

23 Amazing Deep Learning Project Ideas [Source Code Included]

Deep Learning Project Ideas

We know that machine learning is the rage these days. But the machine learning technique that shines the most brightly is deep learning. Deep learning is all about how a computer program can learn through observation and make decisions based on its experience. Deep learning methods are useful for computer vision, natural language processing, speech recognition and processing, and so much more.

The best way to learn something is with a hands-on approach and, therefore, we bring these amazing project ideas for you to practice and improve your deep learning knowledge and skills. These project ideas are divided according to their difficulty level so that you can easily find a project that interests you and is within your skill level. So let's not waste any more time and jump right into it.

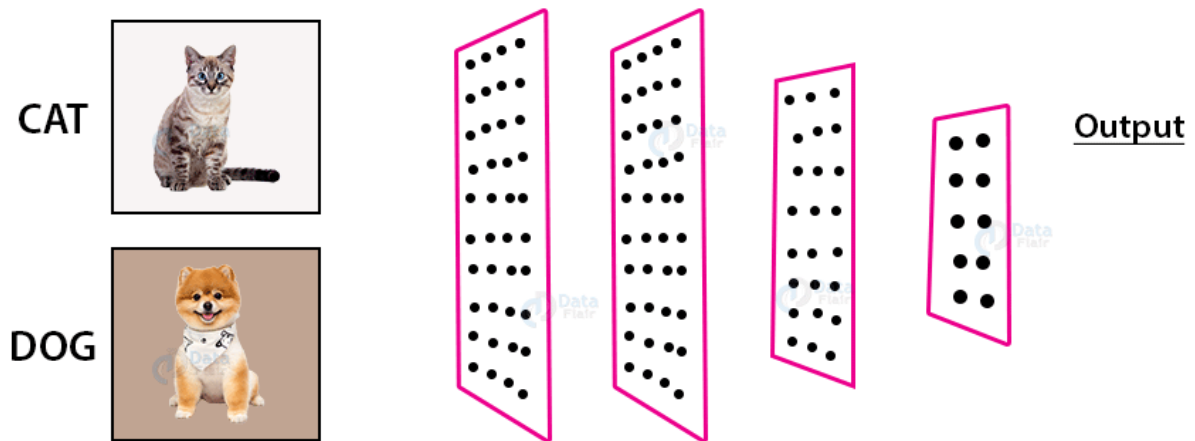
GOOD NEWS!!

Your headache for finding some really amazing project ideas is finally over. All you need to do is just bookmark this article and you'll never find yourself short of great project ideas to work upon. Here, we have compiled a list of over 500+ project ideas customized specially for you.

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Deep Learning Project Ideas for Beginners

1. Cats vs Dogs



Deep Learning Project Idea – The cats vs dogs is a good project to start as a beginner in deep learning. You can build a model that takes an image as input and determines whether the image contains a picture of a dog or a cat.

