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FOREX FORECASTING USING PRINCIPAL COMPONENT ANALYSIS AND LOCAL LINEAR EMBEDDING

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We employed Principal Component Analysis (PCA) and Local Linear Embedding (LLE) to construct embedded Foreign Exchange Rate (FOREX) portfolios whose performance was accessed by trading simulations. For our analysis we used a data-set of 20 FOREX pairs spanning the time period between 01-01-1997 and 26-06-2017. Our aim was to try to forecast the embedded time series using Exponential Moving Average (EMA), but also ARIMA and Recurrent Neural Networks (RNN). The trading simulations provided high scores in terms of sharpe ratios compared to the classical equally weighted and risk parity portfolios. Furthermore, we show that the LLE outperforms the PCA embedding when using RNN for forecasting, while it provides almost the same results when using EMA and ARIMA models.

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