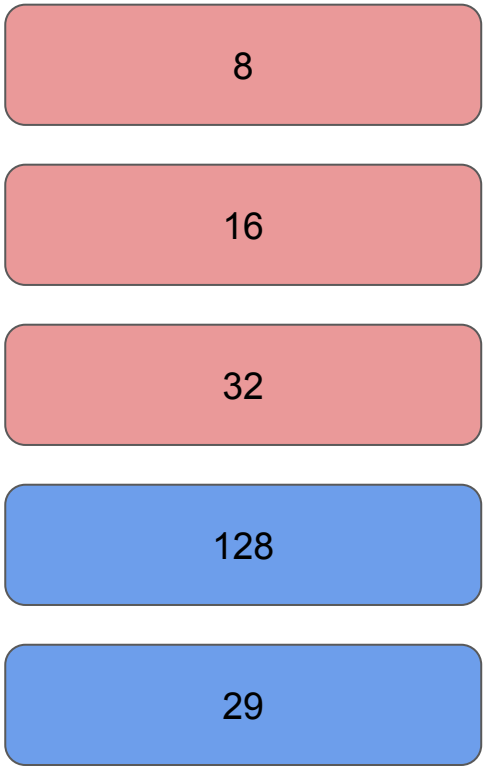
Deep Learning

UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Facultat d'Informàtica de Barcelona

FIB



Pooling: Max

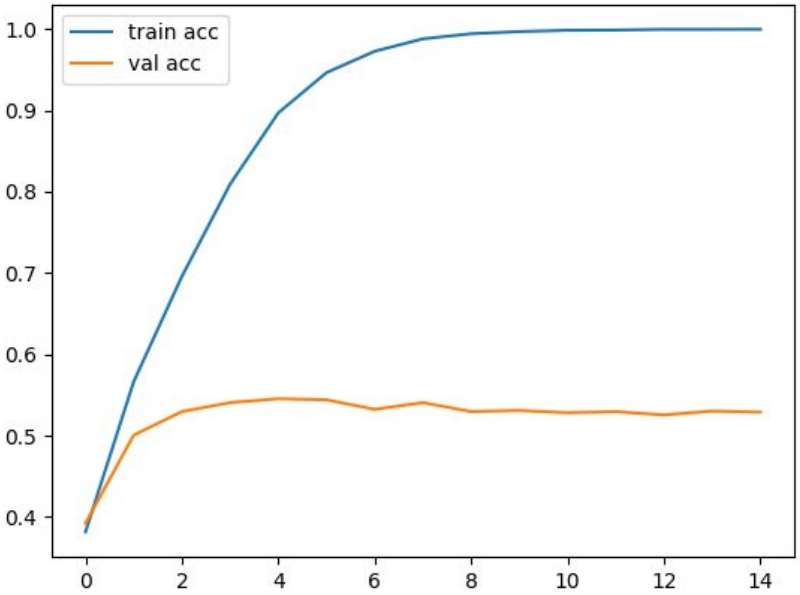
Drop out: No

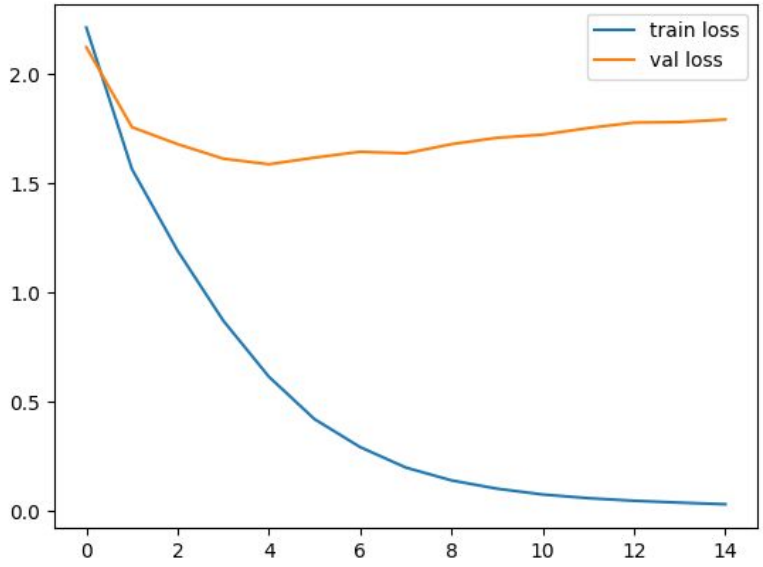
BatchNormalization: 8 , 32, 128

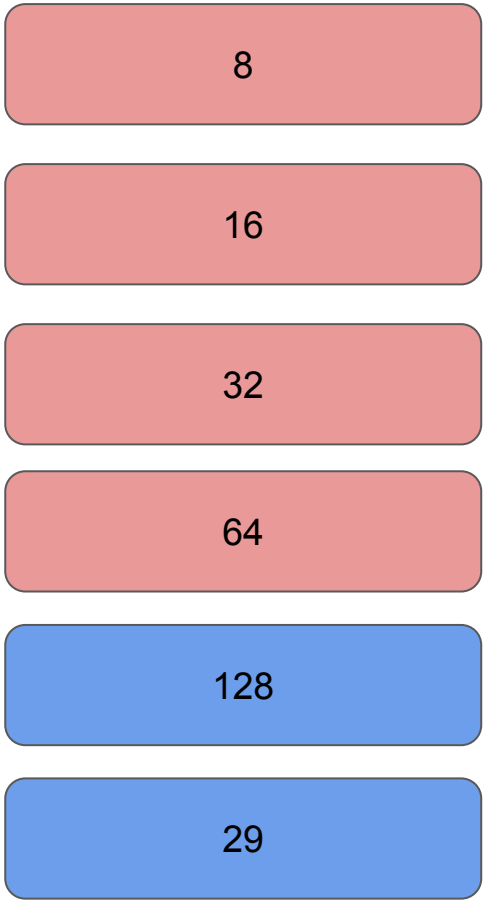
Accuracy: 55%

Max Accuracy: 58%

Lost: 1.7


train acc
val acc
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0
2
4
6
8
10
12
14