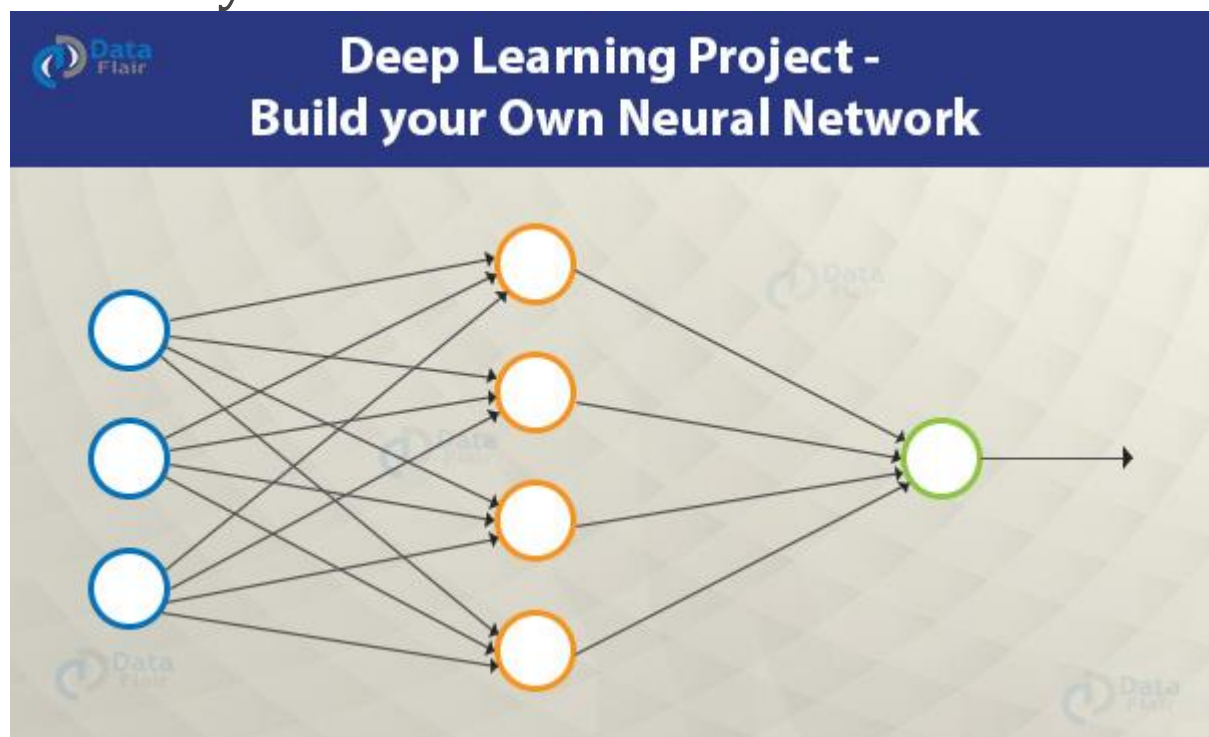
Dataset: [Cats vs Dogs Dataset](#)

Source Code: [Cats vs Dogs Classification Project](#)

2. Predict Next Sequence

Deep Learning Project Idea – To start with deep learning, the very basic project that you can build is to predict the next digit in a sequence. Create a sequence like a list of odd numbers and then build a model and train it to predict the next digit in the sequence. A simple neural network with 2 layers would be sufficient to build the model.

3. Build your Own Neural Net from Scratch



Deep Learning Project Idea – Mostly you will be doing the neural network works using a deep learning library or framework. You should definitely build your own neural network library in order to understand how everything works. This project will enhance your skills and understanding of the subject.

4. Image Classification with CIFAR-10 Dataset



Deep Learning Project Idea – The CIFAR-10 dataset is a collection of images of 10 different classes like cars, birds, dogs, horses, ships, trucks, etc. The idea of the project is to build an image classification model that will be able to identify what class the input image belongs to. Image classification is used in many applications and it is a great project to start deep learning.

Dataset: [Image Classification with CIFAR Dataset](#)

Source Code: [Image Classification Project](#)

5. Human Face Detection



Deep Learning Project Idea – The face detection took a major leap with deep learning techniques. We can build models with high accuracy in detecting the bounding boxes of the human face. This project will get you started with object detection and you will learn how to detect any object in an image.

Source Code: [Human Face Detection Project](#)

