Bridging Neurons and Symbols for Natural Language Processing and Knowledge Graphs Reasoning @ COLING 2025

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Message from the Program Chairs

Recent exploration shows that LLMs, e.g., ChatGPT, may pass the Turing test in human-like chatting but have limited capability even for simple reasoning tasks (Biever, 2023). It remains unclear whether LLMs reason or not (Mitchell, 2023). Human reasoning has been characterized as a dual-process phenomenon (see (Sun, 2023) for a general overview) or as mechanisms of fast and slow thinking (Kahneman, 2011). These findings suggest two directions for exploring neural reasoning: starting from existing neural networks to enhance the reasoning performance with the target of symbolic-level reasoning, and starting from symbolic reasoning to explore its novel neural implementation (Dong et al., 2024). These two directions will ideally meet somewhere in the middle and will lead to representations that can act as a bridge for novel neural computing, which qualitatively differs from traditional neural networks, and for novel symbolic computing, which inherits the good features of neural computing. Hence the name of our workshop, with a focus on Natural Language Processing and Knowledge Graph reasoning. This workshop promotes research in both directions, particularly seeking novel proposals from the second direction.

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