Keras – An Introduction

Why use Keras?

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4. Community contributions from Open Source
5. **Focus more on doing rather than "implementation details"**

Steps for building a Deep Learning model in Keras

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1. Import necessary functions / modules

```
from keras.models import Sequential
from keras.applications.vgg16 import VGG16
from keras.layers import Dense, Flatten, BatchNormalization, Dropout, InputLayer
```

Steps for building a Deep Learning model in Keras

1. Import necessary functions / modules

2. Create deep learning model

```
model = Sequential()
model.add(base_model)
model.add(BatchNormalization())
model.add(Dense(1, activation='sigmoid'))
```

Steps for building a Deep Learning model in Keras

1. Import necessary functions / modules
2. Create deep learning model
3. Compile the model

```
model.compile(loss='binary_crossentropy', optimizer='sgd', metrics=['accuracy'])
```

Steps for building a Deep Learning model in Keras

1. Import necessary functions / modules
2. Create deep learning model
3. Compile the model
4. Run the model

```
model.fit(X_train, Y_train, epochs=3, validation_data=(X_valid, Y_valid))
```

Steps for building a Deep Learning model in Keras

1. Import necessary functions / modules
2. Create deep learning model
3. Compile the model
4. Run the model
5. Lastly, we get predictions from our model

```
model.predict(X)
```

Keras modules you need to know!

1. keras.models

```
from keras.models import Sequential

model = Sequential()
```

Keras modules you need to know!

1. keras.models
2. keras.layers

```
from keras.layers import Dense, Conv2D

model = Sequential()
model.add(Dense(units=1))
```

Keras modules you need to know!

1. keras.models
2. keras.layers
3. keras.activations

```
from keras.activations import sigmoid, tanh

model = Sequential()
model.add(Dense(1, activation=sigmoid))
```

Keras modules you need to know!

1. keras.models
2. keras.layers
3. keras.activations
4. keras.optimizers

```
from keras.optimizers import SGD, Adam

sgd = SGD(lr=0.01)

model = Sequential()
model.add(Dense(1, activation=sigmoid))

model.compile(optimizer=sgd)
```

Keras modules you need to know!

1. keras.models
2. keras.layers
3. keras.activations
4. keras.optimizers
5. keras.preprocessing

```
from keras.preprocessing import image

image.load_img('images/emergency_1000.jpg')
```

Keras modules you need to know!

1. keras.models
2. keras.layers
3. keras.activations
4. keras.optimizers
5. keras.preprocessing
6. keras.applications

```
from keras.applications import vgg16

model = vgg16.VGG16(weights='imagenet')
```

Let’s code!