Deep learning model training guide.

1. Recommended deep learning frameworks.
   a) Caffe, highly recommended. Simcam team has provided robust model architecture based on caffe, and simple guide how to train model with caffe framework.
   b) Keras, If you want to train model with keras , you need to use Microsoft conversion tool MMdnn to convert your pre-trained model into caffe model. Here is the link: https://github.com/Microsoft/MMDnn
   c) Tensorflow.
2. Detection model:
   Highly recommended one-shot based detection frameworks, such as Moblinet-SSD, and YOLO
3. Some limitations:
   a) Model size must be less than 20M-30M.
   b) Each layer ‘name’ must be same with ‘top’
   c) The depth-wise convolution layer supports only 3x3 filter size, and slice layer doesn’t support direct connection.
4. Model optimization tips:
   a) After model is trained, some layers can be merged to speed up the feed-forward process. For example, merge bn-sclae parameter to the conv layer.
   b) Do not use the fc layer of many channel output, which will bring a large amount of parameters, in result slow data movement.
   c) Use 1x1 and 3x3 convolutions , including deep convolutions, it is highly optimized on the movidius chip.