# LeNet (ссылка для визуализации этого кода) https://dgschwend.github.io/netscope/#/editor

name: "LeNet"

layer {

name: "train-data"

type: "Data"

top: "data"

top: "label"

data\_param {

batch\_size: 64

}

include { stage: "train" }

}

layer {

name: "val-data"

type: "Data"

top: "data"

top: "label"

data\_param {

batch\_size: 32

}

include { stage: "val" }

}

layer {

# Use Power layer for input scaling

name: "scale"

bottom: "data"

top: "scaled"

type: "Power"

power\_param {

# 1/(standard deviation on MNIST dataset)

scale: 0.0125

}

}

layer {

name: "conv1"

type: "Convolution"

bottom: "scaled"

top: "conv1"

param {

lr\_mult: 1

}

param {

lr\_mult: 2

}

convolution\_param {

num\_output: 20

kernel\_size: 5

stride: 1

weight\_filler {

type: "xavier"

}

bias\_filler {

type: "constant"

}

}

}

layer {

name: "pool1"

type: "Pooling"

bottom: "conv1"

top: "pool1"

pooling\_param {

pool: MAX

kernel\_size: 2

stride: 2

}

}

layer {

name: "conv2"

type: "Convolution"

bottom: "pool1"

top: "conv2"

param {

lr\_mult: 1

}

param {

lr\_mult: 2

}

convolution\_param {

num\_output: 50

kernel\_size: 5

stride: 1

weight\_filler {

type: "xavier"

}

bias\_filler {

type: "constant"

}

}

}

layer {

name: "pool2"

type: "Pooling"

bottom: "conv2"

top: "pool2"

pooling\_param {

pool: MAX

kernel\_size: 2

stride: 2

}

}

layer {

name: "ip1"

type: "InnerProduct"

bottom: "pool2"

top: "ip1"

param {

lr\_mult: 1

}

param {

lr\_mult: 2

}

inner\_product\_param {

num\_output: 500

weight\_filler {

type: "xavier"

}

bias\_filler {

type: "constant"

}

}

}

layer {

name: "relu1"

type: "ReLU"

bottom: "ip1"

top: "ip1"

}

layer {

name: "ip2"

type: "InnerProduct"

bottom: "ip1"

top: "ip2"

param {

lr\_mult: 1

}

param {

lr\_mult: 2

}

inner\_product\_param {

# Since num\_output is unset, DIGITS will automatically set it to the

# number of classes in your dataset.

# Uncomment this line to set it explicitly:

#num\_output: 10

weight\_filler {

type: "xavier"

}

bias\_filler {

type: "constant"

}

}

}

layer {

name: "accuracy"

type: "Accuracy"

bottom: "ip2"

bottom: "label"

top: "accuracy"

include { stage: "val" }

}

layer {

name: "loss"

type: "SoftmaxWithLoss"

bottom: "ip2"

bottom: "label"

top: "loss"

exclude { stage: "deploy" }

}

layer {

name: "softmax"

type: "Softmax"

bottom: "ip2"

top: "softmax"

include { stage: "deploy" }

}

# AlexNet

name: "AlexNet"

layer {

name: "train-data"

type: "Data"

top: "data"

top: "label"

transform\_param {

mirror: true

crop\_size: 227

}

data\_param {

batch\_size: 128

}

include { stage: "train" }

}

layer {

name: "val-data"

type: "Data"

top: "data"

top: "label"

transform\_param {

crop\_size: 227

}

data\_param {

batch\_size: 32

}

include { stage: "val" }

}

layer {

name: "conv1"

type: "Convolution"

bottom: "data"

top: "conv1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 96

kernel\_size: 11

stride: 4

weight\_filler {

type: "gaussian"

std: 0.01

}

bias\_filler {

type: "constant"

value: 0

}

}

}

layer {

name: "relu1"

type: "ReLU"

bottom: "conv1"

top: "conv1"

}

layer {

name: "norm1"

type: "LRN"

bottom: "conv1"

top: "norm1"

lrn\_param {

local\_size: 5

alpha: 0.0001

beta: 0.75

}

}

layer {

name: "pool1"

type: "Pooling"

bottom: "norm1"

top: "pool1"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 2

}

}

layer {

name: "conv2"

type: "Convolution"

bottom: "pool1"

top: "conv2"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 256

pad: 2

kernel\_size: 5

group: 2

weight\_filler {

type: "gaussian"

std: 0.01

}

bias\_filler {

type: "constant"

value: 0.1

}

}

}

layer {

name: "relu2"

type: "ReLU"

bottom: "conv2"

top: "conv2"

