

15-300 Milestone 1

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1 Major Changes

There are no major changes to the project. The only change is that we might not do the characterization for an LSTM. The reason for this change is that Caffe was designed for CNNs, so implementing LSTMs and RNN architectures in general can be difficult.

2 What You Have Accomplished So Far

I have read a total of 10 papers on topics related to my project. I have read papers discussing distributed stochastic gradient descent, federated learning, multi-task learning, and gradient compression. I have also been working on the characterization on MNIST and CIFAR-10. I am also working on creating different skewed partitions for the CASIA dataset.

3 Meeting Your Milestone

I have almost accomplished everything I set out to for the milestone. However, I have not finished the characterization on MNIST and CIFAR-10, and I have not finished creating the different skewed partitions for the CASIA dataset. I plan to work on this during the break, so it is wrapped up by the time the next semester starts.

We also likely to not do the characterization for the LSTM.

4 Surprises

We might not do the characterization for an LSTM because of the challenges associated with implementing this architecture in Caffe, which was designed for CNNs.

5 Revisions to 15-400 Milestones

There are no revisions to the 15-400 Milestones. The only new development on this front are that we are aiming to submit the results from the characterization to the International Conference on Machine Learning (ICML) in January. If we are not in a position to submit to this conference, we will likely submit the characterization as well as the solution to the Symposium on Operating Systems Principles (SOSP).

6 Resources Needed

I have all of the resources that I need. The Parallel Data Lab has given me access to the Orca Cluster for large scale machine learning.