A COLLABORATIVE ATTENTION ADAPTIVE NETWORK FOR FINANCIAL MARKET FORECASTING

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ABSTRACT

Forecasting the financial market with social media data and real market prices is a valuable issue for market participants, which helps traders make more appropriate trading decisions. However, taking into account the differences of different data types, how to use a fusion method adapted to financial data to fuse real market prices and tweets from social media, so that the prediction model can fully integrate different types of data remains a challenging problem. To address these problems, we propose a collaborative attention adaptive Transformer approach to financial market forecasting (CAFF), including parallel extraction of tweets and price features, parameter-level fusion and a joint feature processing module, that can successfully deeply fuse tweets and real prices in view of the fusion method. Extensive experimentation is performed on tweets and historical price of stock market, our method can achieve a better accuracy compared with the state-of-the-art methods on two evaluation metrics. Moreover, tweets play a relatively more critical role in the CAFF framework. Additional stock trading simulations show that an actual trading strategy based on our proposed model can increase profits; thus, the model has practical application value.