}

layer {

name: "norm2"

type: "LRN"

bottom: "conv2"

top: "norm2"

lrn\_param {

local\_size: 5

alpha: 0.0001

beta: 0.75

}

}

layer {

name: "pool2"

type: "Pooling"

bottom: "norm2"

top: "pool2"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 2

}

}

layer {

name: "conv3"

type: "Convolution"

bottom: "pool2"

top: "conv3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 384

pad: 1

kernel\_size: 3

weight\_filler {

type: "gaussian"

std: 0.01

}

bias\_filler {

type: "constant"

value: 0

}

}

}

layer {

name: "relu3"

type: "ReLU"

bottom: "conv3"

top: "conv3"

}

layer {

name: "conv4"

type: "Convolution"

bottom: "conv3"

top: "conv4"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 384

pad: 1

kernel\_size: 3

group: 2

weight\_filler {

type: "gaussian"

std: 0.01

}

bias\_filler {

type: "constant"

value: 0.1

}

}

}

layer {

name: "relu4"

type: "ReLU"

bottom: "conv4"

top: "conv4"

}

layer {

name: "conv5"

type: "Convolution"

bottom: "conv4"

top: "conv5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 256

pad: 1

kernel\_size: 3

group: 2

weight\_filler {

type: "gaussian"

std: 0.01

}

bias\_filler {

type: "constant"

value: 0.1

}

}

}

layer {

name: "relu5"

type: "ReLU"

bottom: "conv5"

top: "conv5"

}

layer {

name: "pool5"

type: "Pooling"

bottom: "conv5"

top: "pool5"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 2

}

}

layer {

name: "fc6"

type: "InnerProduct"

bottom: "pool5"

top: "fc6"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

inner\_product\_param {

num\_output: 4096

weight\_filler {

type: "gaussian"

std: 0.005

}

bias\_filler {

type: "constant"

value: 0.1

}

}

}

layer {

name: "relu6"

type: "ReLU"

bottom: "fc6"

top: "fc6"

}

layer {

name: "drop6"

type: "Dropout"

bottom: "fc6"

top: "fc6"

dropout\_param {

dropout\_ratio: 0.5

}

}

layer {

name: "fc7"

type: "InnerProduct"

bottom: "fc6"

top: "fc7"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

inner\_product\_param {

num\_output: 4096

weight\_filler {

type: "gaussian"

std: 0.005

}

bias\_filler {

type: "constant"

value: 0.1

}

}

}

layer {

name: "relu7"

type: "ReLU"

bottom: "fc7"

top: "fc7"

}

layer {

name: "drop7"

type: "Dropout"

bottom: "fc7"

top: "fc7"

dropout\_param {

dropout\_ratio: 0.5

}

}

layer {

name: "fc8"

type: "InnerProduct"

bottom: "fc7"

top: "fc8"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

inner\_product\_param {

# Since num\_output is unset, DIGITS will automatically set it to the

# number of classes in your dataset.

# Uncomment this line to set it explicitly:

#num\_output: 1000

weight\_filler {

type: "gaussian"

std: 0.01

}

bias\_filler {

type: "constant"

value: 0

}

}

}

layer {

name: "accuracy"

type: "Accuracy"

bottom: "fc8"

bottom: "label"

top: "accuracy"

include { stage: "val" }

}

layer {

name: "loss"

type: "SoftmaxWithLoss"

bottom: "fc8"

bottom: "label"

top: "loss"

exclude { stage: "deploy" }

}

layer {

name: "softmax"

type: "Softmax"

bottom: "fc8"

top: "softmax"

include { stage: "deploy" }

}

# GoogLeNet

name: "GoogleNet"

layer {

name: "train-data"

type: "Data"

top: "data"

top: "label"

transform\_param {

mirror: true

crop\_size: 224

}

data\_param {

batch\_size: 32

}

include { stage: "train" }

}

layer {

name: "val-data"

type: "Data"

top: "data"

top: "label"

transform\_param {

mirror: false

crop\_size: 224

}

data\_param {

batch\_size: 16

}

include { stage: "val" }

}

layer {

name: "conv1/7x7\_s2"

type: "Convolution"

bottom: "data"

top: "conv1/7x7\_s2"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

pad: 3

kernel\_size: 7

stride: 2

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "conv1/relu\_7x7"

type: "ReLU"

bottom: "conv1/7x7\_s2"

top: "conv1/7x7\_s2"

