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Title: The Market Generator

Abstract: We propose to use a special type of generative neural networks - a Restricted Boltzmann Machine (RBM) - to build a powerful generator of synthetic market data that can replicate the probability distribution of the original market data. An RBM constructed with stochastic binary activation units in both the hidden and the visible layers (Bernoulli RBM) can learn complex dependence structures while avoiding overfitting. In this paper we consider an efficient data transformation and sampling approach that allows us to operate Bernoulli RBM on real-valued data sets and control the degree of autocorrelation and non-stationarity in the generated time series.