train loss
val loss
2.0
1.5
1.0
0.5
0.0
0
2
4
6
8
10
12
14



Pooling: Max

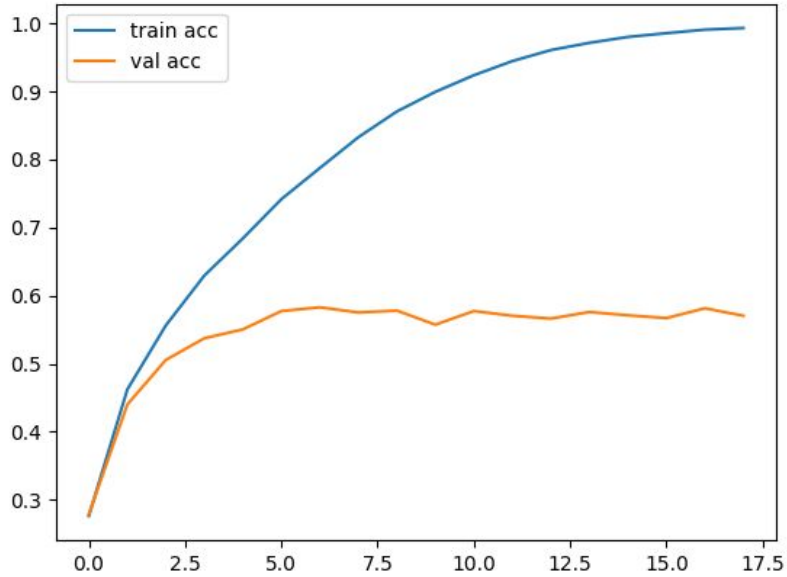
Drop out: No

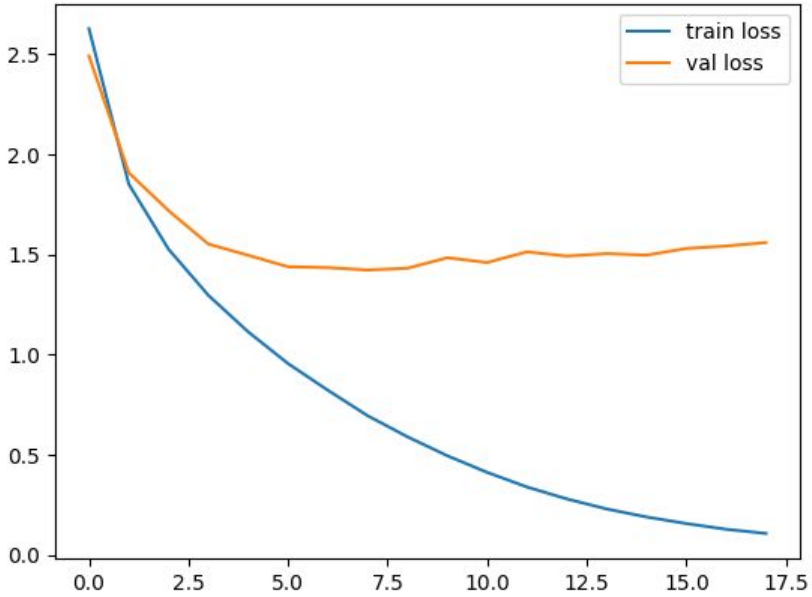
BatchNormalization: 64, 128

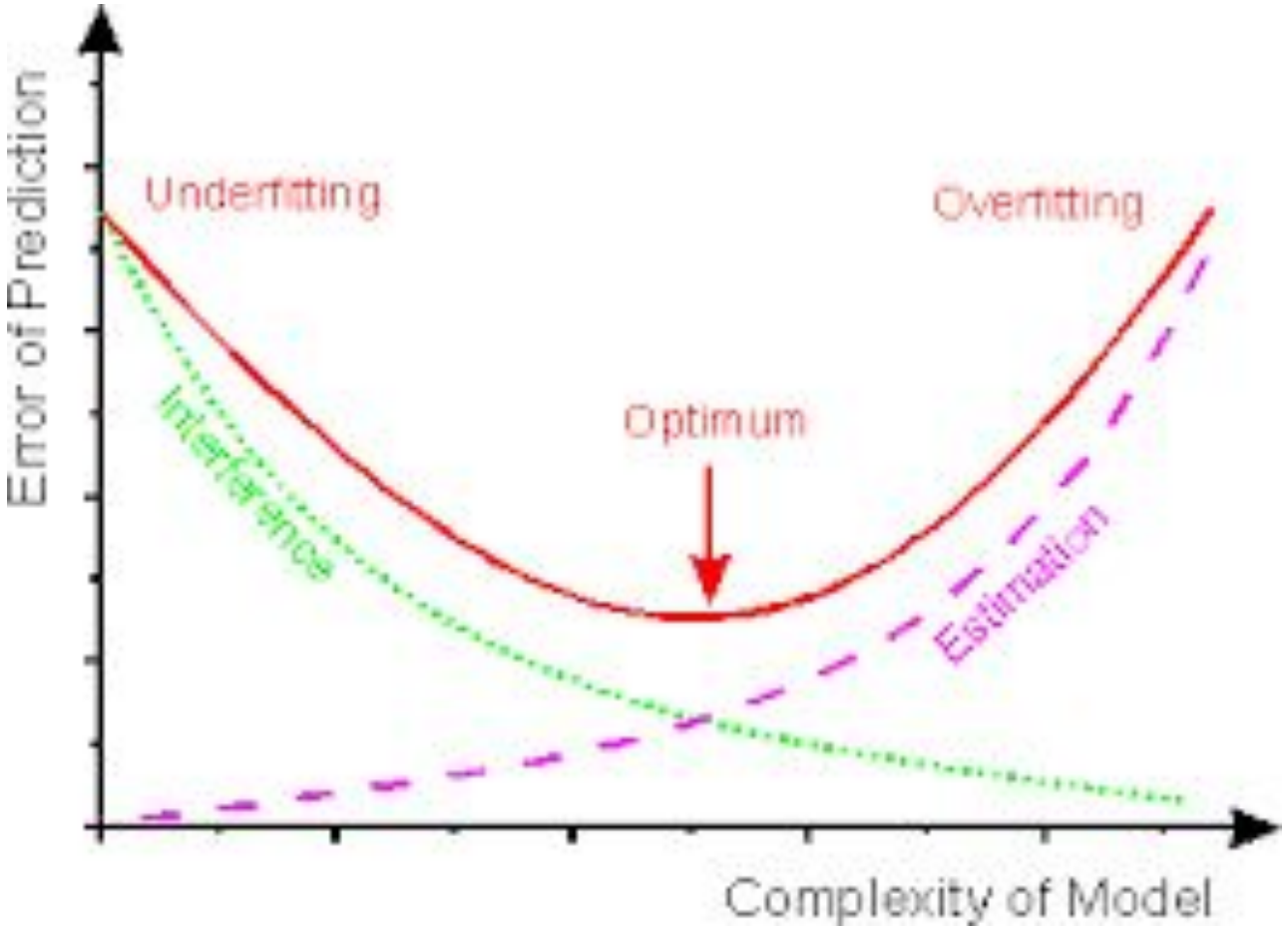
Accuracy: 52%

Max Accuracy 54%

Lost: 1.79


train acc
val acc
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5