}

layer {

name: "pool1/3x3\_s2"

type: "Pooling"

bottom: "conv1/7x7\_s2"

top: "pool1/3x3\_s2"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 2

}

}

layer {

name: "pool1/norm1"

type: "LRN"

bottom: "pool1/3x3\_s2"

top: "pool1/norm1"

lrn\_param {

local\_size: 5

alpha: 0.0001

beta: 0.75

}

}

layer {

name: "conv2/3x3\_reduce"

type: "Convolution"

bottom: "pool1/norm1"

top: "conv2/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "conv2/relu\_3x3\_reduce"

type: "ReLU"

bottom: "conv2/3x3\_reduce"

top: "conv2/3x3\_reduce"

}

layer {

name: "conv2/3x3"

type: "Convolution"

bottom: "conv2/3x3\_reduce"

top: "conv2/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 192

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "conv2/relu\_3x3"

type: "ReLU"

bottom: "conv2/3x3"

top: "conv2/3x3"

}

layer {

name: "conv2/norm2"

type: "LRN"

bottom: "conv2/3x3"

top: "conv2/norm2"

lrn\_param {

local\_size: 5

alpha: 0.0001

beta: 0.75

}

}

layer {

name: "pool2/3x3\_s2"

type: "Pooling"

bottom: "conv2/norm2"

top: "pool2/3x3\_s2"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 2

}

}

layer {

name: "inception\_3a/1x1"

type: "Convolution"

bottom: "pool2/3x3\_s2"

top: "inception\_3a/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3a/relu\_1x1"

type: "ReLU"

bottom: "inception\_3a/1x1"

top: "inception\_3a/1x1"

}

layer {

name: "inception\_3a/3x3\_reduce"

type: "Convolution"

bottom: "pool2/3x3\_s2"

top: "inception\_3a/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 96

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3a/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_3a/3x3\_reduce"

top: "inception\_3a/3x3\_reduce"

}

layer {

name: "inception\_3a/3x3"

type: "Convolution"

bottom: "inception\_3a/3x3\_reduce"

top: "inception\_3a/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3a/relu\_3x3"

type: "ReLU"

bottom: "inception\_3a/3x3"

top: "inception\_3a/3x3"

}

layer {

name: "inception\_3a/5x5\_reduce"

type: "Convolution"

bottom: "pool2/3x3\_s2"

top: "inception\_3a/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 16

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3a/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_3a/5x5\_reduce"

top: "inception\_3a/5x5\_reduce"

}

layer {

name: "inception\_3a/5x5"

type: "Convolution"

bottom: "inception\_3a/5x5\_reduce"

top: "inception\_3a/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 32

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3a/relu\_5x5"

type: "ReLU"

bottom: "inception\_3a/5x5"

top: "inception\_3a/5x5"

}

layer {

name: "inception\_3a/pool"

type: "Pooling"

bottom: "pool2/3x3\_s2"

top: "inception\_3a/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_3a/pool\_proj"

type: "Convolution"

bottom: "inception\_3a/pool"

top: "inception\_3a/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 32

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3a/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_3a/pool\_proj"

top: "inception\_3a/pool\_proj"

}

layer {

name: "inception\_3a/output"

type: "Concat"

bottom: "inception\_3a/1x1"

bottom: "inception\_3a/3x3"

bottom: "inception\_3a/5x5"

bottom: "inception\_3a/pool\_proj"

top: "inception\_3a/output"

}

layer {

name: "inception\_3b/1x1"

type: "Convolution"

bottom: "inception\_3a/output"

top: "inception\_3b/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3b/relu\_1x1"

type: "ReLU"

bottom: "inception\_3b/1x1"

top: "inception\_3b/1x1"

}

layer {

name: "inception\_3b/3x3\_reduce"

type: "Convolution"

bottom: "inception\_3a/output"

top: "inception\_3b/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3b/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_3b/3x3\_reduce"

top: "inception\_3b/3x3\_reduce"

}

layer {

name: "inception\_3b/3x3"

type: "Convolution"

bottom: "inception\_3b/3x3\_reduce"

top: "inception\_3b/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 192

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3b/relu\_3x3"

type: "ReLU"

bottom: "inception\_3b/3x3"

top: "inception\_3b/3x3"

}

layer {

name: "inception\_3b/5x5\_reduce"

type: "Convolution"

bottom: "inception\_3a/output"

top: "inception\_3b/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 32

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3b/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_3b/5x5\_reduce"

top: "inception\_3b/5x5\_reduce"

}

layer {

name: "inception\_3b/5x5"

type: "Convolution"

bottom: "inception\_3b/5x5\_reduce"

top: "inception\_3b/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 96

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3b/relu\_5x5"

type: "ReLU"

bottom: "inception\_3b/5x5"

top: "inception\_3b/5x5"

