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autoregressive model

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The *autoregressive model* of order  $p$ , denoted  $AR(p)$ , is a random process model described by

$$y_t = \sum_{i=1}^p a_i y_{t-i} + c + e_t, \quad t = 1, 2, \dots \quad (1)$$

where  $a_i$  are model parameters,  $y_t$  is the model output in discrete time instant  $t$ . Term  $c$  is an absolute term (constant) and  $e_t$  denotes discrete white noise.

A first-order autoregression model  $AR(1)$  in the form  $y_t = ay_{t-1} + c + e_t$  is one major example.