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Top 20 Machine Learning Projects

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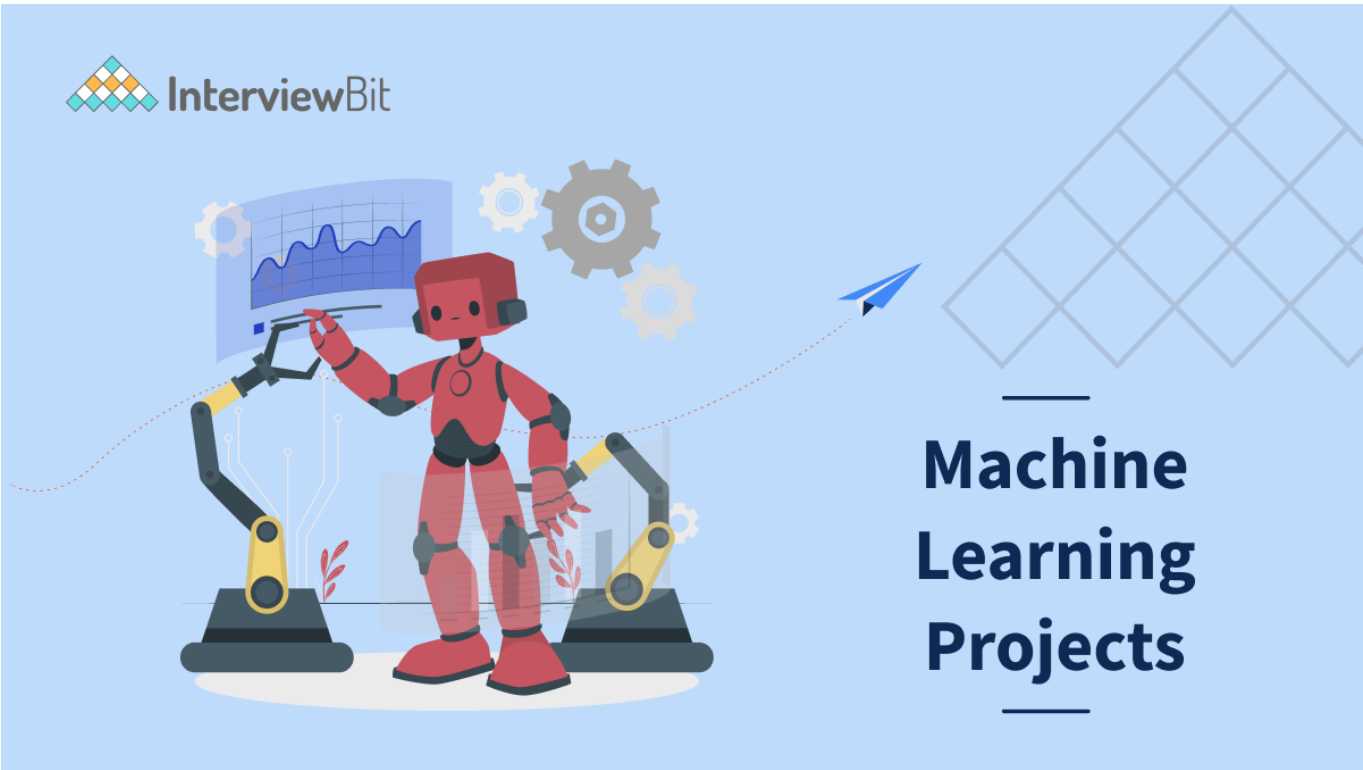


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Introduction

This technology-driven world has seen the emergence of machine learning. It is an outstanding field that enables our machines or electronic device to become more intelligent. The main aim of this field is to remodel a simplistic machine into a machine having the ability of the mind. The best way to know about this

Machine learning the ability of the machine. The best way to know about this technology is by working on projects. Other options include online courses, browsing through books, which only aid in learning the fundamentals of ML, but it is only plausible to learn the subject in depth by working on projects with real-world data. Some of these projects have comparable data sets that can be found on Kaggle. One can utilize these datasets to finish the projects and acquire new skills in the field of ML. These projects are best applicable for you if you are an amateur or in the intermediate phase and still studying more about Machine Learning. In case you are up for more high-level challenges, you can always discover more complex projects on Kaggle. Machine learning involves these stages

- Input a machine learning algorithm examples of input data and a list of likely tags for that particular input.
- The input data is modified into text vectors, a collection of numbers that denote various data features.
- Algorithms learn to associate feature vectors with tags on the basis of manually tagged samples, and automatically creates predictions while processing unseen data.