}

layer {

name: "inception\_3b/pool"

type: "Pooling"

bottom: "inception\_3a/output"

top: "inception\_3b/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_3b/pool\_proj"

type: "Convolution"

bottom: "inception\_3b/pool"

top: "inception\_3b/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_3b/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_3b/pool\_proj"

top: "inception\_3b/pool\_proj"

}

layer {

name: "inception\_3b/output"

type: "Concat"

bottom: "inception\_3b/1x1"

bottom: "inception\_3b/3x3"

bottom: "inception\_3b/5x5"

bottom: "inception\_3b/pool\_proj"

top: "inception\_3b/output"

}

layer {

name: "pool3/3x3\_s2"

type: "Pooling"

bottom: "inception\_3b/output"

top: "pool3/3x3\_s2"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 2

}

}

layer {

name: "inception\_4a/1x1"

type: "Convolution"

bottom: "pool3/3x3\_s2"

top: "inception\_4a/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 192

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4a/relu\_1x1"

type: "ReLU"

bottom: "inception\_4a/1x1"

top: "inception\_4a/1x1"

}

layer {

name: "inception\_4a/3x3\_reduce"

type: "Convolution"

bottom: "pool3/3x3\_s2"

top: "inception\_4a/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 96

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4a/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_4a/3x3\_reduce"

top: "inception\_4a/3x3\_reduce"

}

layer {

name: "inception\_4a/3x3"

type: "Convolution"

bottom: "inception\_4a/3x3\_reduce"

top: "inception\_4a/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 208

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4a/relu\_3x3"

type: "ReLU"

bottom: "inception\_4a/3x3"

top: "inception\_4a/3x3"

}

layer {

name: "inception\_4a/5x5\_reduce"

type: "Convolution"

bottom: "pool3/3x3\_s2"

top: "inception\_4a/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 16

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4a/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_4a/5x5\_reduce"

top: "inception\_4a/5x5\_reduce"

}

layer {

name: "inception\_4a/5x5"

type: "Convolution"

bottom: "inception\_4a/5x5\_reduce"

top: "inception\_4a/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 48

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4a/relu\_5x5"

type: "ReLU"

bottom: "inception\_4a/5x5"

top: "inception\_4a/5x5"

}

layer {

name: "inception\_4a/pool"

type: "Pooling"

bottom: "pool3/3x3\_s2"

top: "inception\_4a/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_4a/pool\_proj"

type: "Convolution"

bottom: "inception\_4a/pool"

top: "inception\_4a/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4a/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_4a/pool\_proj"

top: "inception\_4a/pool\_proj"

}

layer {

name: "inception\_4a/output"

type: "Concat"

bottom: "inception\_4a/1x1"

bottom: "inception\_4a/3x3"

bottom: "inception\_4a/5x5"

bottom: "inception\_4a/pool\_proj"

top: "inception\_4a/output"

}

layer {

name: "loss1/ave\_pool"

type: "Pooling"

bottom: "inception\_4a/output"

top: "loss1/ave\_pool"

pooling\_param {

pool: AVE

kernel\_size: 5

stride: 3

}

exclude { stage: "deploy" }

}

layer {

name: "loss1/conv"

type: "Convolution"

bottom: "loss1/ave\_pool"

top: "loss1/conv"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.08

}

bias\_filler {

type: "constant"

value: 0.2

}

}

exclude { stage: "deploy" }

}

layer {

name: "loss1/relu\_conv"

type: "ReLU"

bottom: "loss1/conv"

top: "loss1/conv"

exclude { stage: "deploy" }

}

layer {

name: "loss1/fc"

type: "InnerProduct"

bottom: "loss1/conv"

top: "loss1/fc"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

inner\_product\_param {

num\_output: 1024

weight\_filler {

type: "xavier"

std: 0.02

}

bias\_filler {

type: "constant"

value: 0.2

}

}

exclude { stage: "deploy" }

}

layer {

name: "loss1/relu\_fc"

type: "ReLU"

bottom: "loss1/fc"

top: "loss1/fc"

exclude { stage: "deploy" }

}

layer {

name: "loss1/drop\_fc"

type: "Dropout"

bottom: "loss1/fc"

top: "loss1/fc"

dropout\_param {

dropout\_ratio: 0.7

}

exclude { stage: "deploy" }

}

layer {

name: "loss1/classifier"

type: "InnerProduct"

bottom: "loss1/fc"

top: "loss1/classifier"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

inner\_product\_param {

# Since num\_output is unset, DIGITS will automatically set it to the

# number of classes in your dataset.

# Uncomment this line to set it explicitly:

#num\_output: 1000

weight\_filler {

type: "xavier"

