CS 491 Undergraduate Research

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Over the past two weeks, I have completed the Caffe tutorials provided by Intel. Also, I was able to successfully install the Caffe bundle on Theta. There were several issues with compiling the code related to dependencies and configuration file settings. This raised the topic of whether a better platform existed for running the distributed deep neural network training. I was able to speak with Rick Zamora from Argonne National Lab about the project. After our discussion, I believe a better approach to the project would be to use Horovod and TensorFlow instead. There are several reasons for this. First, both of these packages are already installed on Theta. Second, these libraries are widely used in the Leadership Computing Facility Division which means there are many resources related to building, running and profiling code with these libraries. Lastly, in the likely event we run into a difficult problem, there are several people we can turn to at Argonne for assistance.

I was able to obtain some tutorials on using Horovod and TensorFlow on Theta from the Data Science Group at Argonne. Over the next couple weeks, I intend to review these materials and become familiar with the code from both libraries. I believe there are also some separate data science modules which assist with running TensorFlow on Horovod. Over the next two weeks, I also hope to build and run our first neural network training jobs on Theta.