While AI and ML are usually utilized interchangeably, they are two distinct theories. Artificial Intelligence is the more comprehensive concept – machines composing decisions, acquiring new skills, and then resolving problems to humans. On the other hand, machine learning is a subset of AI that allows intelligent systems to learn new things from data autonomously. In this article, let us learn more about machine learning projects to boost your interest. These ML projects are very competitive, critical, and interesting to create. It is firmly believed that these projects are the most desirable place to invest your skill and time. Let's dive deep into some interesting, unique as well as simple machine learning projects.

Uses of Machine Learning

There are endless uses of machine learning and there are several machine learning algorithms that are available for you to learn. They can be found in every form from simple to extremely complex. Listed below are few uses of Machine Learning

Image Recognition

Image recognition is considered one of the most popular uses of machine learning applications. It can also be regarded as **a digital image and for these images, the measurement represents the yield of each pixel in an image**. Face recognition is also an example of an excellent trait of ML, it helps to identify the face, and the notifications are sent related to that to people.

Voice Recognition

Machine learning also assists in creating the application for voice recognition. It is also regarded as a virtual personal assistant (VPA). It will help you to look for the information when asked over the voice. After you have asked your question over voice, that assistant will search for the data that has been asked by you and accumulate the necessary information to present you with the most suitable

I could possibly integrate voice recognition in my project to automate a process!

answer. There are several Machine learning tools for voice recognition like **Amazon echo and google home** is smart speakers.

Prediction in travel

Predictions assists in developing the applications that foretell the price of cab or travel for a selected time and also inform beforehand about the congestion of traffic. All of these are possible only because of ML. While booking the cab, with

the help of ML, the app calculates the estimated amount of the trip that is done with the help of machine learning only. When we use GPS service to know about the route from source to destination, **the application will mark different routes and will also check the traffic at that moment.** It will also let you know where the congestion of traffic is more.

Video Surveillance

Video Surveillance helps you to identify the crime or any mishaps that might happen before it has actually happened with the help of machine learning. It allows you to track the unusual demeanor of people like sleeping on benches and standing still for a prolonged time, etc. **An automatic alert is generated to the guards and they can help to evade any issues or problems.**

This is actually done sometimes using object detection and image classification that can analyze whether an item has been picked up!

Social Media Platform

Social Media is used for giving more conforming news feeds and advertisements according to the interest of the user and this happens through the uses of machine learning. There are several examples like friends and page recommendations, video, and song **suggestions** on YouTube that are done with the help of machine learning. It essentially runs on the **user's experience**, like with whom are they getting connected, who visits the profiles very often, and accordingly the recommendations are provided to the user. It also gives you the technique to obtain insightful information from images and videos. Machine Learning makes YouTube more seamless.

The idea of using a recommendation system to analyze and predict new choices to help users and others.

Spam and Malware

Email clients employ **several spam filtering and these spam filters** are updated constantly. These are essentially done with the help of machine learning. Tree induction, Rule-based and multi-layer, and a few of the techniques that are rendered by machine learning. Furthermore, some malware is recognized and these are identified chiefly by the system security programs that are assisted by machine learning only.

Top Machine learning Projects

Let us now look at 20 machine learning project ideas for beginners, intermediates, and experts to attain the real-world experience of this thriving

technology in 2021.

Beginner Projects

Home Value Prediction Project

Home Value Predictor

Take a situation into consideration where you wish to buy/sell a house, or you are relocating to a new city and you are looking for a rented house.

Practical implementation
of using a linear
regression or a simple
neural network algorithm!

In this project, you will handle the dataset to develop a house price prediction model with XGBoost. The factors that are taken into consideration are average income, number of hospitals, number of schools, crime rate, etc.

Source Code: [House Value Prediction](#)

Sales Prediction Project

Sales Prediction Project

As a novice, you should work on various machine learning project ideas to expand your skillset. This dataset comprises 2013 sales data for 1559 products beyond 10 different outlets in different cities. The goal is to develop a regression model to foretell the sales of all 1559 products for the subsequent year in all of the 10 different BigMart outlets.