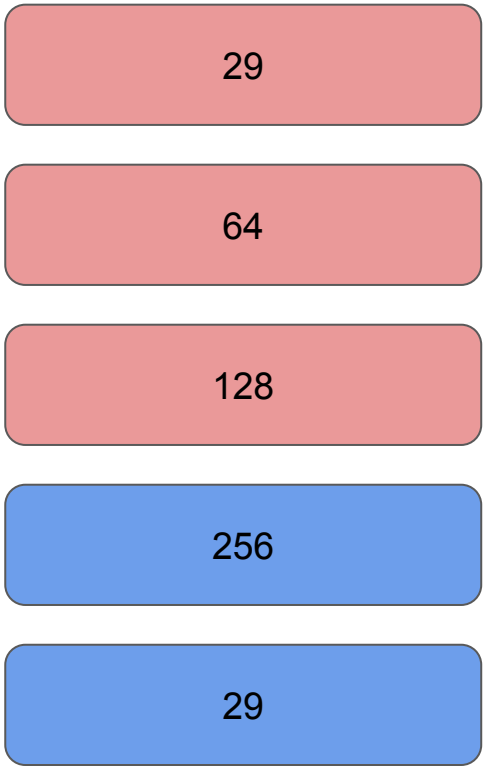

train loss
val loss
2.5
2.0
1.5
1.0
0.5
0.0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5


Error of Prediction
Underfitting
Overfitting
Optimum
Interference
Estimation
Complexity of Model

Next Experiments

Based on:

- Change number of filters at each layer. Based on 3conv + 2 denses
- Adding a drop out and Batch Normalization



