

KE BO, PhD

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Academic Appointments

Assistant Professor of Psychology, School of Behavioral and Brain Sciences, The
University of Texas at Dallas, Center for Vital Longevity 08/2026–present

Postdoctoral Researcher, Cognitive and Affective Neuroscience Laboratory (PI: Tor
Wager), Dartmouth College, 05/2021–07/2026

Advisor: Dr. Tor Wager

Research Assistant, Neuroinformatics Laboratory (PI: Dr. Mingzhou Ding),
University of Florida, 08/2015–05/2021

Advisor: Dr. Mingzhou Ding

Education

Ph.D. in Biomedical Engineering (BME), University of Florida, Gainesville, FL,
12/2020

B.S. in Biomedical Engineering (BME), Xi'an Jiaotong University, Shanxi, China,
06/2015

Professional Summary

I am a cognitive and affective neuroscientist integrating computational modeling, machine learning, and multimodal neuroimaging to understand how the brain generates and regulates emotion, and how bioenergetic health shapes cognition, resilience, and mental health.

Publications

Peer-Reviewed Articles (* represents equal contribution first author):

1. **Bo, K.**, Cui, L., Chen, Y., Chen, G., Keil, A., & Ding, M. (2026). Neural representation of emotional valence in human amygdala and surrounding regions. *NeuroImage*, 121693.
2. Miao, Z., Jung, H., Kragel, P. A., **Bo, K.**, Sadil, P., Lindquist, M. A., & Wager, T. D. (2026). Common and distinct neural correlates of social interaction processing and theory of mind in narratives. *Nature communications*.
3. Kwon, M., **Bo, K.**, Botvinik-Nezer, R., Kragel, P. A., Van Oudenhove, L., Wager, T. D., & Affective Neuroimaging Consortium. (2026). Convergent and selective representations of pain, appetitive processes, aversive processes, and cognitive control in the insula. *Nature communications*.
4. Zhang, J. X*, **Bo, K***, Wager, T. D., & Gross, J. J. (2025). The brain bases of emotion generation and emotion regulation. *Trends in Cognitive Sciences*, 29(10), 879–891.
5. Cui, L., **Bo, K.**, Xiong, C., Chen, Y., Keil, A., & Ding, M. (2025). Stimulus repetition induces a two-stage learning process in the primary visual cortex. *Journal of Neuroscience*, 45(23)
6. Xiong, C., Petro, N. M., **Bo, K.**, Cui, L., Keil, A., & Ding, M. (2025). Rhythmic sampling and competition of target and distractor in a motion detection task. *eLife*, 14:RP106140.
7. He, Z., Cohen, N., Shu, J., **Bo, K.**, Wager, T. D., & Ochsner, K. N. (2025). Comparing the neural bases of self- and social-reappraisal. *Cerebral Cortex*, 35(8), 6789–6799.
8. **Bo, K.**, Kraynak, T. E., Kwon, M., Sun, M., Gianaros, P. J., & Wager, T. D. (2024). A systems identification approach using Bayes factors to deconstruct the brain bases of emotion regulation. *Nature Neuroscience*, 27(5), 975–987.
9. Kelly, C., Trumpff, C., Acosta, C., Assuras, S., Baker, J., Basarrate, S., Behnke, A., **Bo, K.**, ... Picard, M. (2024). A platform to map the mind–mitochondria connection and the hallmarks of psychobiology: The MiSBIE study. *Trends in Endocrinology & Metabolism*, 35(10), 884–901.
10. Liu, P., **Bo, K.**, Ding, M., & Fang, R. (2024). Emergence of emotion selectivity in deep neural networks trained to recognize visual objects. *PLOS Computational Biology*, 20(3), e1011943.
11. Liang, Y., **Bo, K.**, Meyyappan, S., & Ding, M. (2024). Decoding fMRI data with support vector machines and deep neural networks. *Journal of Neuroscience Methods*, 401, 110004.
12. Liang, Y., Zhao, Q., Hu, Z., **Bo, K.**, Meyyappan, S., Neubert, J. K., & Ding, M. (2023). Imaging the neural substrate of trigeminal neuralgia pain using deep learning. *Frontiers in Human Neuroscience*, 17, 1144159.
13. **Bo, K.**, Cui, L., Yin, S., Hu, Z., Hong, X., Kim, S., Keil, A., & Ding, M. (2022). Decoding the temporal dynamics of affective scene processing. *NeuroImage*, 261, 119532.