Source Code: [Sales Prediction](#)

Music Recommendation System Project

Music Recommendation System

Based on the songs you've liked, Spotify will show similar songs that you may like. How does the system do this? This is a perfect example of where ML can be applied. The initial task is to foretell the possibilities of a user listening to a song on loop within a time frame. In the dataset, the prediction is regarded as 1 if the user has heard the same song within a month. The dataset comprises a list of songs that have been heard by which consumer and at what time.

Similar idea as a course recommendation system that uses user-based data to predict and help user experience.

Source Code: [Music Recommendation Project](#)

Iris Flowers Classification ML Project

Iris Flowers Classification ML Project

Iris Flowers is one of the most simplistic machine learning datasets in classification literature. This machine learning problem is usually regarded as the "Hello World" of machine learning. The dataset has numeric traits and Machine Learning beginners need to comprehend how to handle and load data.

You can download Iris Dataset from UCI ML Repository [Download Iris Flowers Dataset](#)

Stock Prices Predictor with the help of TimeSeries

Stock Prices Predictor

This is another fascinating machine learning project idea in the finance domain. A stock prices predictor determines the performance of a company and foretells future stock prices.

A time series is an interpretation of event occurrences over a span of time. A time series is investigated to recognize patterns so that future incidents can be foretold on the basis of trends witnessed over a span of time. Some of the models that can be applied for time series forecasting include ARIMA (autoregressive integrated moving average), moving average, and exponential smoothing.

Source Code: [Stock Prices Predictor](#)

Predicting Wine Quality with the help of Wine Quality Dataset

Predicting Wine Quality

The principal purpose of this ML project is to develop a machine learning model to foretell the quality of wines by investigating their different chemical properties. The dataset of wine quality comprises 4898 observations with 1 dependent variable and 11 independent variables.

Source Code: [Wine Quality Prediction](#)

MNIST (Modified National Institute of Standards and Technology) Handwritten Digit Classification

MNIST

Deep learning plays an important role in the recognition of images, even self-driving cars, and automatic text generation. To start operating in these areas, you require to start with a **simplistic and easy dataset like the MNIST dataset**. The MNIST Handwritten Digit Classification dataset is extremely small to fit into your PC memory and is also beginner-friendly.

I have already done this project!

Source code in python: [MNIST Handwritten Digit Classification Project](#)

Intermediate Projects

Finding Frauds when Tracking Imbalanced Data

Finding Frauds when Tracking Imbalanced Data

Owing to the growing financial crime, the value of AI-powered fraud detection is more prominent than ever. Fraud detection is a division problem that works with imbalanced data, indicating that the fraud to be predicted is in the minority. Predictive models often strive to create real business value from imbalanced data, and the conclusions may be inaccurate.

To discuss the issue, you can incorporate three separate strategies:

- Oversampling
- Undersampling
- A combined approach

This project would help solidify my foundation of statistics and data management for machine learning. It will also enhance financial analysis and have a real-world business problem.

Market Basket Analysis

In this project, you can use an apriori algorithm to explain and foretell consumer purchasing behaviors, commonly known as Market Basket Analysis. According to the principles of Market Basket Analysis, if a consumer purchases a certain group of items, that customer is expected to buy similar items as well. Learn more about this in the Kaggle dataset.

Customer segmentation/prediction of what items a customer wants to buy. This could be used to group people into different categories. An example of this is to describe/predict which students might need help for a specific class.

Source – [Market Basket Analysis](#)

Text Summarisation

Text Summarisation

Text summarization summarises a part of the text while conserving its meaning. Extractive text summarization employs a scoring function to recognize and pick important pieces of text from a document and compile them into an edited version of the original. Abstractive text summarization utilizes high-level natural language processing techniques to create a new, shorter version that conveys the same information.

This could be very helpful to find the most important information in very long documents.

For this, you will need to know about Pandas, Numpy, and NLTK. You'll Discover a step-by-step model to text summarization system building here.

Source Code – [Text Summarization](#)

Black Friday Sales Prediction

Black Friday Sales Prediction

The dataset includes demographic information for consumers that includes age, marital status, gender, location, and more, as well as commodity details and complete purchase amounts.

