in a cognitive map-like manner. *Mental Effort Workshop*, Brown University, Providence, RI.
- Bustos, B., Mordkoff, J-T., Hazeltine, E., & **Jiang, J.** (2022). Task switch costs scale with dissimilarity between task-rules in a cognitive map-like manner. *Annual Meeting of the Virtual Working Memory Conference*, online.
- Bustos, B., Mordkoff, J-T., Hazeltine, E., & **Jiang, J.** (2022). Task switch costs scale with dissimilarity between task-rules in a cognitive map-like manner. *Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.
- Lee, W-T., Hazeltine, E., & **Jiang, J.** (2022). Integration and interference in hierarchical task learning. *Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.
- Yang, G., & **Jiang, J.** (2022). Experiences modulated the level of abstraction in task representation. *Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.
- Jiang, J.**, Wang, S. F., Guo, W., Fernandez, C., & Wagner, A. D. (2019). Prefrontal reinstatement of contextual task demand is mediated by repulsion in hippocampal activity patterns between contexts. *Annual Meeting of the Society for Neuroscience*, Chicago, CA.
- Jiang, J.**, Wang, S. F., Guo, W., & Wagner, A. D. (2018). Context-cued predictions of task demands facilitate perceptual decisions in virtual environments. *Annual Meeting of the Society for Neuroscience*, San Diego, CA.
- Jiang, J.**, Bramaio, I., Khazenon, A., Johansson, M., & Wagner, A. D. (2018). Generalization of cognitive control demand via overlapping associative memories. *International Conference on Learning & Memory*, Huntington Beach, CA.
- Wang, S. F., Carr, V. A., Favila, S. E., Bailenson, J. N., Brown, T. I., **Jiang, J.**, & Wagner, A. D. (2018). Representations of local information in human medial temporal lobe during memory-guided spatial navigation.

International Conference on Learning & Memory, Huntington Beach, CA.

Trelle, A., Carr, V. A., Guerin, S., Guo, W., Harrison, M. B., Jayakumar, M., **Jiang, J.**, Kerchner, G., Momino, E., Tanner, N., Thieu, M., & Wagner, A.D. (2018). Parietal and occipitotemporal cortical reinstatement differentially predict successful associative memory retrieval in older adults. *Annual Meeting of the Cognitive Neuroscience Society*, Boston, MA.

Jiang, J., LaRocque, K. F., Guerin, S. A., Fernandez, C., & Wagner, A. D. (2017). Hippocampal contribution to cortical reinstatement during episodic retrieval. *Annual Meeting of the Society for Neuroscience*, Washington, DC.

Trelle, A., Bernstein, J., Carr, V. A., Fredericks, C., Guerin, S., Guo, W., Jayakumar, M., **Jiang, J.**, Kerchner, G., Khazenzon, A., Litovsky, C., Sharon, S., Thieu, M., & Wagner, A.D. (2017). Cortical and hippocampal predictors of individual differences in episodic memory in putatively healthy older adults. *Annual Meeting of the Society for Neuroscience*, Washington, DC.

Muhle-Kabre, P., **Jiang, J.**, & Egner, T. (2017). Causal evidence for learning-dependent frontal lobe contributions to cognitive control. *Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.

Jiang, J., Summerfield, C., & Egner, T. (2016). Surprise spreads across different features of an object to form object-level expectation in visual cognition. *Annual Meeting of the Cognitive Neuroscience Society*, New York, NY.

Jiang, J., Brashier, N., & Egner, T. (2015). Memory meets control in hippocampal and striatal binding of multi-level event features. *Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.

Jiang, J., & Egner, T. (2014). Neurocomputational Mechanisms of flexible cognitive control. *Annual Meeting of the Cognitive Neuroscience Society*, Boston, MA.

Jiang, J., Summerfield, C., & Egner, T. (2013). Attention amplifies or suppresses neural prediction error responses in a regionally specific manner. *Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.

Egner, T., & **Jiang, J.** (2011). Information-based brain mapping of stimulus- versus response-based interference control processes. *Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA.

