

Ruien Wang

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E-mail: sb82402@um.edu.mo GitHub: github.com/rainneuro

Personal website: <https://rainneuro.github.io/> Lab website: <https://andlab-um.com/>

Education

University of Macau

Bachelor of Social Sciences in Psychology

Aug 2018 - June 2022

Macau SAR, China

Research Experience

Center for Cognitive and Brain Sciences, University of Macau

Aug 2020 - present

Supervisor: Prof. Haiyan Wu

**The abnormalities of resting-state EEG microstates in probable REM sleep behavior disorder
(Cooperation with West China Hospital)**

Oct 2020 - June 2021

- Independently conducted the resting-state EEG preprocessing and microstate analysis in MATLAB & Statistics by *R* language
- Manuscript writing and editing

**The abnormal electrophysiological signatures of patients with obstructive sleep apnea syndrome
(Cooperation with West China Hospital)**

Oct 2020 - July 2021

- Designed a visual-search EEG paradigm
- Independently conducted the task-EEG preprocessing and both event-related potential analysis and time-frequency analysis in MATLAB & Statistics by *R* language
- Manuscript writing and editing

How facial features influence the perception of male faces: evidence from NLP analysis on social media data (Course project of *Artificial Intelligence & Human Cognition*)

May 2021

- Independently conducted the web scrapping of social media data
- Conducted the NLP analysis and sentiment analysis on social media data using *Python*

The multi-modal representation of negative emotion experience under virtual reality

March 2021 - present

- Independently built a primary platform for EEG and psychophysiology simultaneous data collection under virtual reality
- Collected the EEG, psychophysiological data, and psychometric data on neuroticism, empathy, and mentalizing
- Independently used the Inter-subject Representational Similarity Analysis (IS-RSA) to reveal the emotion representation across subjects and the correlation with psychometric data by using *Python*
- Implemented EEG variation analysis to reveal a neural index for emotional variability
- Manuscript writing

An EEG & Mouse tracking dataset for assessing the brain dynamic of binary choice in the human brain

Aug 2020 - Apr 2021

- EEG paradigm design and programming in *Psychopy*
- Collected the 128-channel EEG data
- Manuscript writing and editing

The neural mechanism of motivated dishonesty

Sept 2020 - Apr 2021

- Collected the 3T fMRI data
- Manuscript writing and editing

The effect of oxytocin on modulating self-other distinction

Aug 2020 - Oct 2021

- Manuscript writing and editing

Participated in the Chinese translation of the book *Computational Modeling of Cognition and Behavior*

Aug 2020 - Sep 2021

- Chinese translation and proofreading

Neural computation of personal space and its influence on dynamic social navigation (ongoing project)

June 2021 - present

- Conceptualization on personal space and social navigation
- Personal space learning and social navigation task design and programming in *Psychopy*

Center for Cognitive and Brain Sciences, University of Macau

Oct 2019 - May 2020

Supervisor: Prof. Zhen Yuan

Electrophysiological signatures of Structural Priming in Chinese-English Bilingual Derivational Word Reading: A Neurolinguistic study

Nov 2021 - May 2022

- Conduct the EEG preprocessing and univariate ERP analysis in MATLAB & Python
- Conduct the representational similarity analysis (RSA) and IS-RSA in Python

Investigating the neural pattern of morphological constraints in reading Chinese compound word: An EEG-fNIRS fusion study

Nov 2019 - May 2020

- Collected the EEG-fNIRS fusion data
- Manuscript writing and editing

Department of Psychology, University of Macau

Jan 2019 - Sep 2019

Supervisor: Prof. Wei Deng

- Research assistant

Publications

- Peng, A[#], **Wang, R[#]**, Huang, J., Wu, H.^{*}, & Chen, L^{*} (2021). Abnormalities of resting-state electroencephalographic microstate in REM sleep behavior disorder. *Frontiers in Human Neuroscience*, 607. doi: <https://doi.org/10.3389/fnhum.2021.728405>
- Wang, Y., **Wang, R.**, & Wu, H. (2022). The role of oxytocin in modulating self-other distinction brain: a pharmacological fMRI study. *Cerebral Cortex*. bhac167, <https://doi.org/10.1093/cercor/bhac167>.

