

Special Issue

Advanced Applications of Large Language Models

Message from the Guest Editors

Large Language Models (LLMs) have rapidly evolved from general-purpose language understanding and generation systems into foundational technologies that are reshaping scientific research, industrial applications, and human-computer interaction. Recent advances in reasoning, instruction following, tool use, code generation, and multimodal understanding have significantly expanded the scope of LLMs, enabling them to address increasingly complex real-world problems across diverse domains. Beyond improving model capabilities, the next frontier lies in developing advanced LLM-driven applications that integrate domain knowledge, external tools, multimodal information, and collaborative intelligence. Emerging paradigms such as agentic LLMs, multi-agent systems, coding assistants, and domain-specific foundation models are transforming LLMs from standalone conversational systems into intelligent platforms capable of autonomous planning, decision-making, scientific discovery, software engineering, and task execution. These developments are accelerating innovation in fields including healthcare, education, finance, law, manufacturing, robotics, and AI for Science.

Guest Editors

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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