Special Issue

Recent Advances in the Synergy Between Federated Learning and Foundation Models

Message from the Guest Editors

Foundation models (FMs), such as the Generative Pre-trained Transformer (GPT) series, are large generative models that are competent in a variety of tasks. They have become the key enablers for many AI applications, including chatbots, image captioning, and video editing. However, the versatility and generalizability of FMs make their training highly difficult, which demands massive datasets and tremendous computational resources. This creates significant obstacles including scalability, privacy, and efficiency concerns in real-world use cases. As the most popular framework of privacy-preserving collaborative training, federated learning (FL) is believed to continue to play an important role in the age of FMs. Recently, the generative power of FMs has also been found effective in overcoming some open challenges of FL for improved performance and better personalization. This Special Issue solicits original research and review articles, aiming to bring together researchers, practitioners, and industry experts from around the world to explore the latest advancements, deployment challenges, and opportunities in synergizing FL and FMs.

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Message from the Editor-in-Chief

Algorithms are the very core of Computer Science. The whole area has been considered from quite different perspectives, having led to the development of many sub-communities: Complexity theory (limitations), approximation or parameterized algorithms (types of problems), geometric algorithms (subject area), metaheuristics, algorithm engineering, medical imaging (applications), indicates the range of perspectives. Our journal welcomes submissions written from any of these perspectives, so that it may become a forum for exchange of ideas between the corresponding scientific subcommunities.

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