

# **Departmental Seminar**

## The Intersections of Emotion, Decision-Making, and Memory in the Human Brain

4:15 p.m. – 5:15 p.m. | June 12, 2025 (Thursday) Room 814, The Jockey Club Tower | Centennial Campus | The University of Hong Kong



### **Professor Haiyan Wu**

Principal Investigator of ANDlab The University of Macau

#### **Abstract**

This talk will introduce the neurobiological intersections of emotion, decision-making, and memory through three integrated studies. First, intracranial EEG (sEEG) investigation reveals that slow fear circuits facilitate effective escape decisions, with fast fear circuits modulating slow circuits during acute threat exposure. Second, developmental differences in punishment processing were identified: adults exhibit greater reliance on subcortical-cortical (amygdala-ventromedial prefrontal cortex [vmPFC]) and cortico-cortical (inferior parietal lobule-vmPFC) connectivity, whereas children predominantly utilize subcortical-subcortical (insula-amygdala) pathways, supporting hierarchical neural maturation models. Third, experimentally induced dishonesty generated "unethical amnesia"—a metacognitive decline accompanied by attenuated activity in the caudate and hippocampus over time, confirming that repeated lies reduce mnemonic conflict. This memory distortion arises from interactions among emotion-, cognitive control-, and reward-related neural regions. Collectively, these findings demonstrate how dynamic interactions between affective and cognitive systems shape decision formation and memory, offering mechanistic insights relevant to social functioning and well-being.

#### **About the Speaker**

Professor Haiyan Wu, a Principal Investigator of ANDlab at the University of Macau in China (https://andlab-um.com/) and a visiting associate of Caltech.Prior to joining the University of Macau, Haiyan obtained her Ph.D. from Beijing Normal University and worked as a researcher at the Institute of Psychology, Chinese Academy of Sciences. In 2023, she was recognized as one of the "Top 30 Young Innovators in Brain Science and Artificial Intelligence" in China.

Her research focuses on introducing an interdisciplinary technological framework, combining AI + brain imaging, computational models, intracranial and extracranial neural signals (EEG and iEEG), neural modulation, virtual reality, and big data to study social neuroscience. Her work primarily centers around the interaction of emotion and decision-making in the brain. In the past five years, Prof. Wu has published work as the last corresponding author in leading neuroscience and psychology journals, including Nature Communications, eLife, Scientific Data, NeuroImage, Annals of the New York Academy of Sciences, Human Brain Mapping, and Behavior Research Methods.

#### Zoom Meeting (For participants who couldn't attend the Seminar in person)

https://hku.zoom.us/j/6985555998?pwd=V05yTGJWNTlzazd2OFZ0Q3FReHVkdz09 Meeting ID: 698 555 5998 | Password: Psyc

~All are Welcome~

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