Paralelizing Neural Network Image Compressor

Purpose:

To reprogram the neural image compressor in a parallel manner so that the best performance can be obtained using multiple processors and/or cores using OpenMPI as a framework

Basic Tasks:

● rewrite and refactor the code base
● modularize the application as much as possible
● prepare the code base
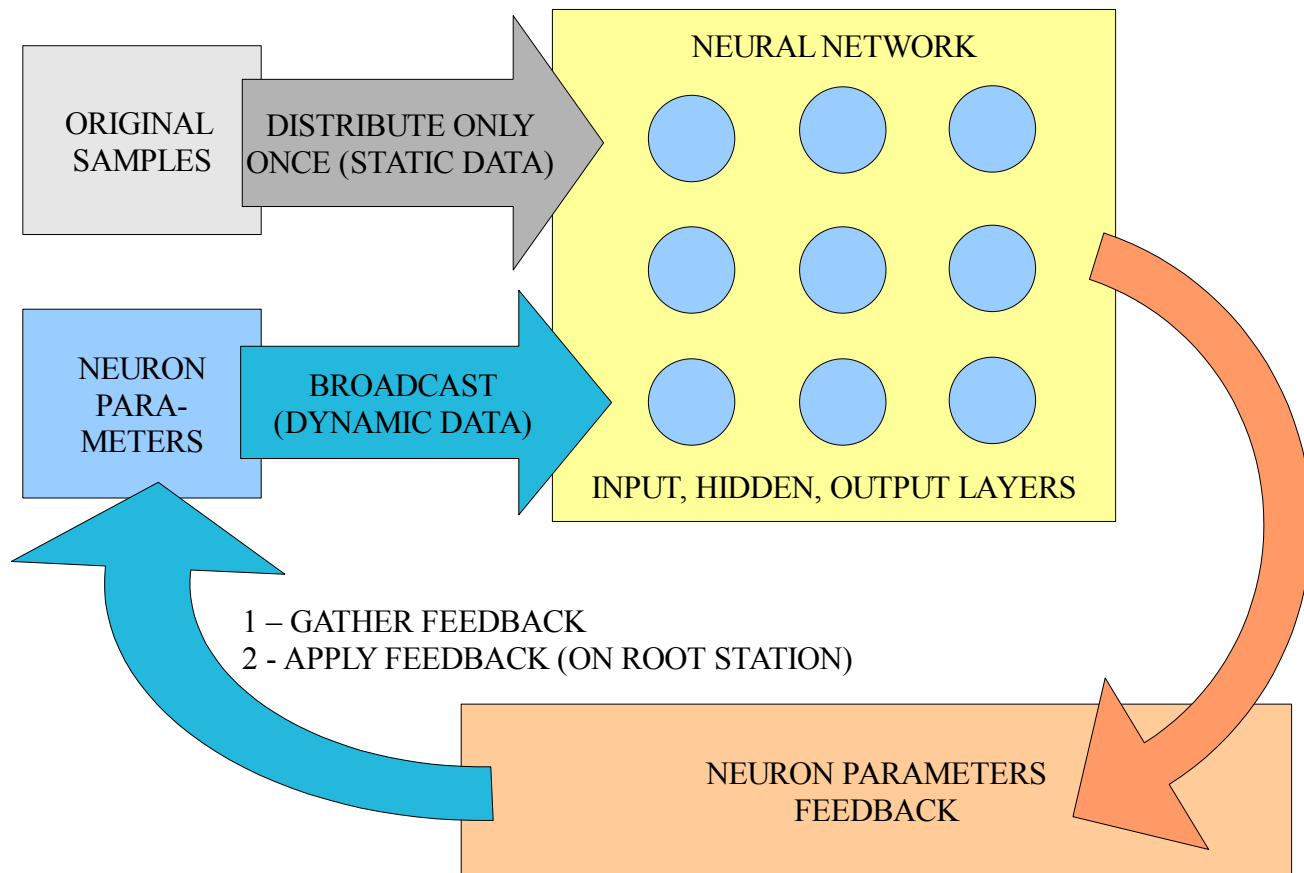● paralelize the code base

Application Guidelines:

1. Don't struggle to obtian performance outside the engine
2. Do your best to write generic code that can be extended and used in future releases
3. Make code as modular as possible and practical

Main Neural Network Engine Guidelines:

1. The basic array structures should be linear, no matter the initial cost
2. The adressing should be done as strength-reductible as possible (letting the compiler choose the best way to adress the array)
3. All possible time costs should be offset to initial and final processing
4. Reduce/Broadcast should be used as much as possible since they have logarithmic synchronization cost

Data dependence: