

Special Issue

Information-Theoretic Criteria for Statistical Model Selection

Message from the Guest Editors

Model selection has always been a popular topic in the statistics literature. Information-theoretic criterion is one popular approach for selecting the best statistical model for a given dataset. Some well-known information-theoretic criteria are Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), Mallows's Cp statistic, etc. These criteria are based on the principle of minimizing information loss when describing the data through a model. They are particularly useful when comparing models with different structures, as they provide a quantitative measure of the trade-off between model accuracy and complexity. Information-theoretic criteria are widely used for model selection in various fields, including physics, engineering, finance, statistics, and data science. This Special Issue aims to highlight the versatility and importance of information-theoretic criteria for model selection. We welcome newly developed statistical methods that demonstrate the practicality and effectiveness of these criteria in different fields.

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The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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