

Keras in Deep Learning Framework

Keras, TensorFlow and PyTorch are among the top three frameworks that are preferred by Data Scientists as well as beginners in the field of Deep Learning. This comparison on **Keras vs TensorFlow vs PyTorch** will provide you with a crisp knowledge about the top Deep Learning Frameworks and help you find out which one is suitable for you. In this blog you will get a complete insight into the above three frameworks in the following sequence:

- Introduction to Keras, TensorFlow & PyTorch
- Comparison Factors
- Final Verdict

Keras



Keras is an open source [neural network](#) library written in [Python](#). It is capable of running on top of TensorFlow. It is designed to enable fast experimentation with **deep neural networks**.

Comparison Factors

Level of API



Keras is a **high-level API** capable of running on top of TensorFlow, CNTK and Theano. It has gained favor for its ease of use and syntactic simplicity, facilitating fast development.

TensorFlow is a framework that provides both **high and low level APIs**. Pytorch, on the other hand, is a **lower-level API** focused on direct work with array expressions. It has gained immense interest in the last year, becoming a preferred solution for academic research, and applications of deep learning requiring optimizing custom expressions.

Speed



The performance is comparatively **slower** in **Keras** whereas Tensorflow and PyTorch provide a similar pace which is fast and suitable for **high performance**.

Architecture



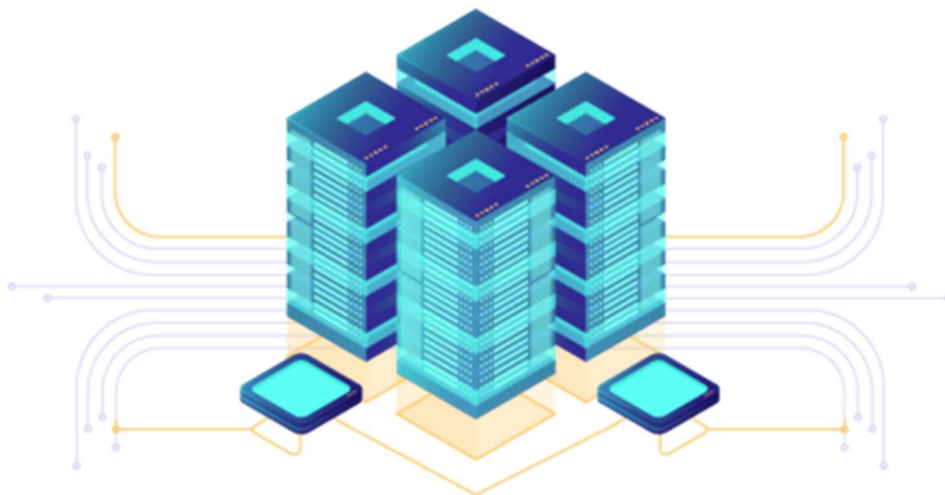
Keras has a **simple** architecture. It is more readable and concise. Tensorflow on the other hand is not very easy to use even though it provides Keras as a framework that makes work easier. PyTorch has a **complex** architecture and the readability is less when compared to Keras.

Debugging



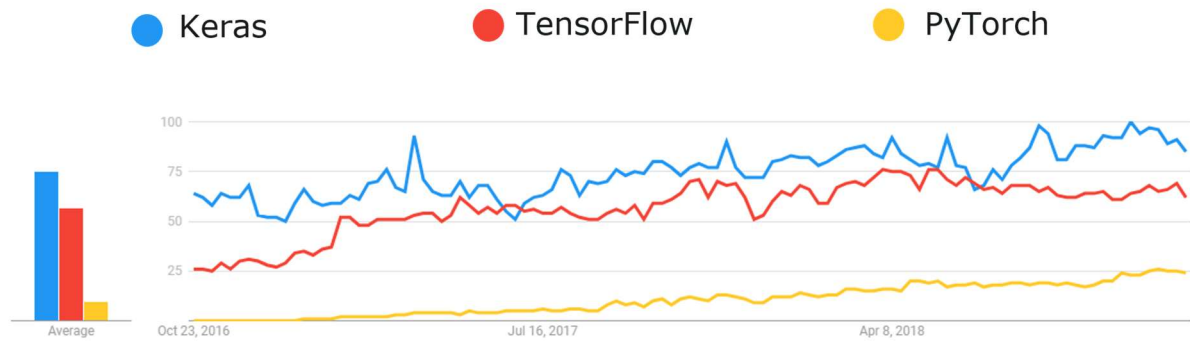
In keras, there is usually very **less frequent** need to debug simple networks. But in case of Tensorflow, it is quite **difficult** to perform debugging. **Pytorch** on the other hand has **better debugging capabilities** as compared to the other two.

Dataset

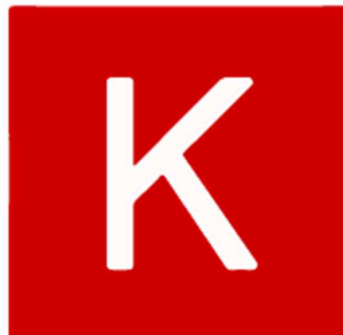


Keras is usually used for **small datasets** as it is comparatively slower. On the other hand, TensorFlow and PyTorch are used for **high performance** models and **large datasets** that require fast execution.

Popularity



With the increasing demand in the field of **Data Science**, there has been an enormous growth of **Deep learning technology** in the industry. With this, all the three frameworks have gained quite a lot of popularity. **Keras** tops the list followed by TensorFlow and PyTorch. It has gained immense popularity due to its **simplicity** when compared to the other two.



Keras is most suitable for:

- Rapid Prototyping
- Small Dataset
- Multiple back-end support