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| LASSO-type estimators for Subset ARMA selection  **Eleni Dretaki** 1, **Jorgo Xhixho**1\*, **Mario Giacomazzo2** **and Yiannis Kamarianakis**3\*#  1Department of Mathematics and Applied Mathematics, University of Crete  2Department of Statistics and Operations Research, University of North Carolina at Chapel Hill  3Institute of Applied and Computational Mathematics, FORTH  # Presenting author: Yiannis Kamarianakis , email:.kamarian@iacm.forth.gr  \* Corresponding author: Yiannis Kamarianakis , email:.kamarian@iacm.forth.gr |

abstract

Autoregressive Moving Average (ARMA) models are essential tools in modern time-series analysis. The model building procedure is typically based on subset selection methods, which may be computationally intensive and even impractical when the true ARMA orders of the underlying model are high. To solve this issue, we identify optimal subset ARMA models by fitting variants of adaptive Lasso regression [1], including adaptive LAD LASSO and adaptive Elastic Net, of the time series on its lags and the lags of the residuals from a long autoregression fitted to the time series data, where the residuals serve as proxies for the innovations. We build upon and extend the work in [2], by illustrating the new estimators in extensive simulations and forecasting experiments based on real data, while emphasizing comparative evaluations versus conventional stepwise model building procedures.

**REFERENCES**

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