1 | # Feature extraction from image by VGG16 pretrained model

In [5]:

```python
from tensorflow.keras.applications.vgg16 import VGG16
from tensorflow.keras.preprocessing import image
from tensorflow.keras.applications.vgg16 import preprocess_input
import numpy as np
```

In [6]:

```python
model = VGG16(weights='imagenet', include_top=False)
```

```
2023-07-29 16:25:05.089644: I tensorflow/core/platform/cpu_feature_gua
rd.cc:145] This TensorFlow binary is optimized with Intel(R) MKL-DNN t
o use the following CPU instructions in performance critical operation
s:  SSE4.1 SSE4.2 AVX AVX2 FMA
To enable them in non-MKL-DNN operations, rebuild TensorFlow with the
appropriate compiler flags.
2023-07-29 16:25:05.122180: I tensorflow/core/common_runtime/process_u
til.cc:115] Creating new thread pool with default inter op setting: 4.
Tune using inter_op_parallelism_threads for best performance.

Downloading data from https://github.com/fchollet/deep-learning-model
s/releases/download/v0.1/vgg16_weights_tf_dim_ordering_tf_kernels_noto
p.h5 (https://github.com/fchollet/deep-learning-models/releases/downlo
ad/v0.1/vgg16_weights_tf_dim_ordering_tf_kernels_notop.h5)
58892288/58889256 [==============================] - 2s 0us/step
```

In [7]:

```python
img_path = '/Users/myyntiimac/Desktop/squirl.jpeg'
img = image.load_img(img_path, target_size=(224, 224))
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = preprocess_input(x)
```

In [8]:

```python
features = model.predict(x)
```

In [9]:

```
1  features
```

Out[9]:

Out[9]:

```
array([[[[ 0.        ,  0.        ,  0.        , ...,  0.        ,
           0.        ,  0.        ],
         [ 0.        ,  0.        ,  0.        , ...,  0.        ,
           0.        ,  0.        ],
         [ 0.        ,  0.        ,  0.        , ...,  0.        ,
           0.        ,  0.        ],
         ...,
         [ 0.        ,  0.        ,  0.        , ...,  0.        ,
           0.        ,  0.        ],
         [ 0.        ,  0.        ,  4.662006  , ...,  0.        ,
           0.        ,  0.        ],
         [ 0.        ,  0.        ,  0.        , ...,  0.        ,
           0.        ,  0.        ]],

        [[ 0.        ,  0.        , 24.038336  , ...,  0.        ,
           0.        ,  0.        ],
         [ 0.        ,  0.        , 35.80398   , ...,  0.        ,
           0.        ,  0.        ],
         [ 0.        ,  0.        , 25.506413  , ...,  0.        ,
           0.        ,  0.        ],
         ...,
         [ 0.        , 21.086622  , 18.551615  , ...,  0.        ,
           0.        ,  0.        ],
         [ 0.        ,  0.        ,  5.2585287 , ...,  0.        ,
           0.        ,  0.        ],
         [ 0.        ,  0.        ,  0.        , ...,  0.        ,
           0.        ,  0.        ]],
```

In [ ]:

```
         [[ 0.        ,  4.720495  , 38.02783   , ...,  0.        ,
            0.        ,  0.43245834],
          [ 0.        , 19.04265   , 46.885983  , ...,  0.        ,
            0.        ,  0.        ],
          [ 0.        ,  0.        , 39.01918   , ...,  0.        ,
           15.241167  ,  0.        ],
          ...,
          [ 0.        , 24.101475  , 20.22214   , ...,  0.        ,
            0.        ,  0.        ],
```