Pooling: Max

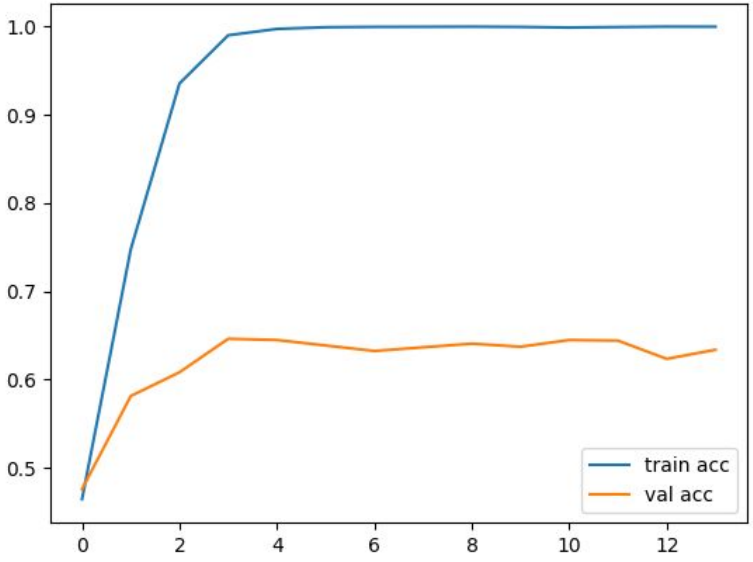
Drop out: No

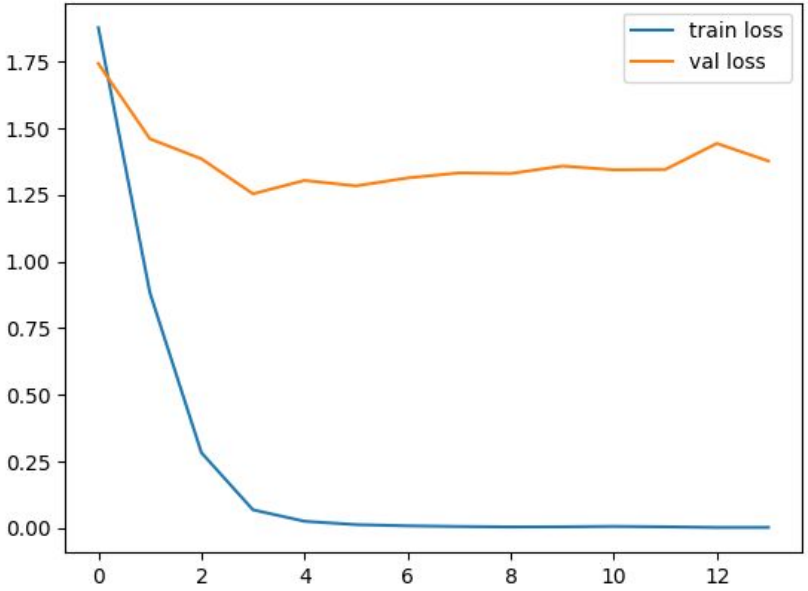
BatchNormalization: 29,128,256

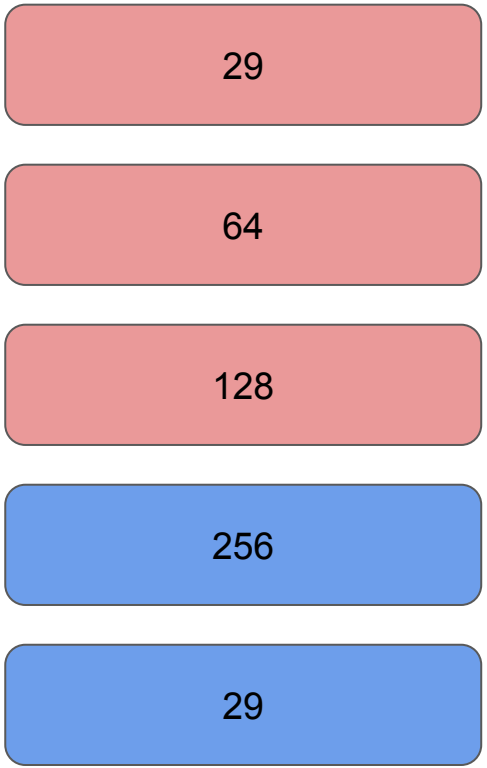
Accuracy: 63%

Max Accuracy: 64%

Lost: 1.3779


1.0
0.9
0.8
0.7
0.6
0.5
0
2
4
6
8
10
12
train acc
val acc


1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
2
4
6
8
10
12
train loss
val loss



Pooling: Max

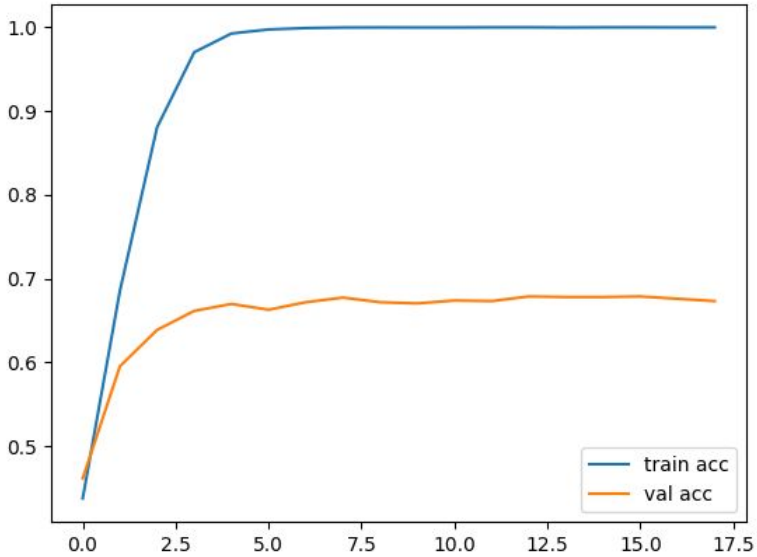
Drop out: 256 (0.2)

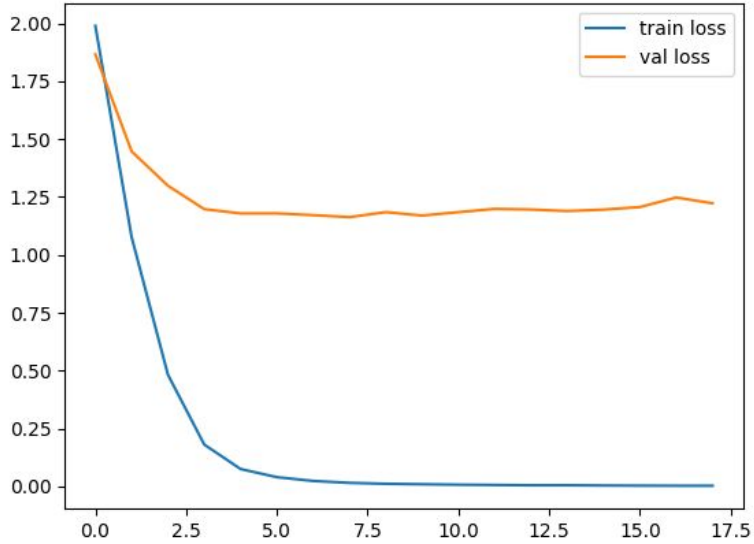
BatchNormalization: 29,128,256

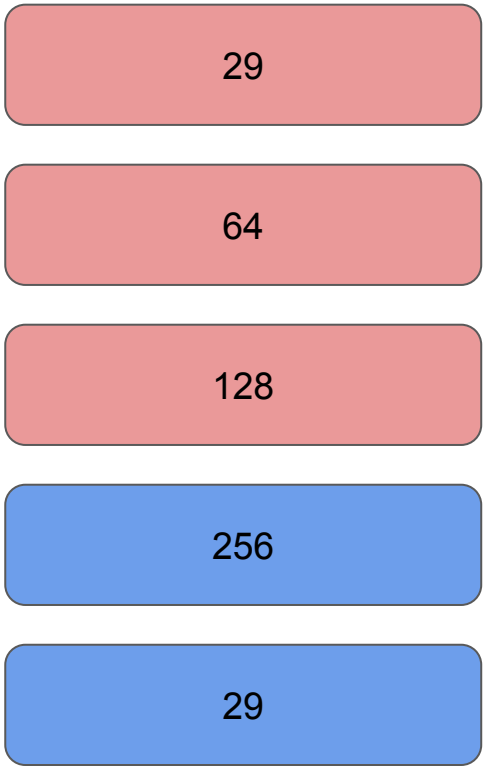
Accuracy: 0.6731

Max Accuracy: 0.67

Lost: 1.2229


1.0
0.9
0.8
0.7
0.6
0.5
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
train acc
val acc


