



Department of Psychology
The University of Hong Kong

香港大學心理學系

Departmental Seminar

Lingering Episodic Memory Modes Reflect Adaptations to Autocorrelation in the Natural Environment

11:00a.m. –12:00noon | April 16, 2025 (Wednesday)

Chamber, 11/F, The Jockey Club Tower | Centennial Campus | The University of Hong Kong



Dr Qihong Lu

Alan Kanzer Postdoctoral Fellow
Columbia University

Abstract

Episodic memory (EM) enables us to encode information upon a single exposure and then retrieve it later for computation. But how does the brain prioritize between retrieval versus encoding? Empirically, stimulus familiarity triggers a lingering retrieval mode, even if that stimulus is task-irrelevant. However, it is unclear why task-irrelevant stimuli should bias hippocampal computation. We hypothesized that these properties reflect adaptation to the autocorrelation of natural experiences. By training a neural network model that learns a control policy of EM – to decide when to retrieve versus encode – to support downstream tasks, we found that empirically observed memory mode effects emerged in an autocorrelated training environment. Moreover, immersing human subjects in strongly autocorrelated experiences strengthened their memory mode. These results suggest that i) properties of human memory reflect the statistical structure of the natural environment and ii) the human brain can dynamically configure its EM policy in response to the statistics in their recent experiences.

About the Speaker

Dr Qihong Lu is an Alan Kanzer Postdoctoral Fellow at Columbia University, working on neural network models of how episodic memory supports downstream tasks with Daphna Shohamy and Stefano Fusi. He earned his PhD in Cognitive Psychology from Princeton University, where he worked with Ken Norman and Uri Hasson on the influences of event structure on episodic memory.

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

<https://hku.zoom.us/j/6985555998?pwd=V05yTGJWNTlzazd2OFZ0Q3FRcHVkdz09>

Meeting ID: 698 555 5998 | Password: Psyc

~All are Welcome~

Enquiry: xiaoqinghu@hku.hk