**Review of Tensorflow**

# **Summary**

With demand for machine learning dealing with big datasets increasing, although DistBelief, a distributed system for training neural networks,is adequate for users with simple requirements, more advanced users can’t be satisfied with it. Thus, the successor to DistBelief come out.

Tensorflow is a work in progress which is a machine learning system that operates at large-scale and in heterogeneous environments. TensorFlow uses dataflow graphs to represent computation, shared state, and the operations that mutate that state.

TensorFlow support both large-scale training and inference, meanwhile, it is flexible enough to support experimentation and research into new machine learning models and system-level optimizations.

**Contributions**

① Flexibility: users can program with the same scripting interface that they use to define models.

* Individual mathematical operators: easier for users to compose novel layers, represent multiple state,enabling experiments with different update rules and algorithms.
* Simplified distributed execution: automatic derivation, no need for solving gradient through reverse propagation.

② Support Multiple Client Languages.

③ Portable on several operating systems with over 200 standard operations.

**Comments**

**Flash points:**①On system level, many algorithms are developed for automatic placement, kernel fusion, memory management, and scheduling in TensorFlow. ②It has fast compilation speed and make full use of hardware resources.

**Limitations:** ① TensorFlow has poor performance at small scales.②Tensorflow had not yet determined default policies that work well for all users.