2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
train loss
val loss



Pooling: Avg

Drop out: 256 (0.2)

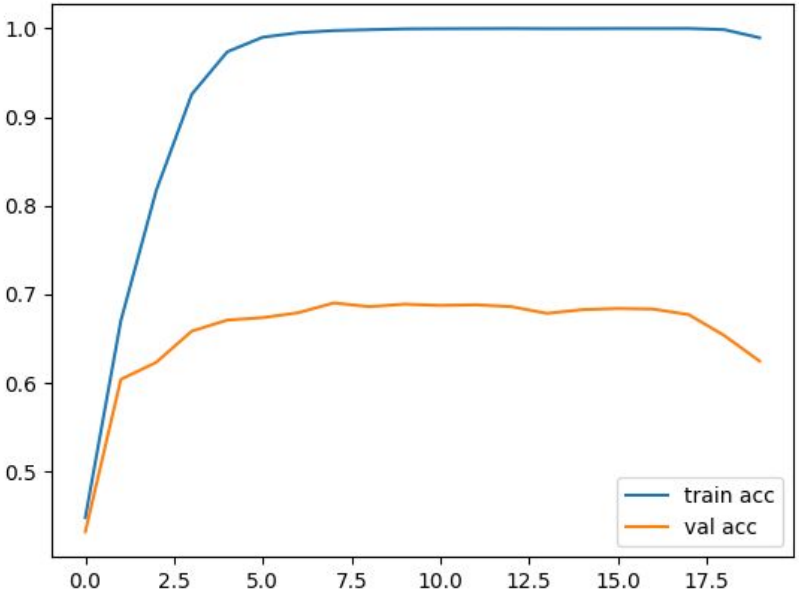
BatchNormalization: 29,128,256

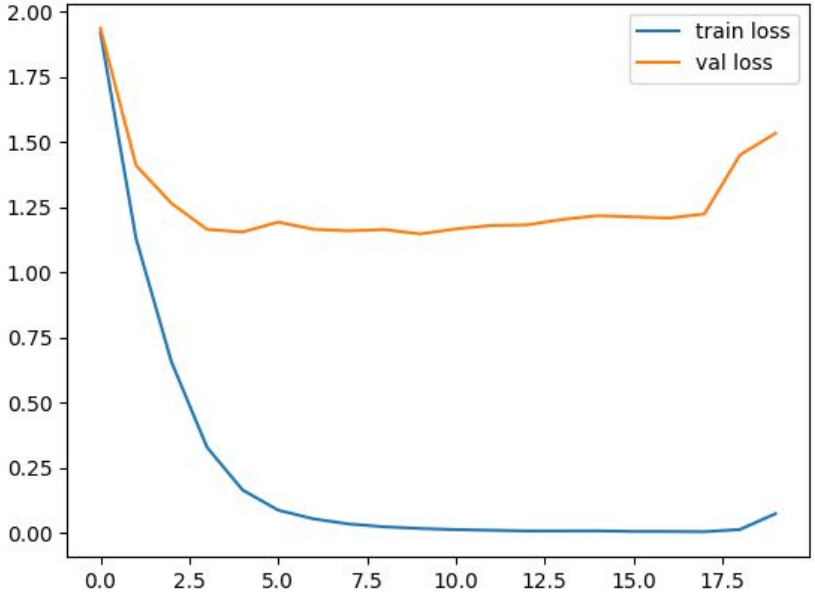
Accuracy: 0.6248

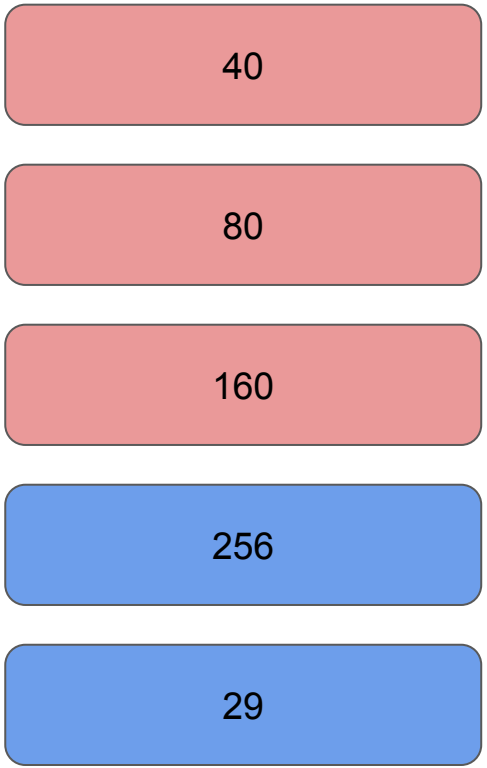
Max Accuracy: 0.69

Lost: 1.5343

With AVG Pooling







Pooling: Avg 2D

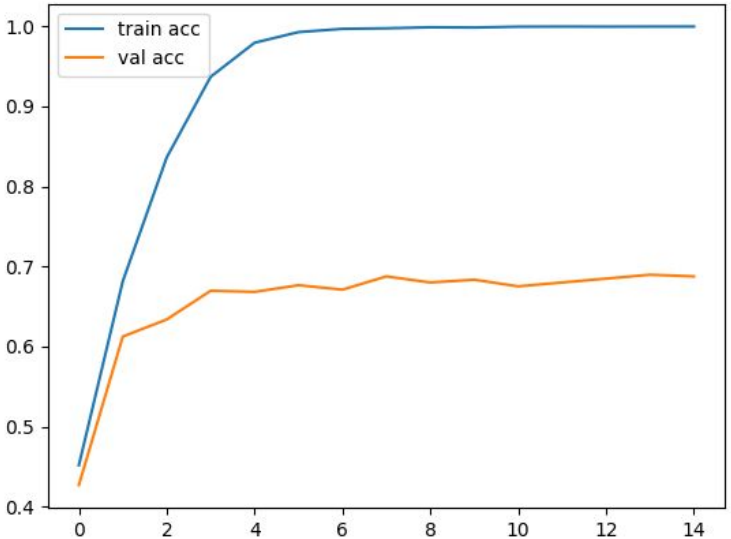
Drop out: 128 (0.2)

