Predicting Digital Asset Market Based on Blockchain Activity Data

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Blockchain technology shows significant results and huge potential for serving as an interweaving fabric that goes through every industry and market, allowing decentralized and secure value exchange, thus connecting our civilization like never before. In our paper we explore how modern Deep Learning techniques can be applied to predict future facts about the Ethereum blockchain. Specifically, we are interested if blockchain's public raw data, such as the transaction count and the account balance distribution, can be used to predict other measures like the number of new accounts created and the market price per ETH token. During a series of experiments, we achieved 330% lower error scores with blockchain data than an LSTM approach with trade volume data. By utilizing blockchain account distribution histograms, stacked dataset modeling, and a Convolutional architecture we reduced the error further by 35%. Moreover, we have developed a reusable framework providing data gathering, processing, and storing functionality for performing Deep Learning experiments over blockchain data. Our future plans are towards automating neural network architecture and meta-parameter optimization tasks through training controller Machine Learning models on these tasks. Since the Ethereum network already utilizes a great amount of GPU processing power, which might become obsolete due to the adoption of a Proof-of-Stake algorithm, we believe that 2018 presents a unique opportunity for achieving an exascale decentralized supercomputer, dedicated to training AI.

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