6. Dog's Breed Identification



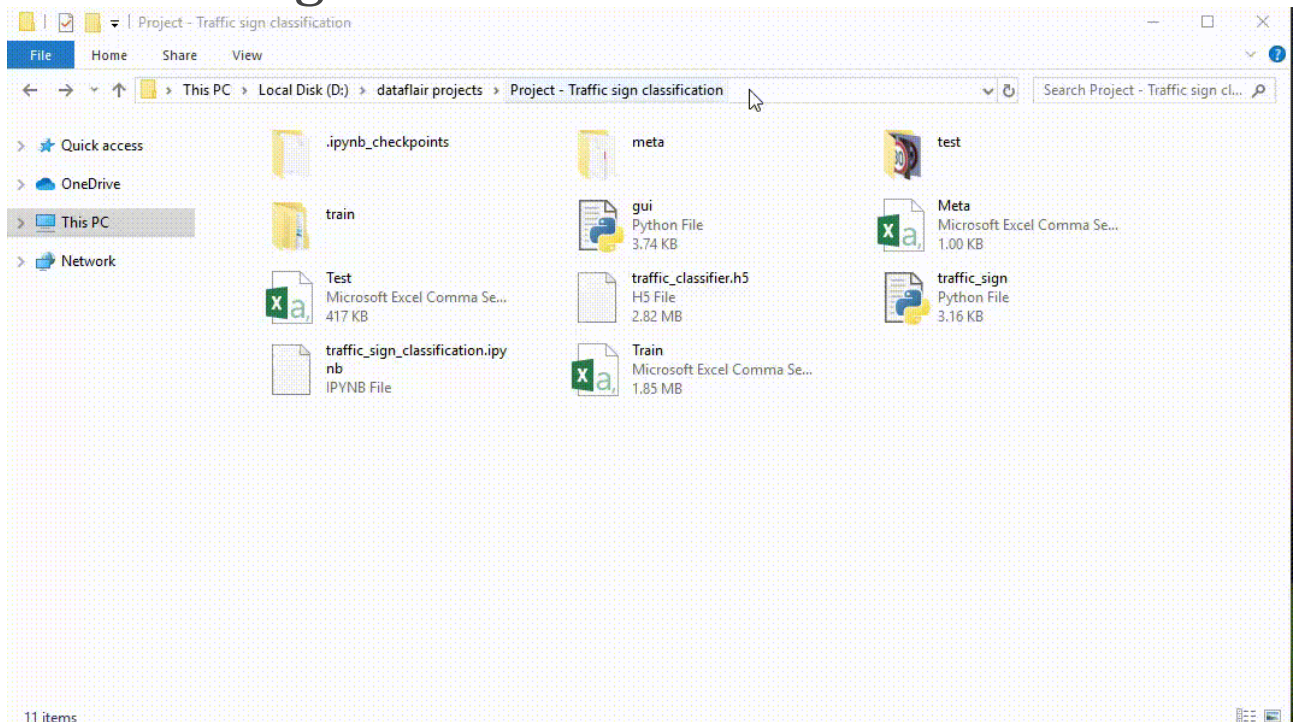
Deep Learning Project Idea – How often do you get stuck thinking about the name of a dog's breed? There are many dog breeds and most of them are similar to each

other. We can use the dog breeds dataset and build a model that will classify different dog breeds from an image. This project will be useful for a lot of people.

Dataset: [Dog's Breed Identification Dataset](#)

Intermediate Deep Learning Project Ideas

1. Traffic Sign Classification



Deep Learning Project Idea – The traffic sign classification project is useful for all autonomous vehicles. Machines are able to identify traffic signs from the image. You can use the GTSRB dataset that contains 43 different traffic sign classes. This is a good project to understand image classification.

Dataset: [Traffic Sign Classification Dataset](#)

Source Code: [Traffic Sign Classification Project](#)

2. Automatic Music Generation

Deep Learning Project Idea – What if I told you that you can make music automatically. Yes, it is also possible with deep learning however the real challenge is to generate real music that is pleasant to hear. In this project, the midi file's data can be used to build an LSTM model that can generate new music never heard before.

