

Traditional Machine Learning and No-Code Machine Learning with its Features and Application

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ABSTRACT

This is the new era of technology development where all the things and work is done by the machines. The goal of Information Technology is to develop a device which is able to work like a human itself. For that Artificial Intelligence, Machine Learning and Deep Learning are going to be used. Machine Learning is a subpart of the Artificial Intelligent which helps a machine to learn by itself. To apply learning processes on machines it required deep knowledge of programming, mathematics and statistics. Now it is not a big problem, as the technology is changing day by day the new concept known as No-Code ML and Auto-Code Generation are introduced. This helps the users to create a model without doing any kind of coding. In this new technology everyone is able to create a model and use machine learning. There are several platforms which provide this kind of facilities. The models created on those platforms give good accuracy and desire outcomes as well.

KEYWORDS: Auto-Code Generation, Deep Learning, Artificial Intelligent, Auto algorithm selection, No-Code ML platforms

INTRODUCTION

With this fast developing world computers play a vital role in almost every sector. Machine can work as an instruction given to it. Without giving any instruction to it, it becomes useless. But with the concept of Artificial Intelligent now machines are becoming smart enough that they can work on their own. This can be achieved through the concepts of machine learning. Taking an example of allowing only authorized persons in the organization, if unauthorized persons try to enter then generate and alert. But as human faces change slowly day by day it is not possible to recognize the person without help of machine learning. In this situation machine learning helps to do the tasks.

In this era machine learning has many impacts on the different real time areas. With the development of new technology and languages like Python, machine learning is becoming easy yet it requires more and deep knowledge of statistics and programming as well. With introduction to No-Code ML, it becomes easy to create a model without having knowledge of the programming and statistics.

TRADITIONAL MACHINE LEARNING APPROACH

Machine learning is a way to train a machine to predict the future results. In traditional machine learning approach it

needs to train a model by applying the most appropriate algorithm on the kind of data. In today's world the data generated is not in structure or the data which is the most appropriate in to train the model so that before applying any algorithm on the data it is required to arrange the data in the most appropriate manners.

As shown in figure 1, ML follows the above flow. First task is to import the data on which the model is needed to create. The data can be in any form i.e. images, csv, text, excel etc. The second task is to create structured data. We have to give all the data in some specific structure so that the model can be trained more accurately. After having the structure data, it might be possible that all data are not present or some of the information is missing in the data. It also has some outliers which affect the entire model. So it is necessary to remove such data points. This is done using the preprocessing of the data. In this stage feature engineering, feature transformation, feature selection, missing values filling, outlier handling, checking for variable types etc is done on this stage. In other phases the model/algorithm is selected from the library or the new algorithm is applied on the data. By checking the type of the data proper model is selected. Then model apply on the data and train the model.

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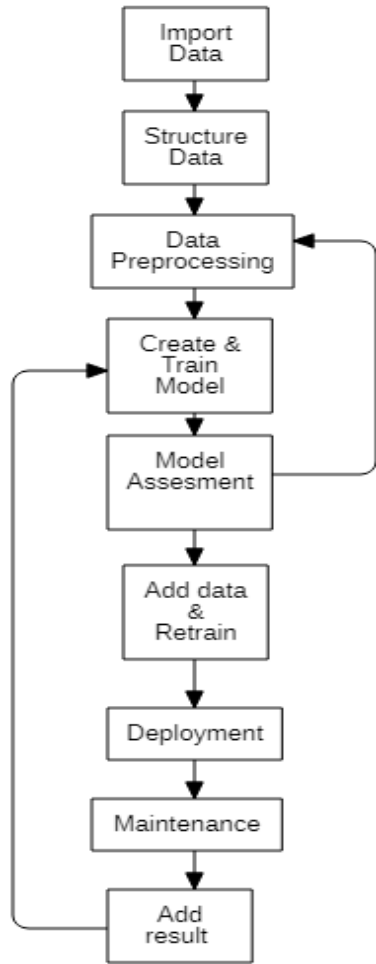


Figure 1: Approach of traditional machine learning

Before training the model partition is done i.e. the train data and validates data. After training and validation the data metric and score model is created. If the score is too less or not reached to the targeted score then the preprocessing, model applying, model assessment stages are repeated. When the model reaches the targeted or enough accuracy then at the next stage the tested data is also added in the data set and the model is re-trained with the new data which is predicted by model. Then in the next stage the model is deployed and the maintenance of the model is done by taking all the information of the model's output. If any further need is created then all the working and predicted data and results are added into the data set and all the process from training the model is repeated. On the above way in every stage a good knowledge of programming and statistics is needed. But the problem with this is that all statistics specialists don't know programming and all the programmers are not experts in the field of statistics. So as the solution No-Code ML is introduced.

