

KUN CHEN (陈坤)

Centre for Cognitive and Brain Sciences, University of Macau

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EDUCATION

Ph.D. in Psychology

University of Macau

Aug. 2021 – Oct. 2025

Macau SAR, China

B.Eng. in Computer Science and Technology

Huazhong University of Science and Technology

Sept. 2015 – Jun. 2019

Wuhan, China

RESEARCH INTERESTS

- How is semantic knowledge represented and retrieved in the human brain?
- How do these representations guide adaptive decision-making?
- How does emotional knowledge interact with social decision-making?

SKILLS

- **Programming:** Python, MATLAB, R, C/C++, JavaScript, HTML
- **Data Analysis:** EEG/SEEG, fMRI, Computational Modeling
- **Tools:** Nilearn, MNE, PyMC, Stan, SPM, Scikit-learn, PyTorch, PsychoPy, jsPsych, OpenSesame

PUBLICATIONS

denotes equal contribution

1. **Chen, K.**, Wang, R., Huang, J., Gao, F., Yuan, Z., Qi, Y., & Wu, H. (2022). A resource for assessing dynamic binary choices in the adult brain using EEG and mouse-tracking. *Scientific Data*, 9(1), 416. [[DOI](#)] [[Code](#)] [[Data](#)]
2. Zhang, H.[#], **Chen, K.**[#], Bao, J., & Wu, H. (2023). Oxytocin enhances the triangular association among behavior, resting-state, and task-state functional connectivity. *Human Brain Mapping*, 1-16. [[DOI](#)] [[Code](#)]
3. Zhuo, Z., Chai, L.[#], Wang, Y.[#], Gao, P.[#], Xu X.[#], ..., **Chen, K.**, ..., Zuo, X., & Liu, Y. (2025). Charting brain morphology in international healthy and neurological populations. *Nature Neuroscience*, 1-15. [[DOI](#)] [[Code](#)] [[Data](#)]

MANUSCRIPTS

denotes equal contribution

4. **Chen, K.**, Zhang, H., Hu, K., Zhang, G., Bai, C., Cheng, J., Wang, F., Yao, Y., & Wu, H. (in preparation). Intracranial-EEG evidence for contextual neural encoding of emotional values.
5. **Chen, K.**, He, C., & Wu, H. (in preparation). Neural dissociation of reward and emotion prediction errors.
6. **Chen, K.**, & Wu, H. (in preparation). Emotion prediction error for others shapes social decisions.
7. **Chen, K.**, Zhang, Y., & Wu, H. (in preparation). Flexible integration of emotion and reward signals during decision-making.

CONFERENCE

8. **Chen, K.**, Zhang, H., Hu, K., Zhang, G., Bai, C., Cheng, J., Wang, F., Yao, Y., & Wu, H. (2025). Temporal integration of emotional information in human neural dynamics. Oral presentation at *Guangdong-Hong Kong-Macao Greater Bay Area Forum on Innovative Development of Psychological Science*. Guangzhou, China, October 25–26.

RESEARCH EXPERIENCE

Oxytocin Modulates Behavioral Variability and Neural Variability Jan. 2022 – Sept. 2023
Co-Lead Investigator, published in *Human Brain Mapping*² Macau, China

- Quantified behavioral variability via Drift-Diffusion Models (DDM) and neural variability via functional network modularity changes to examine their coupling.
- Investigated neuro-behavioral associations in resting and task states using Connectome-Based Predictive Modeling (CPM) and explored the modulatory effects of oxytocin.

A Dataset for Binary Decision-Making using HD-EEG and Mouse-Tracking Oct. 2020 – July 2022
Lead Investigator, published in *Scientific Data*¹ Zhuhai, China

- Designed and programmed a mouse-tracking-based binary choice paradigm using high-density electroencephalography (HD-EEG).
- Established comprehensive preprocessing and analysis pipelines for HD-EEG data using Python and MATLAB.
- Characterized dynamic conceptual representation by integrating mouse trajectory dynamics with EEG metrics (ERP, time-frequency, and microstate analysis).
- Curated and published a BIDS-compliant EEG dataset, providing open-access data interfaces and analysis code.

HONORS AND AWARDS

Outstanding Graduate Award | *Huazhong University of Science and Technology* Jun. 2019
National Encouragement Scholarship | *Huazhong University of Science and Technology* Nov. 2017

TEACHING

Workshops

Hierarchical Drift Diffusion Model: from theory to practice Jan. 2025
Task fMRI data analysis: principles and practice Nov. 2023
Online behavioral experiment programming Jan. 2023
Computational Modeling of Cognition and Behavior (selected book chapters) Jan. 2022
High-density electroencephalography data preprocessing and analysis Sept. 2021
PsychoPy-based experiment programming Dec. 2020

Courses

GESB1014: Psychology and Intelligent Technology Spring, 2025 / Spring, 2024
Teaching Assistant *Department of Psychology, University of Macau*

PSYC1001: Psychology Statistics Fall, 2024
Teaching Assistant *Department of Psychology, University of Macau*

PSYB3000: Abnormal Psychology Fall, 2023
Teaching Assistant *Department of Psychology, University of Macau*

PSYC3018: Artificial Intelligence and Human Cognition Spring, 2023 / Spring, 2022
Teaching Assistant *Department of Psychology, University of Macau*

PSYC2004: Personality Psychology Fall, 2022 / Fall, 2021
Teaching Assistant *Department of Psychology, University of Macau*