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# ACADEMIC WEEKLY DIGEST

YOUR WEEKLY DIGEST OF KEY RESEARCH FINDINGS



## A REFINED ENSEMBLE FORECASTING METHOD FOR TOURISM DEMAND ANALYSIS

Effective tourism planning depends on accurate forecasts of future demand trends. However, fluctuations, complex seasonality, and sudden one-off events prevent forecasting models from yielding desirable predictions.

Our PhD student [Xinyang Liu](#) and supervisors [Jason Chen](#) and [Gang Li](#) refined the bootstrapping aggregation (bagging) method and investigated how the times series decomposition affects the bagging forecasting performance.

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# IMPACT OF DECOMPOSITION ON TIME SERIES BAGGING FORECASTING PERFORMANCE

Xinyang Liu, Dr Jason Chen & Prof Gang Li

Time series bagging has been deemed an effective way to improve unstable modelling procedures and subsequent forecasting accuracy. However, the literature has paid little attention to decomposition in time series bagging.

This study investigates the impacts of various decomposition methods on bagging forecasting performance. Eight popular decomposition approaches are incorporated into the time series bagging procedure to improve unstable modelling procedures, and the resulting bagging methods' forecasting performance is evaluated. Based on tourist arrivals in the world's top 20 destinations, this study generates tourism demand forecasts by associating the most effective decomposition method with bagging forecasting to handle an unstable modelling process.

The tested forecasting method can serve as a reliable practice to benefit industry practice and strategic planning.

This study has important implications for post-pandemic tourism planning. Most international destinations have gradually opened their borders and started the recovery journey. One of the challenges in forecasting tourism demand recovery from COVID-19 is the uncertainty related to the pandemic. In light of the superiority of the proposed forecasting process in handling unstable demand series, more accurate and robust forecasts can be generated by minimising the impact of uncertainty on bagging.

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## Associating the most effective decomposition method with bagging forecasting to handle an unstable modelling process

Liu, X., Liu, A., Chen, J. L., & Li, G. (2023). Impact of decomposition on time series bagging forecasting performance. *Tourism Management*.

Link: [bit.ly/3SozqQP](https://bit.ly/3SozqQP)