NO-CODE ML APPROACH

No-Code ML is a process of creating a model with minimum knowledge of programming and statistics skills. It is an Artificial Intelligent base algorithm which works for the coding and accuracy calculation. The No-Code ML works as described in figure 2.

As shown in figure it becomes too simple to create a model in No-Code ML platform. It is an Artificial Intelligent base algorithm which selects the best ML algorithm to apply on the model. It is just a drag and drop process. In any No-Code ML platform, a user needs to drag and drop his/her dataset

and ask the question in the English. The model will automatically train. Then the user can get his output and evaluate the model.

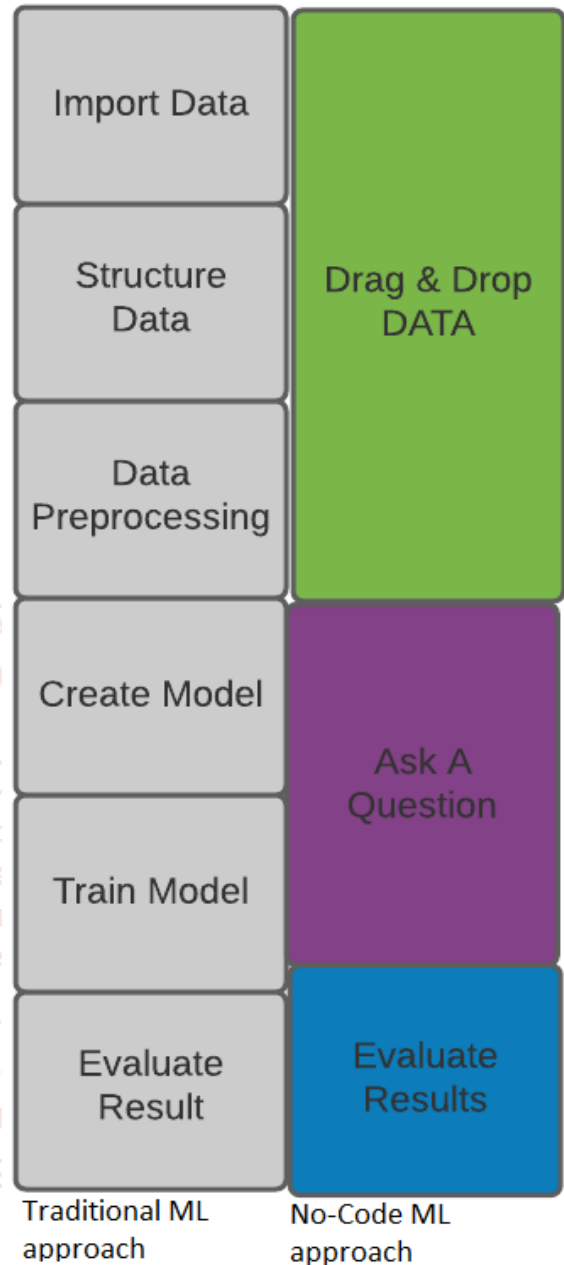


Figure 2: Approach of No-Code ML with traditional approach

WORKING OF ALGORITHM

It looks very simple that the model is created automatically but in the background many processes are done by the platforms. Those stages are described here.

1. Preprocessing

After selecting the database we press the GO button and then work on the algorithm is started. In the first phase it analyzes the dataset. It removes all the rows which have the NULL value or in some cases it fills the NULL value with the mean value of that column. It also analyzes all the non numerical columns and removes the column which is not required for the model. It also finds for the outliers in the data and removes all the outliers if any. In some kind of dataset it requires to perform the normalization as well. By doing it at the first stage, it increases the chances of creating a more accurate model.

2. Training Model

In this phase many combinations and permutations are applied on the dataset and algorithm. After applying the many algorithms as per the data set accuracy is checked for the many thousands of algorithms. At the end of this phase it gives a model with the most accurate model. Then it runs it as a final algorithm on a given data set and stores the model. All this process takes some time to find the most accurate model for the dataset.

3. Testing for accuracy

After creating the model AI test the model and find the final accuracy of the model. This testing is done on the partial dataset as well. For example if there is one thousand data rows are there in the dataset then the model accuracy found on all the batches of hundreds rows for the whole dataset. It ensures the accuracy for all data in the dataset.

At this point of time No-Code ML works only for regression and classification algorithms only but in the near future it will adopt all other algorithms of Machine Learning.