std: 0.0009765625

}

bias\_filler {

type: "constant"

value: 0

}

}

exclude { stage: "deploy" }

}

layer {

name: "loss1/loss"

type: "SoftmaxWithLoss"

bottom: "loss1/classifier"

bottom: "label"

top: "loss1/loss"

loss\_weight: 0.3

exclude { stage: "deploy" }

}

layer {

name: "loss1/top-1"

type: "Accuracy"

bottom: "loss1/classifier"

bottom: "label"

top: "loss1/accuracy"

include { stage: "val" }

}

layer {

name: "loss1/top-5"

type: "Accuracy"

bottom: "loss1/classifier"

bottom: "label"

top: "loss1/accuracy-top5"

include { stage: "val" }

accuracy\_param {

top\_k: 5

}

}

layer {

name: "inception\_4b/1x1"

type: "Convolution"

bottom: "inception\_4a/output"

top: "inception\_4b/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 160

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4b/relu\_1x1"

type: "ReLU"

bottom: "inception\_4b/1x1"

top: "inception\_4b/1x1"

}

layer {

name: "inception\_4b/3x3\_reduce"

type: "Convolution"

bottom: "inception\_4a/output"

top: "inception\_4b/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 112

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4b/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_4b/3x3\_reduce"

top: "inception\_4b/3x3\_reduce"

}

layer {

name: "inception\_4b/3x3"

type: "Convolution"

bottom: "inception\_4b/3x3\_reduce"

top: "inception\_4b/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 224

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4b/relu\_3x3"

type: "ReLU"

bottom: "inception\_4b/3x3"

top: "inception\_4b/3x3"

}

layer {

name: "inception\_4b/5x5\_reduce"

type: "Convolution"

bottom: "inception\_4a/output"

top: "inception\_4b/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 24

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4b/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_4b/5x5\_reduce"

top: "inception\_4b/5x5\_reduce"

}

layer {

name: "inception\_4b/5x5"

type: "Convolution"

bottom: "inception\_4b/5x5\_reduce"

top: "inception\_4b/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4b/relu\_5x5"

type: "ReLU"

bottom: "inception\_4b/5x5"

top: "inception\_4b/5x5"

}

layer {

name: "inception\_4b/pool"

type: "Pooling"

bottom: "inception\_4a/output"

top: "inception\_4b/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_4b/pool\_proj"

type: "Convolution"

bottom: "inception\_4b/pool"

top: "inception\_4b/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4b/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_4b/pool\_proj"

top: "inception\_4b/pool\_proj"

}

layer {

name: "inception\_4b/output"

type: "Concat"

bottom: "inception\_4b/1x1"

bottom: "inception\_4b/3x3"

bottom: "inception\_4b/5x5"

bottom: "inception\_4b/pool\_proj"

top: "inception\_4b/output"

}

layer {

name: "inception\_4c/1x1"

type: "Convolution"

bottom: "inception\_4b/output"

top: "inception\_4c/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4c/relu\_1x1"

type: "ReLU"

bottom: "inception\_4c/1x1"

top: "inception\_4c/1x1"

}

layer {

name: "inception\_4c/3x3\_reduce"

type: "Convolution"

bottom: "inception\_4b/output"

top: "inception\_4c/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4c/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_4c/3x3\_reduce"

top: "inception\_4c/3x3\_reduce"

}

layer {

name: "inception\_4c/3x3"

type: "Convolution"

bottom: "inception\_4c/3x3\_reduce"

top: "inception\_4c/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 256

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4c/relu\_3x3"

type: "ReLU"

bottom: "inception\_4c/3x3"

top: "inception\_4c/3x3"

}

layer {

name: "inception\_4c/5x5\_reduce"

type: "Convolution"

bottom: "inception\_4b/output"

top: "inception\_4c/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 24

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4c/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_4c/5x5\_reduce"

top: "inception\_4c/5x5\_reduce"

}

layer {

name: "inception\_4c/5x5"

type: "Convolution"

bottom: "inception\_4c/5x5\_reduce"

top: "inception\_4c/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4c/relu\_5x5"

type: "ReLU"

bottom: "inception\_4c/5x5"

top: "inception\_4c/5x5"

}

layer {

name: "inception\_4c/pool"

type: "Pooling"

bottom: "inception\_4b/output"

top: "inception\_4c/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_4c/pool\_proj"

type: "Convolution"

bottom: "inception\_4c/pool"

top: "inception\_4c/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4c/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_4c/pool\_proj"

top: "inception\_4c/pool\_proj"

