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A continuous-time framework for ARMA processes

Joint with Andreas Basse-O'Connor, Mikkel Slot Nielsen, and Jan Pedersen

Based on a vast literature on continuous-time moving average processes we suggest an analogue for an autoregressive structure, and from this we combine the two concepts to a model for stationary processes which exhibit an ARMA type behavior. We relate this framework to CARMA processes which motivates studying multivariate stochastic delay differential equations. This, in turn, leads to a natural notion of invertible CARMA processes, and we use this to both recover the background driving noise and to suggest an estimation scheme for CARMA processes driven by fractional noise.