



ALPhA Summer Week 9 Presentation

BRADEN KRONHEIM

JULY 29, 2019

Summary

- ▶ Stormed T&I several times
 - ▶ We know IP addresses now and had access to the IPMI of phy2Kuchera
 - ▶ Actual Linux node is still unresponsive
- ▶ Wrote a version of Prelu which only allows positive slope:
 - ▶ Slope parameter alpha becomes the square root of the slope. This means negative and positive values alike will be squared to a positive slope
- ▶ Adjusted how the BNN saves network
 - ▶ Now includes information on the architecture to aid in the reconstruction of arbitrary networks
- ▶ Wrote intro to paper
- ▶ Named package TensorBNN

New saving method

- ▶ Architecture file is saved at beginning of training
 - ▶ Each layer is given a string name, for example a Relu layer is “relu”
 - ▶ File consists of the name of each layer on its own line in a text file
- ▶ Networks are saved at a user specified frequency with a user specified number of networks per file
 - ▶ Each matrix in the network gets its own set of files
 - ▶ For example, the user may specify to save every 5 networks with 10 networks in a file and train for 1000 epochs
 - ▶ This means that each matrix in the network, so the bias on the first hidden layer for example, will be stored in 20 separate files with 10 matrices in each.
- ▶ Summary file with matrix shapes for each layer, number of networks per layer, total number of networks, and total number of matrices per network is updated after each

Goals for next week

- ▶ Write code to reconstruct saved networks
 - ▶ Interpret architecture file to determine activation functions used
 - ▶ Process should be similar to actually building the network to begin with
- ▶ Write methods section of paper
- ▶ Create full examples using BNNs to analyze MNIST data to put on github
- ▶ Once nodes are turned on and the saving/loading design is complete retrain all networks using the final BNN code