Background

Xtreme Gradient Boosting (XGBoost) is an implementation of gradient boosted decision trees designed for speed, performance and optimization. XGBoost concepts builds on supervised machine learning, decision tree, ensemble and gradient boosting. It is a combination of software and hardware optimization techniques in order to get excellent results using less computing resources in less time. XGBoost can be used to solve regression and classification problems. We will be using it predicting house prices in Dubai. Dealing with prediction problems that has to do with unstructured data such as images and text, artificial neural networks will tend to outperform all other algorithms. Nonetheless, for small-to-medium structured or tabular data, and especially data with a majority of Boolean features, XGBoost tends to stand out, hence our usage for this project.

Some of the good features of XGBoost algorithm is that it runs smoothly on Windows, Linux, and OS X and supports all major programming languages like Python, C++, Java, Scala, and Julia. It also has good cloud integration. XGBoost is more regularized form of Gradient Boosting. XGBoost uses advanced regularization (L1 & L2), which improves model generalization capabilities. XGBoost delivers high performance as compared to Gradient Boosting. Its training is very fast and can be parallelized / distributed across clusters [3]. XGBoost is a scalable tree boosting system.

We also made use of Deep Neural Network in this work. A neural network or sometimes called Artificial Neural Network (ANN) is simply a series of algorithms that endeavors to recognize underlying relationships in a set of data through a process that mimics the way the human brain operates [4]. It can adapt to changing input of which would make the network to generate the best possible result without needing to redesign the output criteria.

Deep Neural Network (DNN), is a neural network with a certain level of complexity, a neural network with more than two layers. It uses multivariate mathematical modeling to process complex. Deep neural networks have recently become the standard tool for solving a variety of computer vision problems and prediction problems.

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