14. Hu, Z., Samuel, I. B., Meyyappan, S., **Bo, K.**, Rana, C., & Ding, M. (2022). Aftereffects of frontoparietal theta tACS on verbal working memory: Behavioral and neurophysiological analysis. *IBRO Neuroscience Reports*, 13, 469–477.
15. **Bo, K.**, Yin, S., Liu, Y., Hu, Z., Meyyappan, S., Kim, S., Keil, A., & Ding, M. (2021). Decoding neural representations of affective scenes in retinotopic visual cortex. *Cerebral Cortex*, 31(6), 3047–3063.
16. Yin, S., **Bo, K.**, Liu, Y., Thigpen, N., Keil, A., & Ding, M. (2020). Fear conditioning prompts sparser representations of conditioned threat in primary visual cortex. *Social Cognitive and Affective Neuroscience*, 15(9), 950–964.
17. Hong, X., **Bo, K.**, Meyyappan, S., Tong, S., & Ding, M. (2020). Decoding attention control and selection in visual spatial attention. *Human Brain Mapping*, 41(14), 3900–3921.
18. Hu, Z., Barkley, C. M., Marino, S. E., Wang, C., Rajan, A., **Bo, K.**, ... Ding, M. (2019). Working memory capacity is negatively associated with memory load modulation of alpha oscillations in retention of verbal working memory. *Journal of Cognitive Neuroscience*, 31(12), 1933–1945.

Preprints and Manuscripts Under Review:

19. **Bo, K.**, Kelly, C., Trumpff, C., Hirano, M., Thiebaut de Schotten, M., Picard, M., & Wager, T. D. (2025). Mitochondrial Energy Transformation Capacity Influences Brain Activation During Sensory, Affective, and Cognitive Tasks. *bioRxiv*, 2025.06.25.661482. Manuscript in revision.
20. **Bo, K.**, Lindquist, M. A., Gianaros, P. J., & Wager, T. D. (2026). Spatiotemporal Dissociation of Human Amygdala Response to Negative Affect. Under review at *Elife*.

Book Chapters

1. **Bo, K.**, & Wager, T. D. (2023). The brain bases of emotion regulation: Evidence from fMRI. In J. J. Gross & B. Q. Ford (Eds.), *Handbook of Emotion Regulation* (3rd ed.). New York, NY: The Guilford Press.
2. **Bo, K.**, & Wager, T. D. (2025). Placebo effects and emotion regulation: Conceptual and neural similarities and differences. In F. Benedetti & A. Shaibani (Eds.), *Placebo Effects in Neurology* (Handbook of Clinical Neurology, Vol. 213). Elsevier.

Invited Talks

- Two Lenses on Emotional Health: Regulation and Bioenergetics — Stanford Social Neuroscience Laboratory, Stanford, CA, February 2025.

- Looking into the Brain Basis of Emotion Generation and Regulation: From a Beginner to a Deep Thinker — Stanford Psychophysiology Laboratory, Stanford, CA, May 2024.
- Break the Neural Code of Emotion Regulation — Guest Speaker, iBrainTalk, a widely recognized Mandarin-language platform for neuroscience outreach and public engagement, May 2024.
- Deconstructing the Brain Bases of Emotion Regulation: A System-Identification Approach Using Bayes Factors — Symposium Talk, Social Affective Neuroscience Society (SANS) Annual Meeting, Santa Barbara, CA, April 2023.
- Deconstructing the Brain Bases of Emotion Regulation: A System-Identification Approach Using Bayes Factors — Dartmouth Brain Imaging Center, Hanover, NH, April 2023.
- Neural Mechanisms of Affective Scene Perception — Dartmouth College, Department of Psychological and Brain Sciences, Hanover, NH, February 2021.

