

Scientific Computing and Machine Learning on Multi- and Manycore Architectures

Exercise 7

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Analysis

In this exercise, we are asked to build up a cuDNN model follow Peter Goldsborough's example at:

http://www.goldsborough.me/cuda/ml/cudnn/c++/2017/10/01/14-37-23-convolutions_with_cudnn/

In this exercise, we use cuDNN to build a CNN model and see how its result changed as the activation function is changed.

Three different images are used here, and, sigmoid, rectified linear unit (ReLU) and hyperbolic tangent functions are concerned in this exercise.

Raw images are shown in next page. Note that, with tanh as activation function, output images contain higher contrast of edge than ones using ReLU.

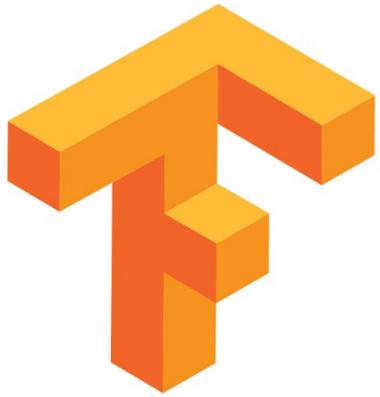


Figure 1: Raw images

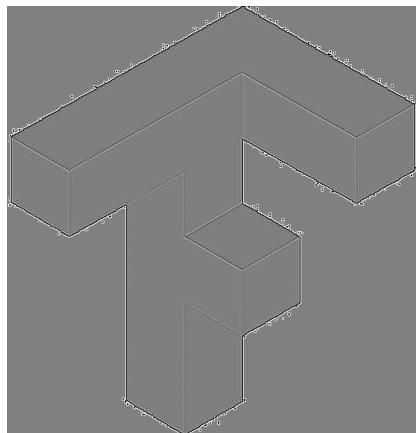


Figure 2: ReLU

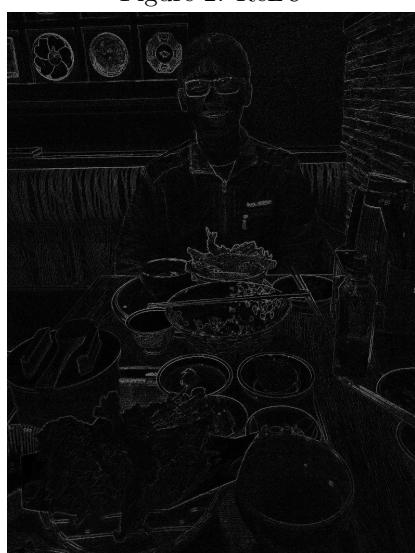
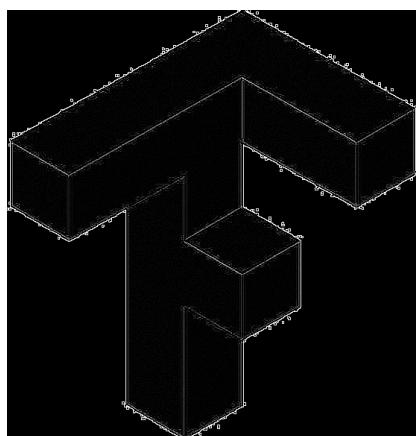


Figure 3: tanh