Special Issue

Large Language Models and Retrieval-Augmented Generation in Natural Language Processing, Human–Robot Interaction and Quantum Computing

Message from the Guest Editor

Recent advances in Large Language Models (LLMs) and Retrieval-Augmented Generation (RAG) have transformed Natural Language Processing and adjacent fields. This Special Issue explores the synergistic relationship between these technologies across three key domains—Natural Language Processing, Human–Robot Interaction, and Quantum Computing.

LLMs have demonstrated remarkable capabilities in understanding and generating human-like text. RAG enhances LLMs by dynamically retrieving relevant external information.

In Natural Language Processing, RAG enables more reliable and contextually appropriate text. Knowledge graphs can be queried to verify and supplement LLM outputs. In Human–Robot Interaction, LLM-RAG systems are revolutionizing how robots understand and respond to natural language instructions.

Quantum-enhanced information retrieval could potentially revolutionize the efficiency of these operations. RAG-enhanced LLMs show significant promise for quantum code generation.

We welcome the submission of original research papers, reviews, and case studies investigating theoretical, methodological, practical , and ethical considerations in this emerging technology.

Guest Editor

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