Special Issue

Statistical Machine Learning with High-Dimensional Data and Image Analysis: Second Edition

Message from the Guest Editor

Statistical machine learning methods have been widely used for the analysis of high-dimensional structured data and images. The applications of statistical machine learning to high-dimensional data often face difficulties such as non-modularity and instability, which limit their effectiveness in real-world scenarios. Emerging technologies, particularly deep neural networks, have provided new solutions for large-scale datasets. However, the interpretability of these networks is still not as good as that of traditional statistical machine learning algorithms. Moreover, the exploration of information entropy in deep learning is still in its early stages. For example, recent research has proposed new methods to analyze deep neural networks via information plane theory, but estimating mutual information in high-dimensional hidden layers remains challenging. This Special Issue aims to be a forum for presenting new techniques of statistical machine learning for high-dimensional data. We particularly welcome contributions on the analysis and interpretation of real-world data or images based on machine learning, deep learning, or large vision–language models.

Guest Editor

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