}

layer {

name: "inception\_4c/output"

type: "Concat"

bottom: "inception\_4c/1x1"

bottom: "inception\_4c/3x3"

bottom: "inception\_4c/5x5"

bottom: "inception\_4c/pool\_proj"

top: "inception\_4c/output"

}

layer {

name: "inception\_4d/1x1"

type: "Convolution"

bottom: "inception\_4c/output"

top: "inception\_4d/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 112

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4d/relu\_1x1"

type: "ReLU"

bottom: "inception\_4d/1x1"

top: "inception\_4d/1x1"

}

layer {

name: "inception\_4d/3x3\_reduce"

type: "Convolution"

bottom: "inception\_4c/output"

top: "inception\_4d/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 144

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4d/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_4d/3x3\_reduce"

top: "inception\_4d/3x3\_reduce"

}

layer {

name: "inception\_4d/3x3"

type: "Convolution"

bottom: "inception\_4d/3x3\_reduce"

top: "inception\_4d/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 288

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4d/relu\_3x3"

type: "ReLU"

bottom: "inception\_4d/3x3"

top: "inception\_4d/3x3"

}

layer {

name: "inception\_4d/5x5\_reduce"

type: "Convolution"

bottom: "inception\_4c/output"

top: "inception\_4d/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 32

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4d/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_4d/5x5\_reduce"

top: "inception\_4d/5x5\_reduce"

}

layer {

name: "inception\_4d/5x5"

type: "Convolution"

bottom: "inception\_4d/5x5\_reduce"

top: "inception\_4d/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4d/relu\_5x5"

type: "ReLU"

bottom: "inception\_4d/5x5"

top: "inception\_4d/5x5"

}

layer {

name: "inception\_4d/pool"

type: "Pooling"

bottom: "inception\_4c/output"

top: "inception\_4d/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_4d/pool\_proj"

type: "Convolution"

bottom: "inception\_4d/pool"

top: "inception\_4d/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 64

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4d/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_4d/pool\_proj"

top: "inception\_4d/pool\_proj"

}

layer {

name: "inception\_4d/output"

type: "Concat"

bottom: "inception\_4d/1x1"

bottom: "inception\_4d/3x3"

bottom: "inception\_4d/5x5"

bottom: "inception\_4d/pool\_proj"

top: "inception\_4d/output"

}

layer {

name: "loss2/ave\_pool"

type: "Pooling"

bottom: "inception\_4d/output"

top: "loss2/ave\_pool"

pooling\_param {

pool: AVE

kernel\_size: 5

stride: 3

}

exclude { stage: "deploy" }

}

layer {

name: "loss2/conv"

type: "Convolution"

bottom: "loss2/ave\_pool"

top: "loss2/conv"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.08

}

bias\_filler {

type: "constant"

value: 0.2

}

}

exclude { stage: "deploy" }

}

layer {

name: "loss2/relu\_conv"

type: "ReLU"

bottom: "loss2/conv"

top: "loss2/conv"

exclude { stage: "deploy" }

}

layer {

name: "loss2/fc"

type: "InnerProduct"

bottom: "loss2/conv"

top: "loss2/fc"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

inner\_product\_param {

num\_output: 1024

weight\_filler {

type: "xavier"

std: 0.02

}

bias\_filler {

type: "constant"

value: 0.2

}

}

exclude { stage: "deploy" }

}

layer {

name: "loss2/relu\_fc"

type: "ReLU"

bottom: "loss2/fc"

top: "loss2/fc"

exclude { stage: "deploy" }

}

layer {

name: "loss2/drop\_fc"

type: "Dropout"

bottom: "loss2/fc"

top: "loss2/fc"

dropout\_param {

dropout\_ratio: 0.7

}

exclude { stage: "deploy" }

}

layer {

name: "loss2/classifier"

type: "InnerProduct"

bottom: "loss2/fc"

top: "loss2/classifier"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

inner\_product\_param {

# Since num\_output is unset, DIGITS will automatically set it to the

# number of classes in your dataset.

# Uncomment this line to set it explicitly:

#num\_output: 1000

weight\_filler {

type: "xavier"

std: 0.0009765625

}

bias\_filler {

type: "constant"

value: 0

}

}

exclude { stage: "deploy" }

}

layer {

name: "loss2/loss"

type: "SoftmaxWithLoss"

bottom: "loss2/classifier"

bottom: "label"

top: "loss2/loss"

loss\_weight: 0.3

exclude { stage: "deploy" }

}

layer {

name: "loss2/top-1"

type: "Accuracy"

bottom: "loss2/classifier"

bottom: "label"

top: "loss2/accuracy"

include { stage: "val" }

}

layer {

name: "loss2/top-5"

type: "Accuracy"

bottom: "loss2/classifier"

bottom: "label"

top: "loss2/accuracy-top5"

include { stage: "val" }

accuracy\_param {

top\_k: 5

}

}

layer {

name: "inception\_4e/1x1"

type: "Convolution"

bottom: "inception\_4d/output"

top: "inception\_4e/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 256

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4e/relu\_1x1"

type: "ReLU"

bottom: "inception\_4e/1x1"

top: "inception\_4e/1x1"