Submitted manuscripts

- **Wang, R.**, Yu, R., Tian, Y., Wu, H. Individual variation in the neurophysiological representation of negative emotions in virtual reality is shaped by sociability. *NeuroImage*. [under review]
- **Wang, R.[#]**, Peng, A.[#], Huang, J., Chen, L.* & Wu, H*. Electrophysiological signature in patients with obstructive sleep apnea syndrome: evidence from visual-search task. *Sleep Medicine*. [under review]
- Chen, K., **Wang, R.**, Huang, J., Gao, F., Qi, Y., Yuan, Z., Wu, H*. A resource for assessing dynamic binary choices in the adult brain using EEG and mouse-tracking. *Scientific Data*. [under review]

Manuscripts in preparation

- Constructing optimal interaction distance by combining others' and one's own using medial frontal cortex
- Towards the "Real" or "Natural" social neuroscience: recent advances, new tools and future directions
- Dissecting social brain contributions to dishonesty adaptation and consistency considerations.

Presentation

The 14th The 14th Annual Meeting of the Social & Affective Neuroscience Society (SANS)

- Poster presentation: Individual variation in neurophysiological representation of negative emotional experiences is shaped by sociability: A naturalistic neuroimaging approach *May 5th 2022*

Center for Cognitive and Brain Sciences, University of Macau

Sep 2021

- Workshop on psychophysiological data processing in *Python*
- Workshop on EEG preprocessing pipeline for MATLAB

Center for Cognitive and Brain Sciences, University of Macau

Jun 2021

- CCBS NeuroTalk: Abnormalities of resting-state electroencephalographic microstate in REM sleep behavior disorder

Center for the Cognitive Science of Language, Beijing Language and Culture University

Dec 2020

- Investigating the neural pattern of morphological constraints in reading Chinese compound words using simultaneous EEG-fNIRS recording

Skills

- **Programming:** Python, MATLAB, R, Unity (C#)
- **Data acquisition:** EEG, 3T fMRI, fNIRS, Eye-tracking, BIOPAC, Virtual-reality technique
- **Neuromodulation:** TDCS
- **Data Analysis:** EEG, fMRI, Physiological signal (ECG,SKT,EMG)
- **Language:** Chinese (native), English (proficient)

Courses

- Cognitive neuroscience, computational neuroscience, computational psychiatry, neuroeconomics
- Artificial intelligence & human cognition, machine learning, deep learning, reinforcement learning

Research Interests

- Social cognitive neuroscience: Emotion, Fear learning, Social Space, Decision-making
- Computational Neuroscience: Reinforcement learning, Bayesian modeling

Awards

Faculty of Social Sciences, University of Macau

Aug 2018 - present

Student on Dean's Honor list for:

- 2018/2019 academic year
- 2019/2020 academic year
- Second semester of 2020/2021 academic year
- First semester of 2021/2022 academic year

Conferences and Exchange Experience

The 14th The 14th Annual Meeting of the Social & Affective Neuroscience Society (SANS)

May 4th – May 6th 2022

- Presenting on the online poster session
- Mentees in the online speed networking session

The 8th National Conference on research and application of EEG and neuroimaging, Chong Qing, China

April 2021

- Attended a series of workshops on various neuroimaging and statistics methods
- Attended the series talks on cognitive neuroscience

Academic exchange to State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China

Jun 2021 - July 2021

- Helped to collect the behavioral data
- Conducted fMRI data processing and functional connectivity analysis
- Conducted psychophysiological data analysis

References

- **Prof. Haiyan Wu (Primary Supervisor), University of Macau, China**

E-mail: haiyanwu@um.edu.mo

- **Prof. Zhen Yuan, University of Macau, China**

Email: zhenyuan@um.edu.mo

- **Prof. Wei Deng, University of Macau, China**

Email: wdeng@um.edu.mo