Varying from emails to social media posts, 80 percent of extant text data is not structured. Text mining is a way to extract valuable insights from this type of raw data. The method of text mining converts unstructured text data into a structured format, promoting the identification of important patterns and associations within data sets.

To give text mining a try, experiment with [these publicly available text data sets](#).

Source Code – [Black Friday Sales Prediction](#)

Million Song Analysis

Million Song Analysis

Apply this subset of the Million Song Dataset to foretell the song's release year its audio features. The songs are fundamentally commercial Western tracks ranging from 1922 to 2011. The focus of the dataset is feature analysis and metadata associated with each track.

Movie Recommendation Engine

Netflix employs collaborative filtering as part of its complicated recommendation

system. Similarly, MovieLens Dataset can help you. Collaborative filtering recommendation engines interpret consumer behavior, preferences, and associations between consumers to foretell what users will like.

Advance Projects

Catching Crooks on the Hook

Global Fishing Watch recognizes and traces illegal fishing activity by collecting GPS data from ships and processing GPS data and different pieces of information with neural networks. The website's algorithm can distinguish these ships by type, fishing gear, and fishing behaviors.

Download Global Fishing Watch datasets [here](#).

Uber Helpful Customer Support

Customer Support

To solve consumer issues with effectiveness and expertise, Uber created a machine learning tool called COTA (Customer Obsession Ticket Assistant). It processes consumer support tickets with the help of "human-in-the-loop" model architecture. Basically, COTA employs machine learning and natural language

I could possibly create a chatbot that performs functions of an assistant to help solve problems in a specific subject!

processing techniques to classify tickets, recognize ticket issues, and recommend solutions.

Barbie With Brains

Barbie With Brains

Talking dolls that repeat previously recorded phrases are nothing unusual. But Hello Barbie uses natural language processing and high-level audio analytics that allow the doll to communicate reasonably in conversation. With one button sensibly engineered into her outfit, Hello Barbie is able to tape conversations and upload them to servers run by ToyTalk, where the data was investigated.

Netflix Artwork Personalization

Netflix personalizes the **artwork and imagery used to convey title recommendations to consumers**. The aim is to show you what you like, Netflix applies a convolutional neural network that interprets visual imagery. The company relies on “contextual bandits,” which work continually to decide which artwork gets better engagement.

Myers-Briggs Personality Prediction

Interesting project to create!

The Myers Briggs Type Indicator is a famous character test that separates people into 16 distinct personality types beyond 4 axes. With the help of this Kaggle dataset, you can assess the effectiveness of the test and try to recognize patterns associated with **personality type and writing style**. Every row in this dataset includes a person’s Myers-Briggs personality type accompanied with examples of their writing.

YouTube Comment Analysis

If you want to examine **YouTube comments with natural language processing techniques**, begin by scraping your text data by giving leverage to a library like Youtube-Comment-Scraper-Python. It fetches YouTube video comments utilizing browser automation.

Conclusion

Understanding machine learning and deep learning notions are important. **No project proceeds successfully without substantial planning, and machine learning is no exception.** Developing your first machine learning project is not as tough as it seems given you have a **solid planning strategy.** To begin any ML project, one must develop a complete end-to-end approach -beginning from scoping projects to model deployment and management in production. Thus, incorporate these machine learning projects into your resume and land a top gig with a greater salary and worthwhile perks.

Some tips for me to create my machine learning final product!

FAQs

Q. Why is ML interesting?

Answer: Machine learning is interesting as programs learn from examples. From the data that you have accumulated, a machine learning method can investigate automatically and know about the structure already resident in that data to render a solution to the problem you are attempting to resolve.

Q. What are some of the machine learning projects for students?

Answer: Some of the machine learning projects for students are:

- Stock Prices Prediction
- Sales Forecasting
- Movie Ticket Pricing Prediction
- Music Recommendation
- Sentiment Analysis of Product Reviews

Q. What is the future of machine learning?

Answer: The future of machine learning is very alluring. Currently, every popular domain is powered by ML applications. To mention some of the realms, healthcare, education, search engine, digital marketing, are the major beneficiaries.

Machine Learning

Machine Learning Projects

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