Teaching

University of Iowa

2023- PSY4035: Laboratory in Computational Neuroscience

2021- PSY5080: Foundations in Cognitive Neuroscience

2021- PSY2811: Research Methods and Data Analysis I

2020- PSY4020: Laboratory in Psychology

2020- PSY5070: Programming for Psychologists

Stanford University

03/2018 Guest lecturer in undergraduate course 'Thinking matters'

Duke University

07/2016 Instructor and organizer, Amazon Mechanical Turk workshop

2011-2013 Graduate teaching assistant, Statistical Methods in Psychology and Introduction to Psychology

2010-2013 Instructor, Brain Awareness Week

Mentoring

Postdocs	Guochun Yang (2021-2025) Position after training: Professor, Guangdong Institute of Intelligence Science and Technology, China Bingfang Huang (2022-)
Ph.D Students	Woo-Tek Lee (2020-) <i>Simon Award</i> , Department of Psychological and Brain Sciences, University of Iowa (2023) <i>Yellen Fellowship</i> , Department of Psychological and Brain Sciences, University of Iowa (2024) Bettina Bustos (2021-) <i>Best student poster</i> , Cognitive Neuroscience Society conference (2022) <i>Simon Award</i> , Department of Psychological and Brain Sciences, University of Iowa (2024)
Research assistants	Qiutong Hong (2023-) Wanjia Guo (2017-2018)
Undergraduate students	William Cheng (2024) Tommy Looi (2024) Jordan Nicolson (2023-2024) Jackson Han (2023-2024) Shuntaro Kawasaki (2023) Caleb Greene (2022-2024) Arsha Vaddadi (2022-2023) Qiutong Hong (2022-2023) Daylon Tippit (2016-2018) <i>Firestone Medal for Excellent Undergraduate Research</i> (highest award for honors thesis at Stanford, 2018)
Ph.D. Committees	Francis Smith, Tobin Dykstra, Yoojeong, Choo, Xitong Chen, Samantha Chiu, Marco Pipoly, Stephanie Leach
Comprehensive exam/Prospectus committees	Qingzi Zheng, Ariel Kershner, Stephanie Leach, Jeffery Stolley, Xitong Chen, Zexuan Niu, Nathan Cremers, Ying Li, Odysseus Orr
Research Advisory Committees	Xitong Chen, Kalyani Datta, Stephanie Leach, Ying Li, Zexuan Niu, Johnny Peters
Neuroscience Program Rotation Advisor	Nathan Cremers, Jeffery Stolley

Service

Department

2024 - 2025 Member, Faculty Search Committee, Transformational senior faculty position

- 2023 Member, Faculty Search Committee, Tenure-track position in computational psychology/neuroscience
- 2023 - Member, Committee on Undergraduate Studies, Department of Psychological and Brain Sciences
- 2021 - Member, Neuroscience Program Admission Committee
- 2021 - Member, Cognition area Proseminar Committee
- 2020 - Contributor, Psychological and Brain Sciences Diversity Open House

Profession

Journal reviewing

Attention, Perception, & Psychophysics, Brain Imaging and Behavior, Cerebral Cortex, Cognition, Cognitive Affective and Behavioral Neuroscience, Communications Biology, Current Opinion in Behavioral Sciences, eLife, European Journal of Neuroscience, Experimental Brain Research, Frontiers in Psychology, Human Brain Mapping, IEEE Transactions on Cognitive and Developmental Systems, Journal of Alzheimer's Disease, Journal of Cognitive Neuroscience, Journal of Experimental Psychology: General, Journal of Experimental Psychology: Human Perception and Performance, Journal of Experimental Psychology: Learning Memory and Cognition, Journal of Gerontology: Psychological Sciences, Journal of Magnetic Resonance Imaging, Journal of Neuroscience, Memory and Cognition, Nature Communications, Neural Plasticity, NeuroImage, Neuropsychologia, PLOS Biology, PLOS ONE, Psychological Research, Psychological Review, Psychonomic Bulletin & Reviews, Quarterly Journal of Experimental Psychology, Scientific Reports, Social Cognitive and Affective Neuroscience, Trends in Cognitive Sciences

Grant reviewing

National Science Foundation

Professional Affiliations

American Psychological Association
Cognitive Neuroscience Society
Society for Neuroscience