Alexnet Architecture

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Contents

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## [1] "/home/guanshim/Documents/gitlab/ECCHO_github/DataProcessed/3chems_results_data"
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0.1 Import Data

Size…Operation	Filter	Depth	Stride	Padding	Number.of.Parameters	Forward.Comp
3* 227 * 227		NA	NA	NA		
Conv1 + Relu	11 * 11	96	4	NA	$(11*11*3 + 1) * 96 = 34944$	$(11*11*3 + 1) *$
96 * 55 * 55		NA	NA	NA		
Max Pooling	3 * 3	NA	2	NA		
96 * 27 * 27		NA	NA	NA		
Norm		NA	NA	NA		
Conv2 + Relu	5 * 5	256	1	2	(5 * 5 * 96 + 1) * 256=614656	(5 * 5 * 96 +
256 * 27 * 27		NA	NA	NA		
Max Pooling	3 * 3	NA	2	NA		
256 * 13 * 13		NA	NA	NA		
Norm		NA	NA	NA		
Conv3 + Relu	3 * 3	384	1	1	(3 * 3 * 256 + 1) * 384=885120	(3 * 3 * 256 +
384 * 13 * 13		NA	NA	NA		
Conv4 + Relu	3 * 3	384	1	1	(3 * 3 * 384 + 1) * 384=1327488	(3 * 3 * 384 +
384 * 13 * 13		NA	NA	NA		
Conv5 + Relu	3 * 3	256	1	1	(3 * 3 * 384 + 1) * 256=884992	(3 * 3 * 384 +
256 * 13 * 13		NA	NA	NA		
Max Pooling	3 * 3	NA	2	NA		
256 * 6 * 6		NA	NA	NA		
Dropout (rate 0.5)		NA	NA	NA		
FC6 + Relu		NA	NA	NA	256 * 6 * 6 * 4096=37748736	256 * 6 * 6 * 4
4096		NA	NA	NA		
Dropout (rate 0.5)		NA	NA	NA		
FC7 + Relu		NA	NA	NA	4096 * 4096=16777216	4096 * 4096=1
4096		NA	NA	NA		
FC8 + Relu		NA	NA	NA	4096 * 1000=4096000	4096 * 1000=4
1000 classes		NA	NA	NA		
Overall		NA	NA	NA	62369152=62.3 million	1135906176=1
Conv VS FC		NA	NA	NA	Conv:3.7million (6%) , FC: 58.6 million (94%)	Conv: 1.08 bil