# ～NII/LLMC Invited Talk～
# Cognitive Aspects of Large Language Models

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Multiple language and document engineering tasks, including translation, summarisation and simplification, but also document generation, or human-computer dialogue can be repurposed into the framework of Large Language Models (LLM) by simply capitalising on their core mechanism of completion. However, there has been substantial controversy over LLM more generic cognitive abilities, and many of these debates have argued against the emergence of abilities, criticising the completion principle and its implementation as a token generation mechanism as too primitive to underpin such phenomena, or even a proper ability to capture natural language semantics.

Despite emergence sui generis having been largely disproven by the analysis of Schaffer et al. [2024], there is consistent empirical evidence that LLM can perform a number of cognitive tasks as initially reviewed in Burbeck et al. [2023] "sparks of AGI" paper. In a similar fashion, Lappin [2024] has advocated a more moderate position towards the semantic abilities of LLM. It appears that, while some abilities such as Planning remain elusive to LLM [Valmeekam et al., 2023], on the other hand there is mounting evidence of some cognitive ability such as for instance Theory of Mind (ToM).

In this talk, I will review some recent aspects of this debate, taking the perspective of content-based inference abilities. Some of the discussion will be illustrated by our own research in fMRI validation of LLM ToM abilities in human dialogue.

Before his current position, he served as a professor at University of Greenwich (Head of the School of Computing and Mathematical Sciences, Head of the School of Computing and Information Systems and University of Kent (Head of Intelligent Interactions Research Group). He has been active in several areas of Artificial Intelligence, symbolic as well as Machine Learning. He has published at IJCAI, ECAI, AAAI, ICAPS, AAMAS, ICML and NeurIPS, and has received awards at AAMAS and ICAPS. He has served as a member of over 200 conference committees and has been most recently reviewing for ACM Multimedia, IJCAI, ICASSP and NeurIPS. He has been involved in several large EU-funded research projects and has served for an expert evaluator for the European Commission and funding agencies in France, Australia and other countries. He holds an MD and a PhD from University Paris Cité.

Date : 2024/07/16 (Tue.)
　　　15:00-16:00 : Talk by Prof. Marc Cavazza
　　　16:00-17:00 : round-table discussion with participants
Room : 1902/1903

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