}

layer {

name: "inception\_4e/3x3\_reduce"

type: "Convolution"

bottom: "inception\_4d/output"

top: "inception\_4e/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 160

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4e/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_4e/3x3\_reduce"

top: "inception\_4e/3x3\_reduce"

}

layer {

name: "inception\_4e/3x3"

type: "Convolution"

bottom: "inception\_4e/3x3\_reduce"

top: "inception\_4e/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 320

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4e/relu\_3x3"

type: "ReLU"

bottom: "inception\_4e/3x3"

top: "inception\_4e/3x3"

}

layer {

name: "inception\_4e/5x5\_reduce"

type: "Convolution"

bottom: "inception\_4d/output"

top: "inception\_4e/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 32

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4e/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_4e/5x5\_reduce"

top: "inception\_4e/5x5\_reduce"

}

layer {

name: "inception\_4e/5x5"

type: "Convolution"

bottom: "inception\_4e/5x5\_reduce"

top: "inception\_4e/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4e/relu\_5x5"

type: "ReLU"

bottom: "inception\_4e/5x5"

top: "inception\_4e/5x5"

}

layer {

name: "inception\_4e/pool"

type: "Pooling"

bottom: "inception\_4d/output"

top: "inception\_4e/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_4e/pool\_proj"

type: "Convolution"

bottom: "inception\_4e/pool"

top: "inception\_4e/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_4e/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_4e/pool\_proj"

top: "inception\_4e/pool\_proj"

}

layer {

name: "inception\_4e/output"

type: "Concat"

bottom: "inception\_4e/1x1"

bottom: "inception\_4e/3x3"

bottom: "inception\_4e/5x5"

bottom: "inception\_4e/pool\_proj"

top: "inception\_4e/output"

}

layer {

name: "pool4/3x3\_s2"

type: "Pooling"

bottom: "inception\_4e/output"

top: "pool4/3x3\_s2"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 2

}

}

layer {

name: "inception\_5a/1x1"

type: "Convolution"

bottom: "pool4/3x3\_s2"

top: "inception\_5a/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 256

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5a/relu\_1x1"

type: "ReLU"

bottom: "inception\_5a/1x1"

top: "inception\_5a/1x1"

}

layer {

name: "inception\_5a/3x3\_reduce"

type: "Convolution"

bottom: "pool4/3x3\_s2"

top: "inception\_5a/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 160

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5a/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_5a/3x3\_reduce"

top: "inception\_5a/3x3\_reduce"

}

layer {

name: "inception\_5a/3x3"

type: "Convolution"

bottom: "inception\_5a/3x3\_reduce"

top: "inception\_5a/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 320

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5a/relu\_3x3"

type: "ReLU"

bottom: "inception\_5a/3x3"

top: "inception\_5a/3x3"

}

layer {

name: "inception\_5a/5x5\_reduce"

type: "Convolution"

bottom: "pool4/3x3\_s2"

top: "inception\_5a/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 32

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5a/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_5a/5x5\_reduce"

top: "inception\_5a/5x5\_reduce"

}

layer {

name: "inception\_5a/5x5"

type: "Convolution"

bottom: "inception\_5a/5x5\_reduce"

top: "inception\_5a/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5a/relu\_5x5"

type: "ReLU"

bottom: "inception\_5a/5x5"

top: "inception\_5a/5x5"

}

layer {

name: "inception\_5a/pool"

type: "Pooling"

bottom: "pool4/3x3\_s2"

top: "inception\_5a/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_5a/pool\_proj"

type: "Convolution"

bottom: "inception\_5a/pool"

top: "inception\_5a/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5a/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_5a/pool\_proj"

top: "inception\_5a/pool\_proj"

}

layer {

name: "inception\_5a/output"

type: "Concat"

bottom: "inception\_5a/1x1"

bottom: "inception\_5a/3x3"

bottom: "inception\_5a/5x5"

bottom: "inception\_5a/pool\_proj"

top: "inception\_5a/output"

