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Mixed moving average field guided learning

Influenced mixed moving average fields are a versatile modeling class for spatio-temporal data. However, their predictive distribution is not generally known. Under this modeling assumption, we define a novel spatio-temporal embedding and a theory-guided machine learning approach that employs a generalized Bayesian algorithm to make ensemble forecasts. We employ Lipschitz predictors and determine fixed-time and any-time PAC Bayesian bounds in the batch learning setting. Performing causal forecast is a highlight of our methodology as its potential application to data with spatial and temporal short and long-range dependence.