Special Issue

Transformer Deep Learning Architectures: Advances and Applications

Message from the Guest Editor

This Special Issue spotlights the advancements in and applications of Transformer-based deep learning architectures. Transformers have significantly influenced artificial intelligence (AI), particularly natural language processing (NLP), with their innovative approach to handling sequential data. This Special Issue explores the core components of these architectures, including their self-attention mechanism and positional encoding, and discusses recent developments that enhance efficiency, interpretability, and scalability. The Special Issue also delves into the broad spectrum of applications of Transformers, ranging from traditional tasks such as text summarization, machine translation, and sentiment analysis, to innovative utilizations in language generation and conversational AI, including chatbots and dialogue systems like ChatGPT. Beyond these conventional domains, the Special Issue also highlights breakthrough applications in emerging fields such as computer vision, bioinformatics, health informatics and climate modeling. It provides insight into how models such as BERT and GPT are changing paradigms across various sectors.

Guest Editor

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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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