Conference Poster Presentations

- Mitochondrial Energy Transformation Capacity Influences Brain Activation During Sensory, Affective, and Cognitive Tasks. *Organization for Human Brain Mapping 2025. Neuroscience 2024.*
- A systems identification approach using Bayes factors to deconstruct the brain bases of emotion regulation. *Society of Biological Psychiatry 2024; Organization for Human Brain Mapping 2024. Cognitive Neuroscience Society 2022; Neuroscience 2022.*
- Dynamics of negative emotion and cognitive reappraisal in the amygdala. *Neuroscience 2023.*
- Distracted by affective pictures: Neural mechanisms revealed by multivariate pattern analysis. *Vision science society 2020. Neuroscience 2019.*
- Temporal Dynamics of neural representations of affective pictures revealed by combining MVPA and EEG. *Cognitive Neuroscience Society 2020. Vision science society 2019.*
- EEG and fMRI Decoding of Emotional States. *Neuroscience 2018.*
- Neural basis of affective picture processing: Insights from machine learning and multimodal neuroimaging. *Neuroscience 2017.*
- Spatiotemporal Dynamics of Emotional Processing: An MVPA Study. *Neuroscience 2016.*

Grants

- National Institute of Mental Health (NIMH) RF1AG076821. Role: Postdoctoral Fellow. PIs: Martin Picard, Tor Wager.

- National Institute of Mental Health (NIMH) R01 MH116026. Role: Postdoctoral Fellow. PIs: Luke Chang, Tor Wager.
- National Institute of Mental Health (NIMH) R37MH076136. Role: Postdoctoral Fellow. PI: Tor Wager

Teaching & Mentoring Experience

Course Instructor, HCS/ACN/PSYC 5312: Introductory Research Methods in Behavioral and Brain Sciences – Part I (The University of Texas at Dallas), Fall 2026

- Designed a graduate-level course covering research design, statistical inference, reproducible methods, and applications in behavioral and brain sciences.

Teaching Assistant, BME6940 Supervised Teaching in Biomedical Instrumentation, Introduction to Biomedical Engineering (University of Florida), 2017–2018

- Delivered lectures introducing various areas within biomedical engineering to undergraduate students.
- Assisted students with experimental design for course projects.
- Graded homework assignments and final projects.

Guest Lecture, Cognitive Neuroscience (The University of Texas at Dallas)

- Presented a lecture on the history of emotion theory and emotion regulation, linking foundational concepts to my own research for a graduate-level audience.

Guest Lecture, Neuroanatomy (Dartmouth College)

- Delivered a lecture on the history and applications of machine learning and deep learning in neuroimaging.
- Shared personal research experience and discussed current trends in neuro-AI with medical and graduate students.

Guest Lecture, Computational Methods for Studying the Neural Code (University of South Carolina)

- Taught Bayesian methods for analyzing neuroimaging data, drawing on my own publications.
- Introduced students to neuroimaging research on emotion generation and regulation.

Mentorship

- Mentored multiple Ph.D. students, research assistants, and high school students.

- Selected mentees and outcomes:
 - Lihan Cui, Ph.D. — Cui et al., 2025, *Journal of Neuroscience*
 - Changhao Xiong, Ph.D. student — Xiong et al., 2025, *eLife*
 - Mijin Kwon, Ph.D. student — Kwon et al., 2025, *bioRxiv* (in review at *Nature Communications*)

Awards & Honors

- Post-doctoral Fellow Award, Cognitive Neuroscience Society, 2022
- Best Abstract Award at the Montreal AI Neuroscience (MAIN) conference, 2021
- University of Florida, McKnight Brain Institute Travel Award, 2019
- 1st Prize, Chinese Biomedical Engineering Design Contest (among 1200 teams from over 100 universities), 2014

Research Service

Journal reviewer: Nature Communications, npj Digital Medicine, eLife, PLOS Biology, Imaging Neuroscience, Cerebral Cortex, Human Brain Mapping, iScience, PNAS Nexus, IEEE Transactions on Biomedical Engineering, Scientific Reports, Biological Psychology, and The Journal of Pain.

Grant reviewer: The Center for Brain, Biology & Behavior (CB3) Seed Grant, University of Nebraska Lincoln.