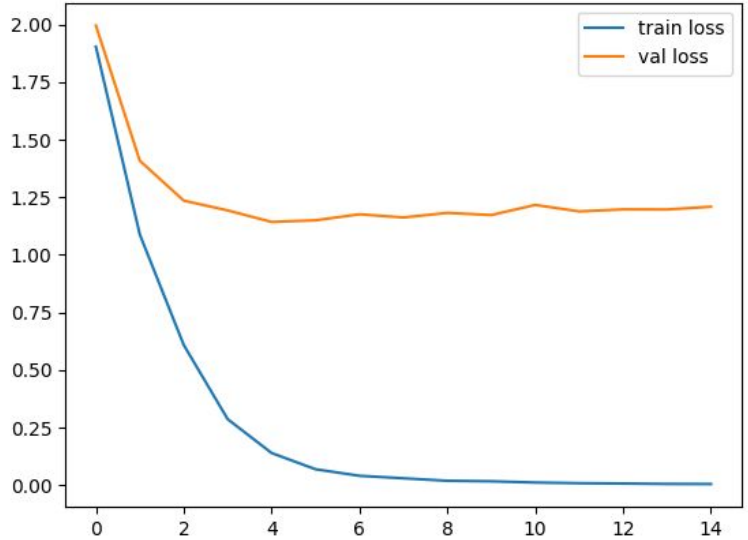
BatchNormalization: 40, 160

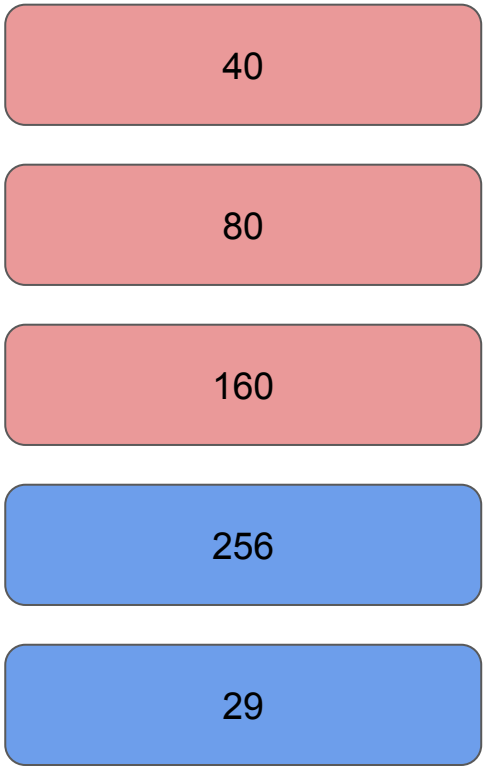
Accuracy: 0.6876

Max Accuracy: 0.69

Lost: 1.2091


train acc
val acc
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0
2
4
6
8
10
12
14


train loss
val loss
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
2
4
6
8
10
12
14



Pooling: Avg 2D

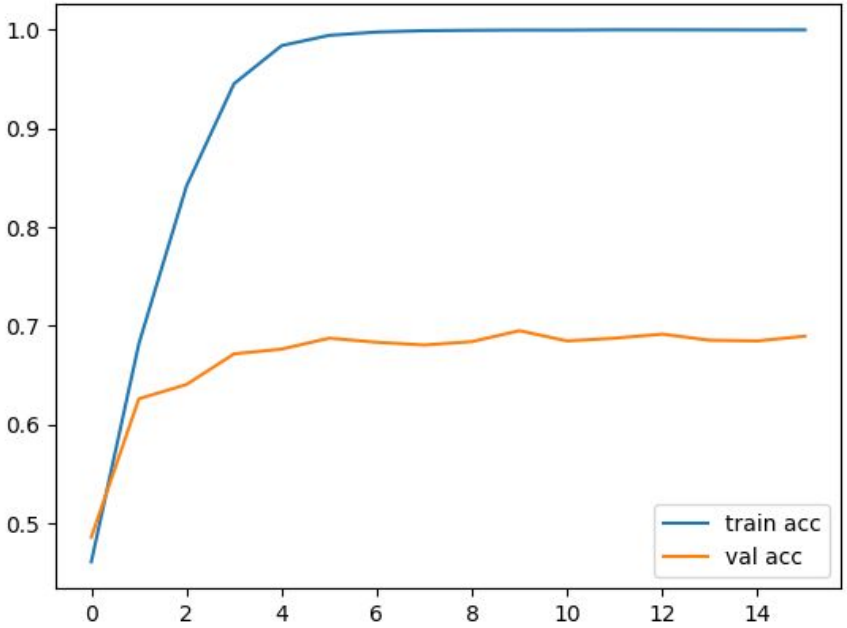
Drop out: 256 (0.2)

