

## Abstract

TensorFlow is an end-to-end open source platform for machine learning. TensorFlow is a rich system for managing all aspects of a machine learning system; however, this class focuses on using a particular TensorFlow API to develop and train machine learning models. TensorFlow provides you with a rich collection of ops and libraries to help you work with input in text form such as raw text strings or documents. These libraries can perform the preprocessing regularly required by text-based models, and includes other features useful for sequence modeling.

You can extract powerful syntactic and semantic text features from inside the TensorFlow graph as input to your neural net.

This paper is a review of TensorFlow for Text Processing.

## Why TensorFlow?

TensorFlow is one of the earliest frameworks open sourced and has lot of documentation and examples.

TensorFlow is an end-to-end platform that makes it easy to build and deploy ML models. TensorFlow models can also be run without a traditional computer platform in the Google Cloud Machine Learning Engine. TensorFlow has better computational graph visualizations. Which are inherent when compared to other libraries like Torch and Theano. Tensor flow has the advantages of seamless performance, quick updates, and frequent new releases with new features.

TensorFlow offers multiple levels of abstraction to choose from. Build and train models by using the high-level Keras API, which makes getting started with TensorFlow and machine learning easy.

For more flexibility, eager execution allows for immediate iteration and intuitive debugging. For large ML training tasks, we can use the Distribution Strategy API for distributed training on different hardware configurations without changing the model definition.

It is compatible with many languages such as C++, JavaScript, Python, C#, Ruby, and Swift. This allows a user to work in an environment they are comfortable in.

TensorFlow is scalable. Since it's backed by Google and readily available to be used in Google cloud infrastructure scalability is guaranteed.

TensorFlow also has its architecture TPU, which performs computations faster than GPU and CPU.

Models built using TPU can be easily deployed on a cloud at a cheaper rate and executed at a faster rate.

Integrating preprocessing with the TensorFlow graph provides the following benefits:

Facilitates a large toolkit for working with text

Allows integration with a large suite of Tensorflow tools to support projects from problem definition through training, evaluation, and launch

Reduces complexity at serving time and prevents training-serving skew

## Conclusion

Given the above advantages and open-source availability TensorFlow has become the de facto for deep learning. Natural Language Processing (NLP) has experienced fast growth and advancement primarily because the performance of the language models depends on their overall ability to "understand" text and can be trained using an unsupervised technique on large text corpora. Additionally, pre-trained text models coming with TensorFlow gives a great starting point and gives good performance.

## References

<https://www.tensorflow.org/text>

<https://www.javatpoint.com/advantage-and-disadvantage-of-tensorflow>