BY AKSHAY TOSHNIWAL

ROADMAP TO BUILD A MACHINE LEARNING MODEL

A complete guide to build machine learning system (an area under artificial intelligence)

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UNDERSTAND THE BASICS

There are machine learning libraries available that will ease your work, but you need to focus on the basics before you understand them.

Understand the basics of math and stats that include topics like, linear algebra, calculus, probability, and statistics.

DATA PRE-PROCESSING

Real-time/real-world data is dirty & noisy and it contains a lot of outliers (unexpected data records) that are not relevant for the ML modelling.

Cleaning this is important to avoid any unexpected results and also to structure the data.

IDENTIFYING FEATURE

Any given dataset has multiple features and using these features the machine learning model is designed.

Two ways to do this, selecting the features (feature selection) or creating new features (feature engineering). Relevant feature identification can make the model more effective.

DIVIDE THE DATASET

The entire dataset needs to be divided into majorly three chunks: training data, validation data, and testing data

Training data is used to build (fit) the model, validation data is used to test the model with known values, and testing data is used to test the model with unknown values.

IDENTIFYING ALGORITHM

Based on the dataset, an effective selection of an algorithm is very important. There are three types: Regression, Classification, and Clustering.

Regression and Classification are supervised learning algorithms (have known labels), while Clustering is an unsupervised learning algorithm (no known labels).

BUILDING THE MODEL

Using the training data, the model is built and it is further tested with the validation data.

Fine-tuning the model is performed (if need be) and multiple iterations are performed to check whether the outcomes are updating or not.

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EVALUATING THE MODEL

The most important step in building any ML model is to evaluate it and check for errors.

This step is mandatory to check whether the algorithm that is applied is effective/accurate or not and it is done by calculating different scores, error terms, and other metrics.

USE TESTING DATA

To further cross-check the model, use testing data (unknown data values) to generate the outcomes.

Again evaluate the model and generate different metrics. If need be fine-tune the model and reiterate (Go to Step 6).

BUILD API AND GUI

Once the modelling is completed and the testing is successful, build application programming interfaces (APIs).

Connect these APIs with a graphical user interface (GUI) for the end-user to experience the machine learning system.

DEPLOY THE MODEL

Post building the user interface and connecting all the APIs, the system is ready to be deployed on a cloud server

A few of the cloud service providers are Microsoft Azure, Google Cloud Platform, and Amazon Web Server (AWS). There are others as well, but these three provide great tools to manage ML models.

I hope you found this roadmap insightful and useful

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Roadmap by Akshay Toshniwal