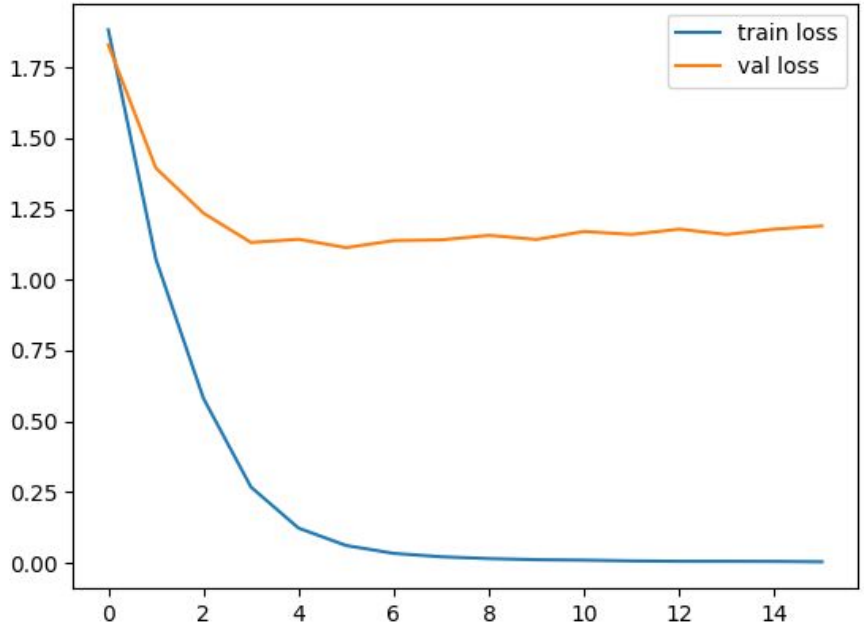
BatchNormalization: 40, 160, 256

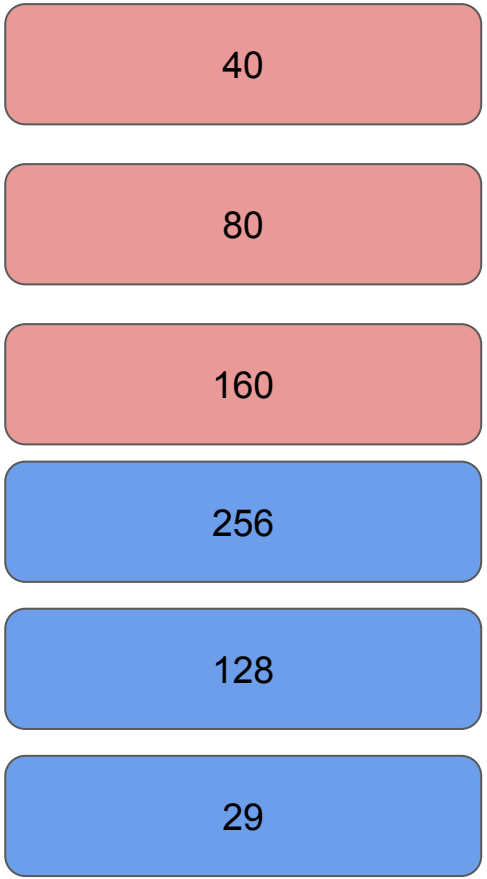
Accuracy: 0.6897

Max Accuracy: 0.6952

Lost: 1.1897


1.0
0.9
0.8
0.7
0.6
0.5
0
2
4
6
8
10
12
14
train acc
val acc


1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
2
4
6
8
10
12
14
train loss
val loss



Pooling: Avg 2D

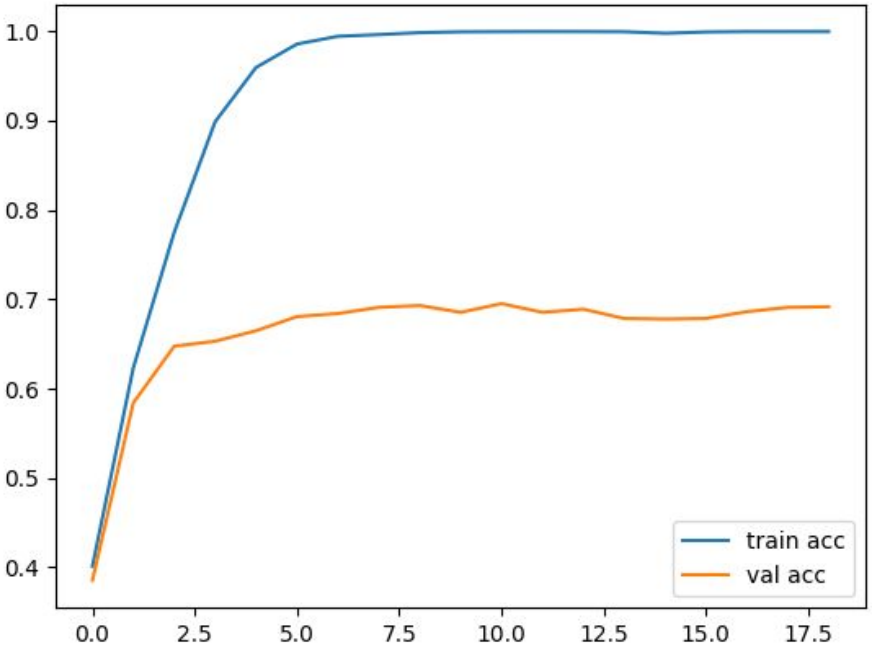
Drop out: 128(0.2)

