



Department of  
*Linguistics and Modern Languages*  
語言學及現代語言系

# Understanding Individual Differences in Reading Processes Through Eye Movement Analysis with Hidden Markov Models (EMHMM)

**Prof. Janet HSIAO**  
**The University of Hong Kong**

**Date:** November 22, 2022 (Tuesday)  
**Time:** 4:30pm - 6:15pm (Hong Kong Time, UTC +8)  
**Venue:** Lee Shau Kee Building 208,  
The Chinese University of Hong Kong



## Abstract

In cognitive psychology, eye tracking has been commonly used to capture human attention in order to infer the information processing mechanisms underlying human behaviour. To better understand individual differences in information processing strategies, we have recently developed a novel machine learning based approach, Eye Movement analysis with Hidden Markov Models (EMHMM). This approach provides quantitative measures of eye movements that reflect individual differences in both temporal and spatial dimensions of eye movements. It has led to novel findings in cognitive research not revealed by traditional analysis methods. In this talk, I will present three studies to illustrate how EMHMM can be applied to reading research to understand individual differences in attention strategies and their relationship with performance in word reading, sentence reading, and a passage reading comprehension test.

## Speaker

Dr. Janet Hsiao is Head and Associate Professor in the Department of Psychology, a principal investigator of the State Key Laboratory of Brain and Cognitive Sciences, and a member of the Steering Committee of the Institute of Data Science at University of Hong Kong. She received her Ph.D. in Informatics from University of Edinburgh and was a postdoctoral researcher in the Temporal Dynamics of Learning Center at University of California San Diego. As a cognitive scientist, she is best known for her research on learning and visual cognition. She investigates universal principles and specific factors that modulate development of perceptual representations and information processing strategies during learning and expertise acquisition such as face recognition and reading. She adopts an interdisciplinary approach, using a variety of methods from artificial intelligence, experimental psychology, psycholinguistics, and cognitive neuroscience. She was a recipient of the Best Language Modeling Paper Prize from the Cognitive Science Society in 2006 and the Early Career Award from the Research Grants Council of Hong Kong in 2012. Now she serves on the Governing Board of the Cognitive Science Society. She is also currently Editor-in-Chief of British Journal of Psychology and an Associate Editor of Cognition.

All are Welcome

Enquiries

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