3. Breast Cancer Classification

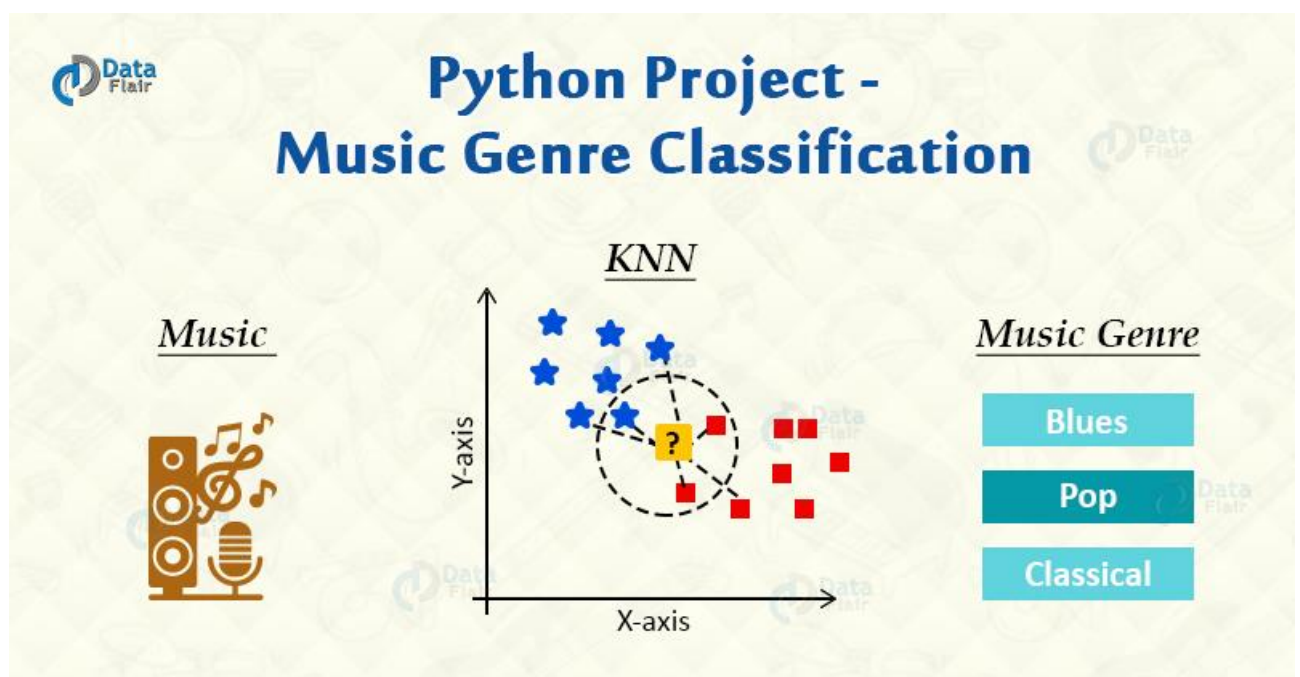


Deep Learning Project Idea – Cancer is a dangerous disease and it should be detected as soon as possible. It is possible to detect cancer using histopathology images. Cancer cells differ from regular cells so we can build an image classification model to detect if the person has cancer or not.

Dataset: [Breast Cancer Classification Dataset](#)

Source Code: [Breast Cancer Classification Project](#)

