Deep Neural Networks: Algorithms Documentation

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Alpesis

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Network	Year
LeNet	1998
AlexNet	2012
VGG	9/2014
GoogleLeNet	9/2014
InceptionBN	2/2015
Inception V3	12/2015
ResNet	12/2015

6.1.1 LeNet

6.1.1.1 Model

```
00 input
01 conv                              5x5/1,20       20x24x24
02 activation       relu / tanh                     20x24x24
03 pool                              2x2/2          20x12x12
04 conv                              5x5/1,50       50x8x8
05 activation       relu / tanh                     50x8x8
06 pool                              2x2/2          50x4x4
07 flatten                                          800
07 fc                                500            500
08 activation       relu / tanh                     500
09 fc                                10             10
10 softmax
```

6.1.2 AlexNet

6.1.2.1 Model

```
00 input

01 conv                          11x11/4,96        96x54x54
02 activation       relu                           96x54x54
03 pool             max          3x3/2             96x27x27
04 LRN                                             96x27x27
05 conv                          5x5/1,256         256x27x27
06 activation       relu                           256x27x27
07 pool             max          3x3/2             256x13x13
08 LRN                                             256x13x13

09 conv                          3x3/1,384         384x13x13
10 activation       relu                           384x13x13
11 conv                          3x3/1,384         384x13x13
12 activation       relu                           384x13x13
13 conv                          3x3/1,256         256x13x13
14 activation       relu                           256x13x13
15 pool             max          3x3/2             256x6x6
16 flatten                                         9216

17 fc                            4096              4096
18 activation       relu                           4096
19 dropout                                         4096
20 fc                            4096              4096
21 activation       relu                           4096
22 dropout                                         4096

23 fc                            2                 2
24 softmax
```

6.1.3 Overfeat

6.1.4 VGG

6.1.4.1 Model

```
00 input

01 conv                            3x3/1,64          64x224x224
02 activation       relu                             64x224x224
03 pool             max            2x2/2             64x112x112
04 conv                            3x3/1,128         128x112x112
05 activation       relu           2x2/2             128x112x112
06 pool             max            2x2/2             128x56x56

07 conv                            3x3/1,256         256x56x56
08 activation       relu                             256x56x56
09 conv                            3x3/1,256         256x56x56
10 activation       relu                             256x56x56
11 pool             max            2x2/2             256x28x28
```

```
12 conv                          3x3/1,512       512x28x28
13 activation       relu                         512x28x28
14 conv                          3x3/1,512       512x28x28
15 activation       relu                         512x28x28
16 pool             max          2x2/2           512x14x14

17 conv                          3x3/1,512       512x14x14
18 activation       relu                         512x14x14
19 conv                          3x3/1,512       512x14x14
20 activation       relu                         512x14x14
21 pool             max          2x2/2           512x7x7

22 flatten                                       25088
23 fc                            4096            4096
24 activation       relu                         4096
25 dropout                                       4096
26 fc                            4096            4096
27 activation       relu                         4096
28 dropout                                       4096

29 fc                            2               2
30 softmax
```

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