}

layer {

name: "inception\_5b/1x1"

type: "Convolution"

bottom: "inception\_5a/output"

top: "inception\_5b/1x1"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 384

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5b/relu\_1x1"

type: "ReLU"

bottom: "inception\_5b/1x1"

top: "inception\_5b/1x1"

}

layer {

name: "inception\_5b/3x3\_reduce"

type: "Convolution"

bottom: "inception\_5a/output"

top: "inception\_5b/3x3\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 192

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.09

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5b/relu\_3x3\_reduce"

type: "ReLU"

bottom: "inception\_5b/3x3\_reduce"

top: "inception\_5b/3x3\_reduce"

}

layer {

name: "inception\_5b/3x3"

type: "Convolution"

bottom: "inception\_5b/3x3\_reduce"

top: "inception\_5b/3x3"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 384

pad: 1

kernel\_size: 3

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5b/relu\_3x3"

type: "ReLU"

bottom: "inception\_5b/3x3"

top: "inception\_5b/3x3"

}

layer {

name: "inception\_5b/5x5\_reduce"

type: "Convolution"

bottom: "inception\_5a/output"

top: "inception\_5b/5x5\_reduce"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 48

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.2

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5b/relu\_5x5\_reduce"

type: "ReLU"

bottom: "inception\_5b/5x5\_reduce"

top: "inception\_5b/5x5\_reduce"

}

layer {

name: "inception\_5b/5x5"

type: "Convolution"

bottom: "inception\_5b/5x5\_reduce"

top: "inception\_5b/5x5"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

pad: 2

kernel\_size: 5

weight\_filler {

type: "xavier"

std: 0.03

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5b/relu\_5x5"

type: "ReLU"

bottom: "inception\_5b/5x5"

top: "inception\_5b/5x5"

}

layer {

name: "inception\_5b/pool"

type: "Pooling"

bottom: "inception\_5a/output"

top: "inception\_5b/pool"

pooling\_param {

pool: MAX

kernel\_size: 3

stride: 1

pad: 1

}

}

layer {

name: "inception\_5b/pool\_proj"

type: "Convolution"

bottom: "inception\_5b/pool"

top: "inception\_5b/pool\_proj"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

convolution\_param {

num\_output: 128

kernel\_size: 1

weight\_filler {

type: "xavier"

std: 0.1

}

bias\_filler {

type: "constant"

value: 0.2

}

}

}

layer {

name: "inception\_5b/relu\_pool\_proj"

type: "ReLU"

bottom: "inception\_5b/pool\_proj"

top: "inception\_5b/pool\_proj"

}

layer {

name: "inception\_5b/output"

type: "Concat"

bottom: "inception\_5b/1x1"

bottom: "inception\_5b/3x3"

bottom: "inception\_5b/5x5"

bottom: "inception\_5b/pool\_proj"

top: "inception\_5b/output"

}

layer {

name: "pool5/7x7\_s1"

type: "Pooling"

bottom: "inception\_5b/output"

top: "pool5/7x7\_s1"

pooling\_param {

pool: AVE

kernel\_size: 7

stride: 1

}

}

layer {

name: "pool5/drop\_7x7\_s1"

type: "Dropout"

bottom: "pool5/7x7\_s1"

top: "pool5/7x7\_s1"

dropout\_param {

dropout\_ratio: 0.4

}

}

layer {

name: "loss3/classifier"

type: "InnerProduct"

bottom: "pool5/7x7\_s1"

top: "loss3/classifier"

param {

lr\_mult: 1

decay\_mult: 1

}

param {

lr\_mult: 2

decay\_mult: 0

}

inner\_product\_param {

# Since num\_output is unset, DIGITS will automatically set it to the

# number of classes in your dataset.

# Uncomment this line to set it explicitly:

#num\_output: 1000

weight\_filler {

type: "xavier"

}

bias\_filler {

type: "constant"

value: 0

}

}

}

layer {

name: "loss3/loss"

type: "SoftmaxWithLoss"

bottom: "loss3/classifier"

bottom: "label"

top: "loss"

loss\_weight: 1

exclude { stage: "deploy" }

}

layer {

name: "loss3/top-1"

type: "Accuracy"

bottom: "loss3/classifier"

bottom: "label"

top: "accuracy"

include { stage: "val" }

}

layer {

name: "loss3/top-5"

type: "Accuracy"

bottom: "loss3/classifier"

bottom: "label"

top: "accuracy-top5"

include { stage: "val" }

accuracy\_param {

top\_k: 5

}

}

layer {

name: "softmax"

type: "Softmax"

bottom: "loss3/classifier"

top: "softmax"

include { stage: "deploy" }

}