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Financial time series prediction can help us optimize resource allocation and stabilize economic development. The effective prediction enables people to obtain higher profit.

However, it is very hard to do the precise financial time series prediction with many factors like economy, society and politics, which make it more complicated. Hence the key to the prediction depending on deep learning is how to deal with the unstable data of financial time series.

Firstly, We put forward a new deep modal decomposition encoding and decoding models, AED-DEMD, based on the attention mechanism. But DEMD requires manual selection and lacks of the generalization ability. For the issues that DEMD has, we put forward a new piping structure, EMD-OPS. And with AED, we get EMD-AED-OPS. Finally, we find out a new optimal model, Opemod, based on double-ended extension and model decomposition.

A large number of experimental results show that Opemod achieved good performance on many indicators.