

# 15-400 Milestone 2

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## 1 Major Changes

After looking into Recurrent Neural Networks and Long Short-Term Memory Networks in Caffe, we have decided that it is worthwhile to actually try to implement an LSTM and use it in our characterization. We are currently interested in language modeling. However, if it proves to not be suitable for our purposes, we will likely look at speech prediction instead.

## 2 What You Have Accomplished Since Your Last Meeting

Since milestone 1, I have continued reading up on literature in the field. I have also run experiments on the MNIST dataset with LeNet using Gaia, Federated Averaging, and the Bulk Synchronous Parallel models. Currently, I am looking into Char-RNN and implementing it in Caffe.

## 3 Meeting Your Milestone

I have completed my experiments on the MNIST dataset, which I intended on doing. We have decided for the moment that having an LSTM implemented is the top priority, so instead of creating different skewed partitions for the CASIA dataset I have been working on this.

## 4 Surprises

There have not been any major surprises.

## 5 Looking Ahead

The main focus for the next two weeks is implementing an LSTM in Caffe. Doing something with language modeling is ideal, but I need to look into what metrics I want to use to measure performance and what model would be best

to work with. If it seems that language modeling is something that I might not be able to get working in the version of Caffe that Gaia has, we might have to shift to doing something with speech recognition instead.

## **6 Revisions to Your Future Milestones**

There are no major revision to future milestones. As mentioned in the previous milestone report, conference deadlines should be kept in mind. The International Conference on Machine Learning (ICML) deadline is rather soon, so we are more likely to consider the Networked Systems Design and Implementation (NSDI) conference and the Symposium on Operating Systems Principles (SOSP) instead.

## **7 Resources Needed**

I have all the resources that I need to complete my project.