香港中文大學
CUHK | 語言學及現代語言系
Department of Linguistics and Modern Languages

The Two Sides of Semantics: Alignment and Discrepancy in Humans, Language Models, and Words

Prof. Qing CAI
East China Normal University

Date: April 15, 2025 (Tuesday)
Time: 4:30pm - 6:15pm (Hong Kong Time, UTC +8)
Venue: Y C Liang Hall, LHC G04 (G/F),
The Chinese University of Hong Kong

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Abstract

Language is a core tool for our understanding of the world. Recent research combining big data and neuroimaging has provided us with new perspectives, helping us gain a deeper understanding of the multidimensional organization of language in the brain. In this talk, I will present the SWOW-ZH dataset and discuss how it enables comparisons between models grounded in large-scale human association data and natural language processing models in semantic processing, highlighting the multimodal nature of semantics and the value of large-scale human experimental data. Furthermore, we focus on how individual differences affect neural activity alignment in language processing. Our previous research found that bilinguals' inter-subject neural synchrony in language processing is modulated by proficiency. In our recent studies on native speakers, we discovered that the similarity in reading experience influences neural pattern alignment during text reading, emphasizing the connection between experience and cognition. Finally, I will briefly discuss how each word's own variability interacts with individual differences to impact language processing and extend beyond that.

Speaker

Qing Cai is a Professor of Psychology and the Director of the Children's Neuroimaging Centre at East China Normal University. She is also a member of the NYU-ECNU Institute of Brain and Cognitive Science at NYU Shanghai. Her research focuses on the neural mechanisms underlying language perception and reading, with an emphasis on semantic representation and processing, language acquisition, and the relationship between language and other higher-order cognitive functions. Her recent work seeks to bridge human language processing with AI natural language processing, aiming to enhance our understanding of language processing and the individual differences that influence it.