Abstract

Bitcoin is an established cryptographic digital currency whose value lays in the computational complexity rather than a physical commodity. Bitcoin is an open source software program with three aspects. (i) Peer-to-Peer network – low barrier entry; (ii) Mining – inevitable concentration of power; (iii) Software upgrades. The nodes on the network follow a decentralized consensus for establishing the value of ledger and updating the blockchain which serves as a single source of truth for all transactions. As cryptocurrencies are developing more compelling utilities, creating ever faster and safer payment systems they are shifting the “money paradigm”. Bitcoins are an evolution in money and provide a unique opportunity to forecast their price unlike the existing fiat currencies. The goal of this paper is to implement, train and evaluate several machine learning models in order to predict the price of the most popular cryptocurrency – Bitcoins. The various machine learning algorithms employed are – Linear Regression, K-Nearest Neighbors, Ridge Regression, Lasso Regression, Polynomial Regression, Linear Support Vector Machine, and Kernel Support Vector Machine.
References

1. “Bitcoin Price Prediction: Will Bitcoin Crash or Rise?”, Ray King, May 2018
2. Bitcoin (BTC) price prediction, Finder, June 2018
4. Predicting price of Bitcoin using Machine Learning, Sean McNally, September 2016
10. “Speed of convergence to market efficiency”, D. Y. Chung and K. Hrazdil, 2012

Index Terms

Computer Science  Artificial Intelligence

Keywords

Decentralized Consensus, Bitcoin Prediction, Linear Regression, K-Nearest Neighbors, Ridge Regression, Lasso Regression, Polynomial Regression, Support Vector Machine, Residual Sum of Squares, Peer-to-Peer network, L1 Regularization, L2 Regularization.