**ResNet-32**

|  |  |  |  |
| --- | --- | --- | --- |
| **Layer** | **Output Shape** | **Memory** | **Parameters** |
| INPUT: | [32 x 32 x 3] | 32\*32\*3=3072 | 0 |
| CONV 3 x 3 (16) stride 1, same padding | [32 x 32 x 16] | 32\*32\*16=16384 | (3\*3\*3)\*16=432 |
| BN | [32 x 32 x 16] | 32\*32\*16=16344 | 4\*16=64 |
| **ResNet Module 1** | | | |
| ResNet Block 1 | [32 x 32 x 16] | 65536 | 4736 |
| ResNet Block 2 | [32 x 32 x 16] | 65536 | 4736 |
| ResNet Block 3 | [32 x 32 x 16] | 65536 | 4736 |
| ResNet Block 4 | [32 x 32 x 16] | 65536 | 4736 |
| ResNet Block 5 | [32 x 32 x 16] | 65536 | 4736 |
| **ResNet Module 2** | | | |
| ResNet Block 1 | [16 x 16 x 32] | 49152 |  |
| ResNet Block 2 | [16 x 16 x 32] | 49152 |  |
| ResNet Block 3 | [16 x 16 x 32] | 49152 |  |
| ResNet Block 4 | [16 x 16 x 32] | 49152 |  |
| ResNet Block 5 | [16 x 16 x 32] | 49152 |  |
| **ResNet Module 3** | | | |
| ResNet Block 1 |  |  |  |
| ResNet Block 2 |  |  |  |
| ResNet Block 3 |  |  |  |
| ResNet Block 4 |  |  |  |
| ResNet Block 5 |  |  |  |
| Global Average Pooling |  |  |  |
| Flatten |  |  |  |
| Output layer (include bias) |  |  |  |
| **Total Memory** | |  | |
| **Total Parameters** | |  | |

**ResNet-32: Calculation for the 1st ResNet Block of Each Module**

|  |  |  |  |
| --- | --- | --- | --- |
| **Layer** | **Output Shape** | **Memory** | **Parameters** |
| **ResNet Module 1 (ResNet Block 1)** | | | |
| CONV1 3 x 3 (16) stride 1, same padding | [32 x 32 x 16] | 32\*32\*16=16348 | (3\*3\*16)\*16=2304 |
| BN1 | [32 x 32 x 16] | 32\*32\*16=16348 | 4\*16=64 |
| CONV2 3 x 3 (16) stride 1, same padding | [32 x 32 x 16] | 32\*32\*16=16348 | (3\*3\*16)\*16=2304 |
| BN2 | [32 x 32 x 16] | 32\*32\*16=16348 | 4\*16=64 |
| **ResNet Module 2 (ResNet Block1)** | | | |
| CONV1 3 x 3 (32) **stride 2**, same padding |  |  |  |
| BN1 |  |  |  |
| CONV2 3 x 3 (32) stride 1, same padding |  |  |  |
| BN2 |  |  |  |
| CONV3 1 x 1 (32) **stride 2**, same padding |  |  |  |
| BN3 |  |  |  |
| **ResNet Module 3 (ResNet Block 1)** | | | |
| CONV1 3 x 3 (64) **stride 2**, same padding |  |  |  |
| BN1 |  |  |  |
| CONV2 3 x 3 (64) stride 1, same padding |  |  |  |
| BN2 |  |  |  |
| CONV3 1 x 1 (64) **stride 2**, same padding |  |  |  |
| BN3 |  |  |  |