4. Music Genre Classification



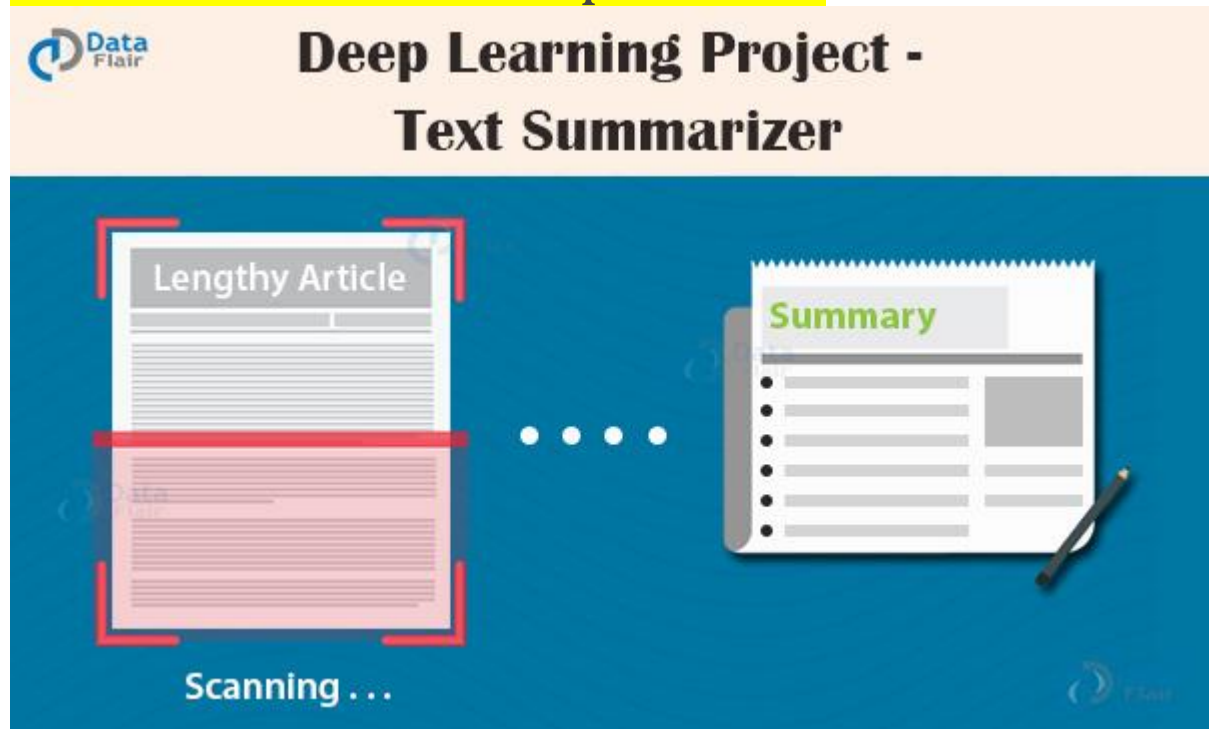
Deep Learning Project Idea – A good project idea is to build a model that can classify the genre of music using neural networks. We would need to extract information from the audio samples such as spectrograms, MFCC, etc. and then use

a model to classify the music genre. This model can be used to automatically classify the music genre.

Dataset: [Music Genre Classification Dataset](#)

Source Code: [Music Genre Classification Project](#)

5. Text Summarizer -- phoBERT



Deep Learning Project Idea – The text summarizer is a project in which we make a deep neural network using natural language processing. The idea is to take some paragraphs of text and build their summary. It is very helpful to get a summary of the article.

6. Gender Recognition Using Voice

Deep Learning Project Idea – We can recognize the gender of the person by hearing their voice with good accuracy. Machines can also be trained to recognize different gender voices. We will need labelled audio clips of male and female genders. Then perform feature extraction techniques to feed the data into the classifying model.

7. Chatbot Using Deep Learning



Deep Learning Project Idea – Another great project is to make a chatbot using deep learning techniques. Chatbots can be implemented in various ways and a good chatbot also uses deep learning to identify the context the user is asking and then provide it with the relevant answer.

Dataset: [Chatbot Using Deep Learning Dataset](#)

Source Code: [Chatbot Using Deep Learning Project](#)

