

7 exciting AI projects for all skill levels.

In this article, we will look at AI projects for beginners, intermediate developers, and experts.

We're living in exciting times where artificial intelligence (AI) and chatbots like ChatGPT are dominating conversations. It seems everyone wants a personal AI assistant. But would you like to build your own AI project from scratch?

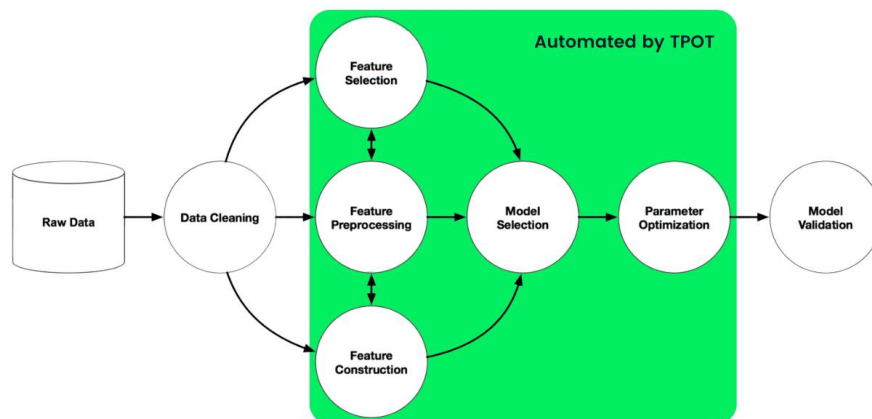
In this article, we'll look at AI projects for beginners, intermediate developers, and experts. You'll find resources to guide you in creating your own AI applications, whether you're a beginner or an experienced developer.

AI projects for beginners

These AI projects for beginners can help you build confidence and develop new skills, ensuring you master the fundamentals of artificial intelligence.

1. Giving Life: Predicting Blood Donations

The Give Life Project : Blood Donation Prediction aims to predict whether a blood donor will donate blood within a given timeframe. The dataset used in this project comes from a mobile blood donation vehicle in Taiwan, which collects blood from various universities as part of a blood donation campaign.



In this AI project, you will process raw data and import it into the TPOT Python AutoML tool. This tool will search through hundreds of Machine Learning processes to determine the best one for our dataset.

After identifying the ideal process, we will create a model using normalized features to achieve a better score.

AutoML tools allow even beginners with limited Machine Learning knowledge to build AI projects. These tools handle all the tasks and provide best practice models for testing and deployment.

2. Credit card approval prediction

In the Credit Card Approval Prediction project, you will create an automated credit card approval application using hyperparameter optimization and Logistic Regression.

For this AI project, you will need to utilize various skills, such as handling missing values, processing categorical features, normalizing features, handling unbalanced data, and applying automatic hyperparameter optimization via GridCV.

This project is designed to challenge you to go beyond the realm of simple and clean data.

The Data

The data is a small subset of the Credit Card Approval dataset from the UCI Machine Learning Repository showing the credit card applications a bank receives. This dataset has been loaded as a pandas DataFrame called `cc_apps`. The last column in the dataset is the target value.

```
# Import necessary libraries
import pandas as pd
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import confusion_matrix
from sklearn.model_selection import GridSearchCV

# Load the dataset
cc_apps = pd.read_csv("cc_approvals.data", header=None)
cc_apps.head()
```

0	1	2	3	4	5	6	7	8	9	10	11	12	13	
0	b	30.83	0	u	g	w	v	1.25	t	t	1	g	0	+
1	a	58.67	4.46	u	g	q	h	3.04	t	t	6	g	560	+
2	a	24.50	0.5	u	g	q	h	1.5	t	f	0	g	824	+
3	b	27.83	1.54	u	g	w	v	3.75	t	t	5	g	3	+
4	b	20.17	5.625	u	g	w	v	1.71	t	f	0	s	0	+

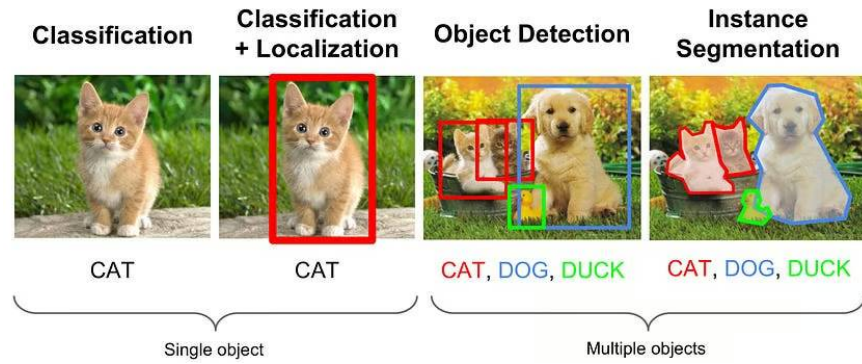
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Intermediate AI projects

These AI projects are designed for intermediate learners because they build upon foundational skills you should already possess. They are challenging enough to be both fun and help you develop your skills.

