

Invited Talk: Metaphorical Cognition and Its Computational Practices

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Abstract

Understanding human cognitive structures has long been a challenging endeavor. The methodological tools available to us remain relatively limited. Metaphorical cognition, however, offers a promising avenue forward. Far from being a decorative feature of language, metaphor constitutes a core cognitive mechanism through which individuals organise concepts, interpret abstract domains, and make decisions. In this talk, I present a cognitively grounded account of metaphor that unites the principles of Conceptual Metaphor Theory with modern computational techniques. Building on recent developments in our MetaPro framework, I will demonstrate how large-scale metaphor processing can uncover latent cognitive patterns embedded in discourse across domains such as AI, finance, public health, and mental well-being. I will also highlight emerging evidence that metaphorical framing produces quantifiable cognitive signatures, reflected in both neural activity and behavioural measures. By integrating humanistic insight with data-driven analysis, this talk highlights the scientific significance and practical potential of computational metaphor research for advancing our understanding of how people think, feel, and act through language.

Invited Speaker's Bio

Dr. Rui Mao is a Research Scientist and Lead Investigator in Artificial Intelligence at Nanyang Technological University. His work spans cognitive computing, affective computing, and quantitative finance, with a particular emphasis on understanding how human cognitive mechanisms can be operationalised in computational systems. He is the developer of MetaPro, the first fully end-to-end framework for large-scale computational metaphor processing. MetaPro has become an influential research instrument, enabling systematic cognitive analysis across diverse domains, including artificial intelligence, public health, mental well-being, finance, linguistics, and marketing, and supporting both theoretical inquiry and real-world applications.

Declaration on Generative AI

During the preparation of this manuscript, the author did not use any AI tools.

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