Department of Psychology
The University of Hong Kong
香港大學心理學系

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Departmental Seminar

Mental Fabrication: How Structural Scaffolds Shape the Integration of Experience in Human Brains

Prof. Huan Luo
Professor
School of Psychological and Cognitive Sciences
Peking University

11:00a.m. – 12:00noon
Room 705, 7/F
The Jockey Club Tower
Centennial Campus
The University of Hong Kong

Abstract

Rather than passively absorbing inputs, individuals actively construct knowledge by forming mental models of the world through experience and reflection. This constructive process helps alleviate cognitive limitations and enables generalization and compositionality. In this talk, I will present my lab's recent work—drawing on behavioral experiments, EEG/MEG, eye-tracking, and computational modeling—on structure-based information compression and organization in working memory, perceptual decision-making, and knowledge acquisition (if time allows). We show that structural folding constitutes an important mechanism for organizing information storage and retrieval in learning and memory. Moreover, we demonstrate that structural inhomogeneities support the formation of scaffolds that efficiently connect and integrate fragmented inputs during knowledge acquisition. Together, human brains actively weave structured scaffolds to compress, organize, and make sense of new experiences.

About the Speaker

Dr. Huan Luo is a full professor at the School of Psychological and Cognitive Sciences and a PI of the IDG/McGovern Institute for Brain Research, Peking University. She got her Ph.D. from the University of Maryland College Park with Prof. David Poeppel. Her research focuses on the cognitive and neural mechanisms of attention, memory, learning, and decision-making, with recent interests centered on the structured nature of human cognition. She currently serves as Senior Editor at eLife and on the editorial board of PLOS Biology. Her work is supported by major national grants and has been recognized with the First Prize of the 2022 Higher Education Outstanding Scientific Research Achievement Award and the 2020 "Major Breakthrough in Chinese Neuroscience." Her lab is among six worldwide participating in the international COGITATE project on the neural basis of consciousness.

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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