

## Forecasting continuous-time processes with applications to signal extraction

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**Abstract** The paper derives forecasting and signal extraction estimates for continuous time processes. We present explicit formulas for filters and filter kernels that yield minimum mean square error estimates of future values of the process or an unobserved component, based on a continuum of values in the semi-infinite past. The class of processes considered are cumulations of moving average processes, which includes the CARIMA class. Explicit examples are calculated, and some discussion of applications to signal extraction is provided. We also provide an explicit algorithm for spectral factorization of continuous-time moving averages.

**Keywords** CARIMA · Signal extraction · Stochastic process