8. Neural Style Transfer

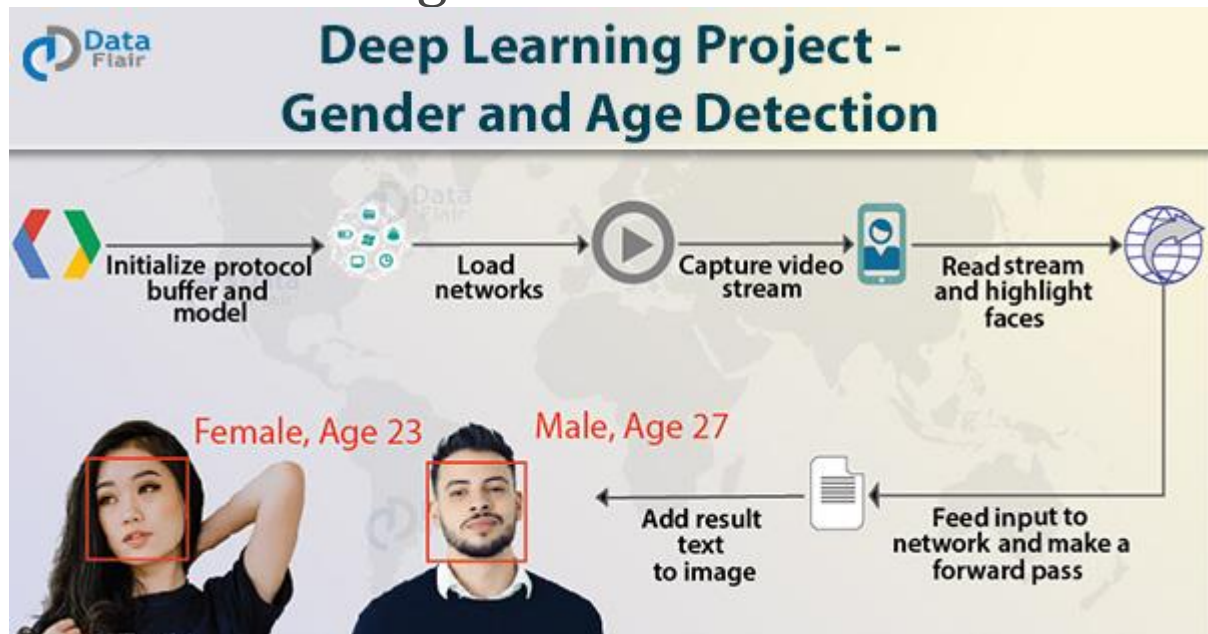
Deep Learning Project Idea – The idea of this project is to make art by using one image and then transferring the style of that image to the target image. This style transfer method is what made the smartphone apps like Prisma famous.

9. Face Aging

Project Idea – With the success of GAN architectures in recent times, we can generate high-resolution modifications to images. You can create an application that takes an input image of a human and returns the pic of the same person of what they'll look in 30 years.

Advanced Deep Learning Project Ideas

1. Gender and Age Detection



Deep Learning Project Idea – You might have seen many smartphone cameras are now equipped with AI. They can even predict if a person is a male or female and their age. This can be done with deep learning but we will need a good amount of data to make this model.

Dataset: [Gender and Age Detection Dataset](#)

Source Code: [Gender and Age Detection Project](#)

2. Driver Drowsiness Detection



Deep Learning Project Idea – The driver drowsiness detection is a project which can detect whether a person is sleeping or not. We can implement a model for drivers and it can also prevent accidents from happening.

Dataset: [Driver Drowsiness Detection Dataset](#)

Source Code: [Driver Drowsiness Detection Project](#)

3. Human Pose Estimation

Deep Learning Project Idea – The human pose estimation is the art of identifying body alignment of a person by estimating different body joints. Snapchat uses pose estimation to detect where eyes and head are located to fix a filter on the person. Similarly, we can estimate the human pose and add filters to the person in real-time.

