

Centre - Variation - Multilingualism

Linguistic Lecture Series Summer Term 2026

Alexander Koller: LLMs for language and reasoning

(fmr: Solving complex problems with large language models)

Abstract:

Large neural language models (LLMs), such as ChatGPT, have revolutionized many fields of artificial intelligence, including my own field of computational linguistics. It is hard not to be impressed by the quality of text and program code they generate, and they seem to encode unprecedented amounts of knowledge about the world. At the same time, it is well known that LLMs are prone to hallucinations, often produce factually incorrect language, and the "knowledge" they encode is faulty and inconsistent.

In this talk, I will discuss some strengths and weaknesses in the ability of LLMs to understand language and reason with knowledge. I will present arguments that the way that LLMs are trained cannot, in principle, lead to human-level language understanding. I will then discuss the extent to which LLMs can perform reasoning and illustrate this with recent research results. In this way, I hope to offer a balanced picture of the situation and engage in an informed discussion with the audience.