Special Issue

Symmetry and Asymmetry in Large Language Models-Based Natural Language Processing

Message from the Guest Editor

The field of Natural Language Processing (NLP) has witnessed remarkable advancements, particularly with the rise of large language models (LLMs) like ChatGPT and DeepSeek. Symmetry in LLMs can manifest in various forms, such as symmetric attention mechanisms, balanced dataset distributions, and harmonious linguistic structures, which contribute to model robustness and interoperability. Conversely, asymmetry in LLMs, evident in imbalanced training data, unequal attention weights, and divergent language patterns, poses significant challenges and opportunities. This Special Issue aims to delve into these aspects, exploring how symmetric relations and asymmetric phenomena influence LLM architectures, training methodologies, and real-world applications.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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