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Resampling strategies for improving time series forecasts

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Abstract: Time series analysis has benefited from using computer-intensive procedures to help with modelling and predicting in more complex situations. An area that has given great support to statistical inference is computational statistics, specifically by using resampling methods such as Bootstrap.

Bootstrap, a statistical method introduced by Efron in 1979 for independent data, gained popularity for its simplicity and effectiveness in addressing challenges where traditional methods fail. However, it is less efficient when dealing with dependent data such as time series. In the 1990s, bootstrap methods for dependent data emerged, proving a valuable option in time series forecasting. An empirical study comparing the use of Bootstrap in forecasting time series of different frequencies illustrates its utility.

Keywords: Bootstrap, exponential smoothing models, forecasting, seasonal-trend decomposition by Loess, sieve bootstrap.

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