



IIIT-Delhi researchers combine AI with conventional financing to predict crypto prices

Wednesday, 2nd November 2022: In India, any crypto enthusiast who has done the math knows that mining such currencies is not profitable; it makes more sense to speculate instead. Unfortunately, since cryptocurrencies are not pegged with products and services, but are largely driven by the emotion of investors, traditional methods of financial speculations do not apply. The work of Ph.D. scholar of IIIT-Delhi Shalini Sharma and her supervisor Dr. Angshul Majumdar is an artificial intelligence (AI)-driven approach to predicting cryptocurrency prices.

IIIT-Delhi researchers overcame the cons of each approach while keeping their respective pros. They started with the conventional Baum-Welch framework but incorporated deep learning within it. This incorporation enabled them to predict without the knowledge of underlying events. As the technique was developed based on Baum-Welch, it makes interpretable predictions and also yields uncertainty estimates around the prediction

There are two predominant approaches for financial (or any) prediction. One is based on conventional methods of the 70s, the celebrated Baum-Welch approach to making money in stock markets. It is interpretable and gives us not only the predicted values but also the uncertainty about the prediction. The information about uncertainty is crucial in making financial decisions. However, this approach requires knowledge about the underlying events causing the changes in price; this information is not available for cryptocurrencies.

The other approach is modern, driven by a bleeding-edge AI called deep learning. Deep learning is abstract but does not require knowledge/information about underlying factors. Unfortunately, it cannot give uncertainties about the predictions; this precludes the interpretability aspects.

The work has been recently accepted at Elsevier Information Sciences. On available cryptocurrency data, it was shown that the said method is very precise in predicting future prices.

It can beat all state-of-the-art methods in terms of accuracy. Furthermore, the uncertainty estimates make the results more interpretable.

There is a term called crypto volatility index (CVI); it shows how much a cryptocurrency fluctuates with time. For example, a stable coin like USDT or Bitcoin will have a lower CVI value compared to Shiba Inu or Dogecoin. The researchers showed that the uncertainty estimates obtained from their method are correlated with historical CVI values; thus proving that the predictions made by their method are indeed interpretable. **Dr. Majumdar** says, “it is very important to have accurate yet interpretable predictions in these cases, ... otherwise one won’t have confidence in the approach”.