Deep learning

# Convolutional

<https://elitedatascience.com/keras-tutorial-deep-learning-in-python>

1. Deep learning is a set of algorithms that have a certain architecture. An input layer, hidden layers and output layers.

### Convolutional neural network

1. A neural network for image recognition.

### What is Theano

1. A Python based library.
2. Allows users to evaluate mathematical expressions involving multi-dimensional arrays.

### Tensorflow

1. An open-source deep learning library.

### Keras versus Tensorflow

1. Tensorflow is the most known library for deep learning models but it’s not as easy to use thus Keras is a higher-level deep learning library built on top of Tensorflow that is more user-friendly.

### The difference between runtime and compile time

1. Compilation refers to the translation of high-level code into machine readable code in order for it to be executed by the machine.
   1. Summary: compile time is the time taken to translate high-level code into machine code for the machine to execute the code.
   2. Time taken to translate, not execute.
   3. Compilation error refers to an error during this time where the high-level code is being translated into machine code.
   4. An error may occur during this translation process.
2. Runtime refers to the duration when you are executing the program. This is after the code has been compiled (translated into machine code).
   1. Run time error occurs when you are already executing the code in machine code.

LSTM