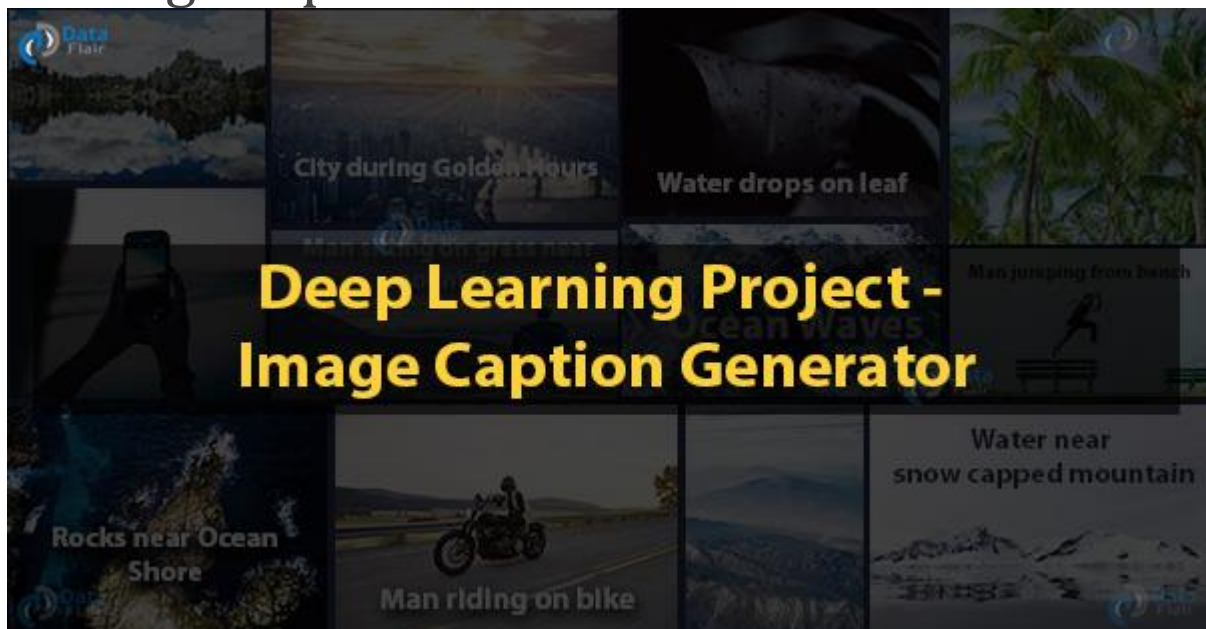
Dataset: [Human Pose Estimation Dataset](#)

4. Human Activity Recognition with Video Classification

Deep Learning Project Idea – Build a model that is used to detect human activity like picking something up, putting something down, opening or closing something. Video classification is a difficult task as it requires a series of multiple images to combine together and classify the action that is being performed.

Dataset: [Human Activity Recognition with Video Classification Dataset](#)

5. Image Caption Generator



Deep Learning Project Idea – Humans can understand an image easily but computers are far behind from humans in understanding the context by seeing an image. However, technology is evolving and various methods have been proposed through which we can automatically generate captions for the image. The project requires knowledge of natural language processing.

Dataset: [Image Caption Generator Dataset](#)

Source Code: [Image Caption Generator Project](#)