TOOLS OF NO-CODE ML

There are many tools available for performing the No-Code ML. In the new era of computer science and technology many businesses want software based on AI. For that they need to hire the software engineer and AI experts which cost the organization a lot, so the solution of that No-Code ML platform was introduced. Some of them are described here.

1. Create ML

Create ML is Apple's no-code drag and drop tool. It is an independent macOS application which comes with a bunch of pre-trained models. It allows us to use transfer learning to build our own models. It covered all the algorithms for Natural Language Processing, Recommendation System etc... It provides real-time results on validation data for a model. The model can be deployed on any iOS application.

2. Google AutoML

This AutoML tool is developed by the world's leading company GOOGLE. Google provides the same feature as CreateML. AutoML currently includes Vision i.e. image classification, Natural Language Processing, Video Intelligent etc... This tool enables the users to train models on specific to use cases. It allows exporting the model in .pb or .tflite formation.

3. Teachable Machine

It is also a platform provided by Google. It allows training models quickly to recognize images, sounds, and poses right from the browser. It allows directly dragging and dropping files to teach the model or use a web camera to do this. This platform uses the library Tensorflow.js. This platform allows exporting files in Tensorflow.js or tflite formats.

4. Microsoft Azure Automated Machine Learning

Microsoft Azure is a tool which is capable of developing models at a faster pace. This tool automatically deploys predicted models with some existing data which are already filtered with some algorithms. This tool is also able to detect error in data and rectifies the data. It also gives metrics visualization enabling a user to make comparisons between various models.

There are several other platforms which facilitate the same features.

USE CASES & PERSPECTIVE

Organizations having Less Potential Programmers or Having No team of Data Scientist or ML Engineers, can Guide the Sales and marketing team / Analyst team / R & D team and they will be able to put their efforts for such things like predictions, classification Etc. Using No- Code ML approach the Person will be able to solve complex Data Science and ML problems without knowledge of Python or R programming. The main purpose and Use Case of No-code ML is to fill the gap between skilled Programmers and skilled statisticians.

Area of Use:

Various industries are Using and Approaching No-code ML, Real estate, Finance, Retail & consumer goods, Technology, Insurance, Healthcare, Fintech, Transportation, banking Etc.

STATISTICS OF SAMPLE PROGRAM

Dataset

Class	Image Dataset
Dog	252
Cat	252

Table: 1 Information of Dataset

Class Accuracy

Samples are taken 38 per each class

Class	Accuracy
Dog	0.89
Cat	0.95

Table: 2 Accuracy achieve by the model

	Dog	Cat
Dog	34	4
Cat	2	36
	Dog	Cat

Prediction

Figure 3: Matrix of the model accuracy

CONCLUSION

There are so many factors where there is a need to complete the work which can be done more easily and more quickly by using the machine learning algorithm like Financial and Retail Industries. But every person or employee cannot implement a Machine learning algorithm without knowing about programming language. But as human nature, we always try to find a way to decrease complexity. And so that giant technical companies have developed many platforms where anyone can use machine learning without knowing a programming language. as we know that every coin has two sides. So the NoCodeML concept also has a negative side that it becomes hard to give accurate results when the approach of machine learning is unsupervised data and Reinforcement Learning. But this topic is in their Initial stage. We can use this approach in every less-complex machine learning work.

REFERENCES

- [1] K. He, X. Zhang, S. Ren, J. Sun, Deep residual learning for image recognition, in: Proceedings of the IEEE conference on computer vision and pattern recognition, 2016, pp. 770–778.
- [2] Xin He, Kaiyong Zhao, Xiaowen Chu, AutoML: A Survey of the State-of-the-Art, arXiv:1908.00709v5 [cs.LG] 8 Jul 2020
- [3] C. Gong, D. He, X. Tan, T. Qin, L. Wang, T.-Y. Liu, Frage: frequency-agnostic word representation, in: Advances in Neural Information Processing Systems, 2018, pp. 1334–1345.
- [4] Z. Dai, Z. Yang, Y. Yang, W. W. Cohen, J. Carbonell, Q. V. Le, R. Salakhutdinov, Transformer-xl: Attentive language models beyond a fixed-length context, arXiv preprint arXiv:1901.02860
- [5] Teachable machines for accessibility ; November 2017 ; ACM SIGACCESS Accessibility and Computing
- [6] <https://www.kdnuggets.com/2019/03/why-automl-wont-replace-data-scientists.html#:~:text=As%20a%20result%2C%20it%20is,do%20not%20cover%20this%20approach.>

