

KE BO, PhD

Postdoc associate, Psychological and Brain Science, Dartmouth College
352-215-2095; ke.bo@dartmouth.edu; 19 W Wheelock Street, Hanover, NH

Education

Ph.D. in Biomedical Engineering (BME) PI: Dr. Mingzhou Ding 08/2015-12/2020
University of Florida (UF), Gainesville, USA
B.S. in Biomedical Engineering (BME) 09/2011-06/2015
Xi'an Jiaotong University (XJTU), Shanxi, China

Academic appointments

Research scientist 12/2020-05/2021
Neuroinformatics Laboratory (PI: Dr. Mingzhou Ding), University of Florida

- Research focus:** Utilizing machine learning (traditional algorithms and deep neural networks) and multi-modal neuroimaging techniques (fMRI, EEG, and ECoG) to understand human emotion processing.

Postdoctoral researcher 05/2021-current
Cognitive and Affective Neuroscience Laboratory (PI: Tor Wager), Dartmouth College

- Research focus:** 1. Applying new Bayesian computational frameworks to understand the human emotion regulation process. 2. Investigating functional activation in mitochondrial disease during various cognitive tasks using functional neuroimaging, to understand its impact on neurodegenerative processes.

Publications

- 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*, 1-13.
- Bo, K.**, Cui, L., Yin, S., Hu, Z., Hong, X., Kim, S., ... & Ding, M. (2022). Decoding the temporal dynamics of affective scene processing. *NeuroImage*, 261, 119532.
- Bo, K.**, Yin, S., Liu, Y., Hu, Z., Meyyappan, S., Kim, S., ... & Ding, M. (2021). Decoding neural representations of affective scenes in retinotopic visual cortex. *Cerebral cortex*, 31(6), 3047-3063.
- 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.
- 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.

6. 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.
7. 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.
8. 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.
9. 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.
10. 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.

Manuscript in preparation

1. Xiong, C.,* **Bo, K.**,* Ding, M. Distracted by affective pictures: Neural mechanisms revealed by multivariate pattern analysis.
2. Liu, P.,* **Bo, K.**,* Ding, M., & Fang, R. Valence perception in a deep neural network model that incorporates visual cortex-amygdala anatomy.
3. **Bo, K.**, Lindquist, A.M., Wager, T. D. Temporal dynamic of affective and its regulatory processes in human amygdala.
4. **Bo, K.**, Kelly, C., Hirano, M., Picard, M., Wager, T. D. Abnormal Brain Functions in Mitochondrial Diseases: A Multimodal fMRI Study Across Sensory, Affective, and Cognitive Domains.

Book chapter

- **Bo, K.**, & Wager, T. D. (2023). The brain bases of emotion regulation: Evidence from fMRI. In Handbook of Emotion Regulation (3rd ed.). Guilford.

Awards and achievement

- Post-doctoral fellow Awards from Cognitive Neuroscience Society 04/2022
- University of Florida, McKnight Brain Institute Travel Award 11/2019
- 1st Prize in the 2014 Chinese Biomedical Engineering Design Contest. (Among 1200 teams from more than 100 University) 08/2014

Oral presentations

- **Ke Bo**; Neural mechanisms of affective scene perception. Postdoc job talk in Dartmouth Psychological and Brain Science department. Hanover, NH. February 2021.
- **Ke Bo**; Deconstructing the brain bases of emotion regulation: A system-identification approach using Bayes factors. Symposium talk at Social Affective Neuroscience Society (SANS) 2023. Santa Barbara, CA. April 2023.

- **Ke Bo**; Deconstructing the brain bases of emotion regulation: A system-identification approach using Bayes factors. Dartmouth Brain Imaging Center, fMRI brown bag, Hanover, NH. April 2023.
- **Ke Bo**; Look into the brain basis of emotion generation and regulation: From a beginner to a deep thinker. Stanford Psychophysiology Laboratory, Stanford, CA. May 2024.
- **Ke Bo**; Break the neural code of emotion regulation. Virtual talk in iBrainTalk. May 2024.

Poster presentations

- **Ke Bo**, Thomas E. Kraynak, Michael Sun, Mijin Kwon, Peter J. Gianaros, Tor D. Wager. 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.*
- **Ke Bo**, Martin Lindquist, Peter J. Gianaros, and Tor D. Wager, Temporal dynamics of negative emotion and cognitive reappraisal in the amygdala. *Neuroscience 2023*
- **Ke Bo**, Nathan M. Petro, Changhao Xiong, Andreas Keil, Mingzhou Ding. Distracted by affective pictures: Neural mechanisms revealed by multivariate pattern analysis. *Neuroscience 2019; Vision science society 2020.*
- **Ke Bo**, Siyang Yin, Zhenhong Hu, Jacob Jenkins, Andreas Keil, Mingzhou Ding. Temporal Dynamics of neural representations of affective pictures revealed by combining MVPA and EEG. *Vision science society 2019; Cognitive Neuroscience Society 2020.*
- **Ke Bo**, Siyang Yin, Yuelu Liu, Jacob Jenkins, Andreas Keil, Mingzhou Ding. EEG and fMRI Decoding of Emotional States. *Neuroscience 2018.*
- **Ke Bo**, Siyang Yin, Yuelu Liu, Andreas Keil, Mingzhou Ding. Neural basis of affective picture processing: Insights from machine learning and multimodal neuroimaging. *Neuroscience 2017.*
- **Ke Bo**, Amy Trongnetrpunya, Yuelu Liu, Andreas Keil, Mingzhou Ding. Spatiotemporal Dynamics of Emotional Processing: An MVPA Study. *Neuroscience 2016.*

Teaching and mentoring experience

- **Teaching assistant**, BME6940 Supervised Teaching in *Biomedical instrumentation* and *Introduction to Biomedical Engineering* (University of Florida). 2017-2018
- **Mentor** multiple junior PhD students and research assistants in research lab: Lihan Cui '19, Chaohao Xiong '20, Jacob Jenkins' 16. 2017-2020
- **Mentor** high school student Richa Bhavsar '18 in the **Student Science Training Program (SSTP)** summer program, University of Florida)

Research service

- **Ad-hoc reviewer for journal articles**: Imaging neuroscience, Cerebral Cortex, iScience, PANS-nexus, IEEE Transactions on Biomedical Engineering, Scientific Reports, Biological Psychology, The journal of Pain.
- **Ad-hoc reviewer for grant funding**: The center for Brain,Biology& Behavior (CB3) seed grant, University of Nebraska Lincoln