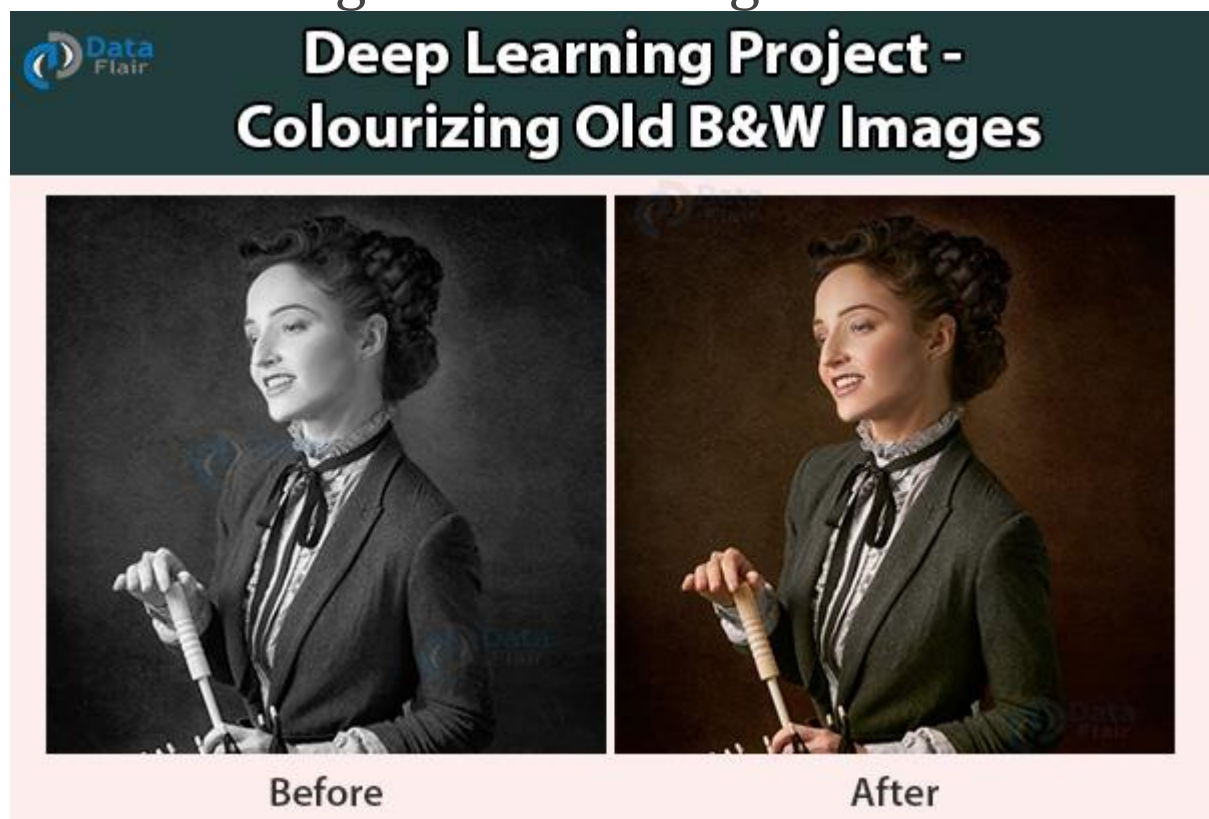
6. Generate Human Faces with DCGAN

Deep Learning Project Idea – DCGAN are **Deep Convolutional Generative Adversarial Networks**. They are extremely powerful techniques to generate images, audio, text, or videos that are indistinguishable from real-world data. The idea behind this project is to start with random noise and apply DCGAN to generate real-like human faces that don't even exist.

7. Variational Autoencoders

Deep Learning Project Idea – Variational autoencoder or VAE has a huge potential in Deep learning. They can generate new data similar to the data used while training. They have an encoder and a decoder built inside them. For starting you can use the MNIST dataset to generate numbers.

8. Colourizing Old B&W Images



Deep Learning Project Idea – The idea of this project is to make a model that is capable of colorizing old black and white images to colorful images. Digital artists take a few hours to color the image but now with deep learning, it is possible to color an image within seconds.

Source Code: [Colorize Black & White Images with Python](#)

9. Language Translator



Deep Learning Project Idea – Human beings take about a year to learn a language but computers can learn in a day. In this project, we can build a language translator app that can translate from English to the French language.

Summary

This was all about DataFlair's Deep Learning project ideas article. In this, we have provided you some best project ideas to work on from basics to advanced level. It is the best way to learn which will help you in enhancing your Deep Learning knowledge and skills.

I hope this article was helpful to you. If you want to add more deep learning project ideas, do let us know in the comment section.

Happy Learning

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1. asif

February 5, 2020 at 11:33 pm

i want some project idea for undergraduate thesis.

[Reply](#)

2. **SALAHUDDIN MUHAMMAD**

[March 25, 2020 at 11:44 am](#)

Please add ANN, CNN, RNN DL-projects ,as much as possible, with complete source code, as soon as possible. Best site ever.

[Reply](#)

3. **VP**

[August 13, 2020 at 4:15 pm](#)

Gender recognition by voice – great idea, bad timing. Not now, really don't even try

[Reply](#)

4. **Meenu Sharma**

[August 26, 2020 at 9:57 am](#)

Can you please provide me source code of Automatic music generation project?

[Reply](#)

5. **asadi**

[December 3, 2020 at 1:00 pm](#)

How to increase classes of a pre trained network, like google net. from 1000 classes to 1001 classes, by increasing 'book' class for example to it.