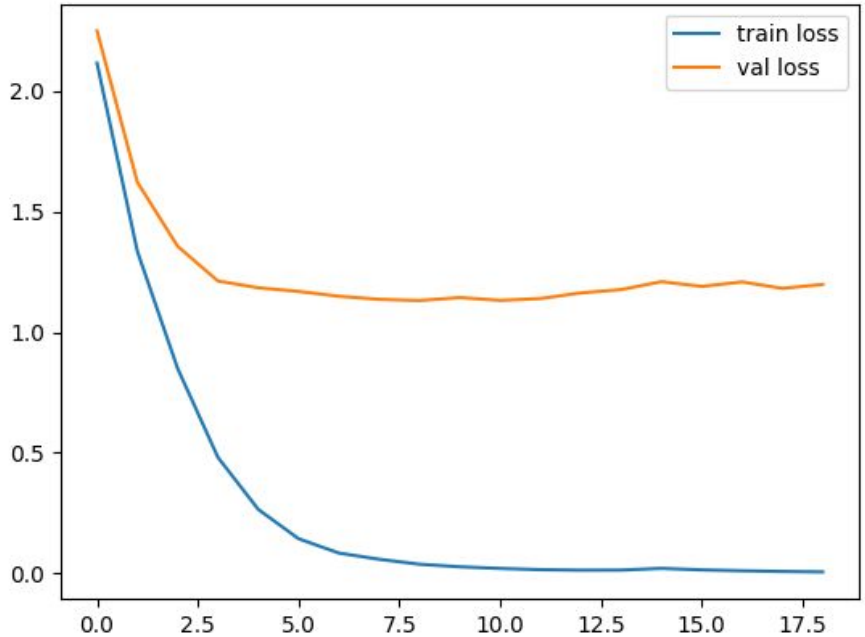
BatchNormalization: 40, 160, 128

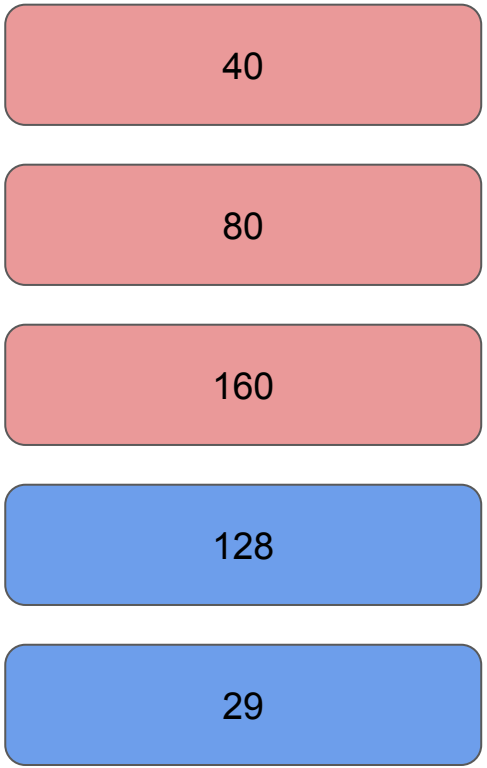
Accuracy: 0.6917

Max Accuracy: 0.6931

Lost: 1.1980


1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
train acc
val acc


2.0
1.5
1.0
0.5
0.0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
train loss
val loss



Pooling: Avg 2D

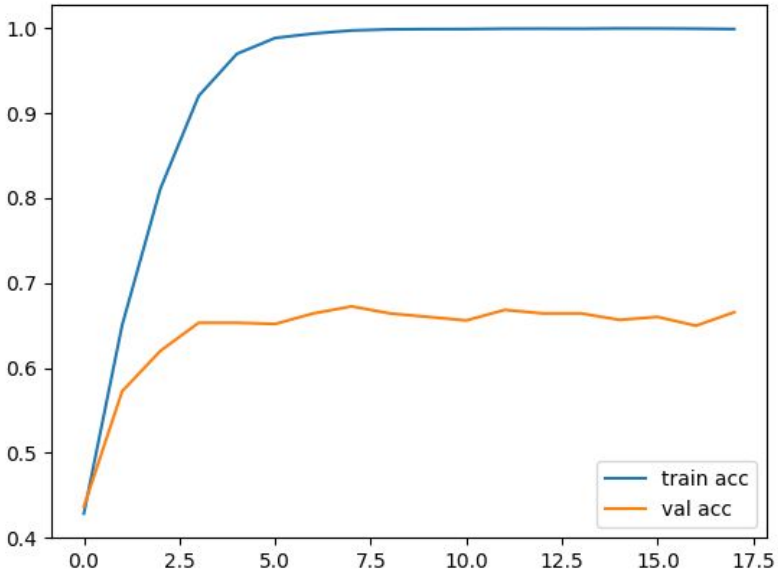
Drop out: 256 (0.2)

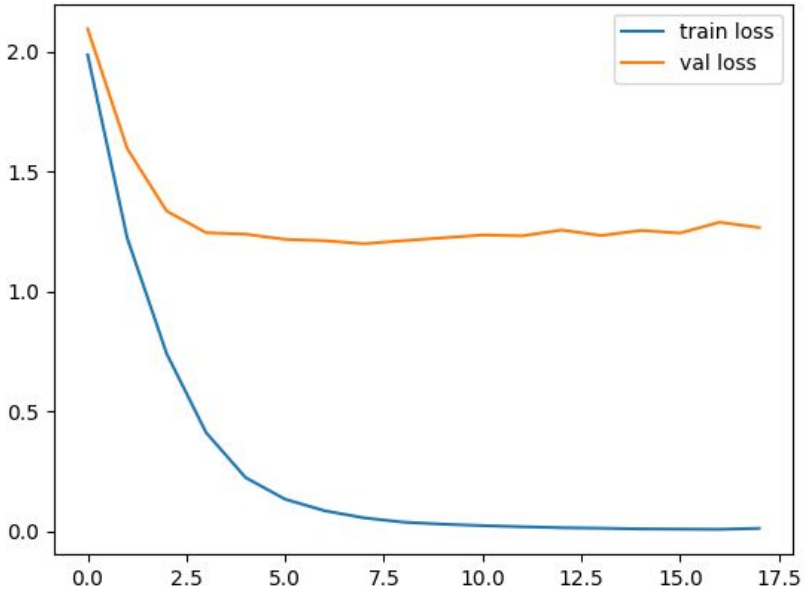
BatchNormalization: 40, 160, 256

Accuracy: 0.6821

Max Accuracy: 0.6945

Lost: 1.1945


1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
train acc
val acc


2.0
1.5
1.0
0.5
0.0
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
train loss
val loss