Review of
Tensorflow
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What is the problem?

We need a machine learning system that operates at a large scale and that can work in heterogenous environments.

Summary

TensorFlow uses data flow graphs to represent computation, shared state, and the operations that mutate that state. TensorFlow uses a unified dataflow graph to represent both the computation in an algorithm and the state on which the algorithm operates.

Key Insights

- The model supports multiple concurrent executions on overlapping subgraphs of the overall graph. Individual vertices may have mutable state that can be shared between different executions of the graph.
- TensorFlow supports advanced machine learning algorithms that contain conditional and iterative control flow.

Strengths

- It can support running training on a variety of platforms: large datacenters to mobile devices.
- It supports experimentation and research into newer machine learning models and system-level optimizations.

Weaknesses

- It is almost open source and supports optimizations but is not fully open sourced.
- In TensorFlow there doesn't exist default policies that are suitable for all users, which can still be improved upon.

Summary of Key Results

- TensorFlow is a system that allows machine learning researchers to experiment with newer techniques and provide optimizations.
- TensorFlow has little overhead, and can employ large amounts of computation to accelerate real-world applications.

Open Questions

- How can TensorFlow automatically determine placements that can achieve close to optimal performance on a given set of devices?