3. Object detection

In the Object Detection project, the first step is to divide the image into cells. Then, you will use a pre-trained VGG-16 CNN network to predict the probability of a cat being in the image. Finally, you will create a heat map of the probabilities to show the cat's location in the image.



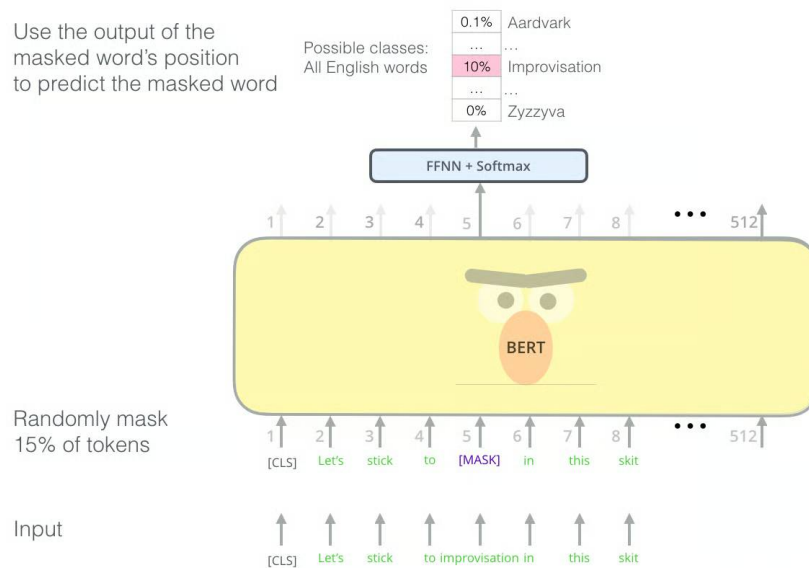
To provide a more accurate location for a bounding box, you must use a regression model to predict its coordinates.

When dealing with objects of more complex shapes, using a convolutional neural network (CNN) is very useful. To achieve this, you will use a stochastic gradient descent optimization algorithm and mean square error (MSE) as a measure, since our goal is to perform regression. Finally, you will evaluate the results of the model.

4. BERT for text classification

In the Text Classification project, you will use BERT (Bidirectional Encoder Representations from Transformers) to predict whether a given NEWS article belongs to the category "World", "Sports", "Business", or "Science/Technology".

This intermediate AI project will teach you how to process datasets, build and train models, and ultimately evaluate model performance. Additionally, you will learn about attention mechanisms, transformations, and understand the BERT architecture.



Including this project in your Machine Learning profile could increase your chances of getting hired. Besides learning how to train large AI models, you will also gain technical knowledge about how these large and complex models work.

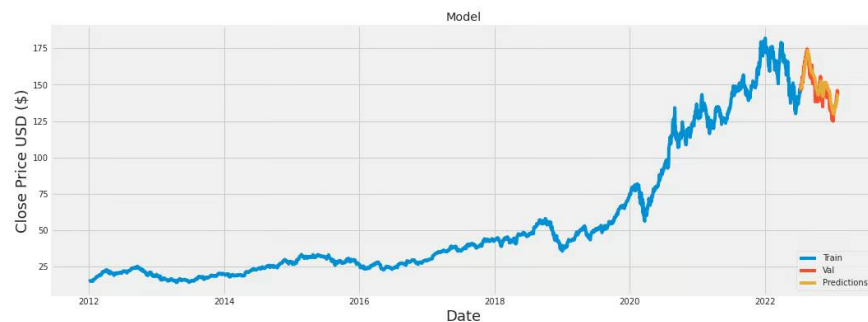
AI projects for professionals

These AI projects for experts will truly challenge you. To complete them, you will need to utilize a range of skills and knowledge, and experimenting with new concepts will help you grow.

5. Analyzing and forecasting the stock market using LSTM

Explore and understand stock market data, focusing on technology stocks like Apple, Amazon, Google, and Microsoft in the Stock Market Analysis and Forecasting project using LSTM .

Learn how to retrieve stock information using the yfinance library and visualize data using Seaborn and Matplotlib. Analyze the risk of a stock based on its past performance. Finally, build an AI model using Long Short Term Memory (LSTM) to predict future stock prices.



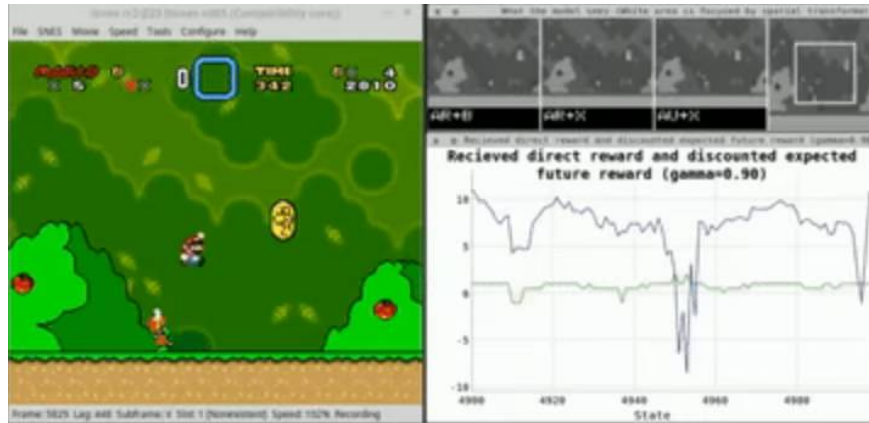
Knowledge of processing time series datasets and the ability to forecast stock prices is crucial for anyone interested in finance or related research fields.

Similarly, the ability to understand trends and provide solutions is a highly sought-after skill in the finance industry.

6. Super Mario AI

In the Super Mario AI project , you will train an AI agent to play the first level of the Super Mario World using Deep Q-learning and raw pixel input. It incorporates techniques such as experience retelling, spatial transformation networks, and ϵ -greedy policies.

The model architecture has separate branches for handling action history, screenshot history, and current state, which are merged before the output layer predicts the action value—the reward. By observing the game screen, it learns how to play the level without requiring manually designed features.



This project is highly advanced and requires extensive expertise in both reinforcement learning and computer vision . While it may be difficult to replicate, the effort is well worth it.

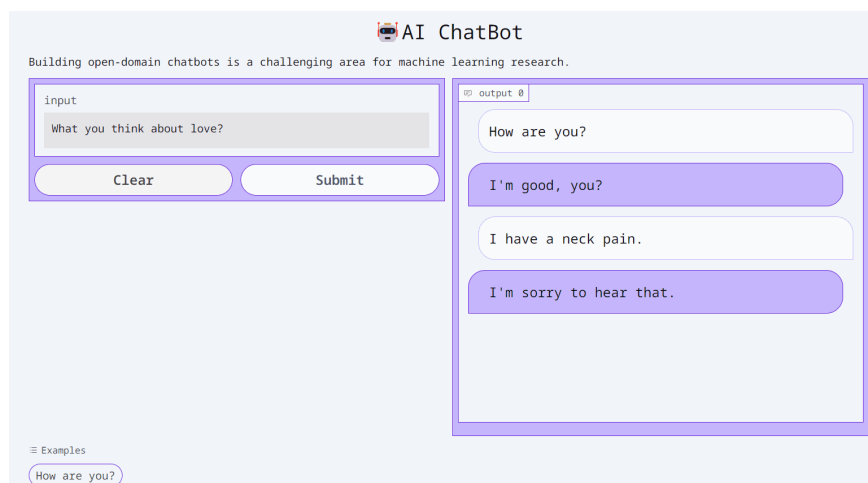
AI projects for entertainment

We conclude our list of AI projects with a quick and interesting one. Even if you're new to the field of artificial intelligence, you'll find this project fascinating.

7. Build an AI chatbot in 5 minutes.

In this AI for Entertainment project, you will build an AI chatbot using Hugging Face and Gradio. It's quite simple and requires minimal knowledge of Python programming .

In this project, you will learn how to build and deploy a web application using transformers to load a conversational model and use gradio-based conversational inference to generate chatbot user inferences. It only takes 5 minutes to build an application, and you don't need to leave your browser.



Gradio recently introduced `gr.ChatInterface(predict)`, allowing users to easily build custom chatbots and integrate them with agents in less than 5 minutes. For a full guide on creating your own chat interface, visit the [Creating A Chatbot Fast](#) page on gradio.app.

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