Preprocessing in InceptionV3

* Channels last data format
* Tf backend used: will scale pixels between -1 and 1 sample-wise.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # | Model | Trained till | Dropout at FC | Training accuracy | Validation accuracy | Test accuracy | Epochs |
| 1 | Inceptionv3 | FC | 0 | 50.3% | 44.6% | - | 10 |
| 2 |  | CNN Block 2 | 0 | 56.2% | 64.1% | - | 11 |
| 3 |  | CNN Block 3 | 0 | 76.4% | 73.9% | - | 11 |
| 4 |  | CNN Block 4 | 0 | 75.5% | 75.7% |  | 10 |
| 5 |  | CNN Block 5 | 0 | 91.9% | 80.9% | - | 20 |
| 6 |  | CNN Block 6 | 0 | 84.6% | 80.6% | - | 18 |
| 7 | Inceptionv3 | FC | 10 | 50.9% | 58.1% | - | 10 |
| 8 |  | CNN Block 2 | 10 | 85.2% | 75.7% | - | 10 |
| 9 |  | CNN Block 4 | 10 | 90.1% | 77.8% | - | 10 |
| 10 | Inceptionv3 | FC | 20 | 27.1% | 41.8% | - | 10 |
| 11 |  | CNN Block 2 | 20 | 71.8% | 73.6% | - | 10 |
| 12 |  | CNN Block 3 | 20 | 81.3% | 75.0% | - | 10 |
| 13 |  | CNN Block 4 | 20 | 74.0% | 77.0% | - | 10 |
| 14 |  | CNN Block 5 | 20 | 89.6% | 82.0% | 80.9% | 20 |
| 15 |  | CNN Block 6 | 20 | 79.6% | 81.1% | - | 28 |
| 16 |  | Train all | 20 |  |  |  | 30 |
| 17 | Inceptionv3 | FC | 30 | - | - | - | 10 |
| 18 |  | CNN Block 2 | 30 | 77.8% | 76.5% | - | 10 |
| 19 |  | CNN Block 4 | 30 | - | - | - | 10 |
| 20 |  | CNN Block 5 | 30 | 87.2% | 81.1% | - | 12 |
| 21 |  | CNN Block 6 | 30 | 88.3% | 81.8% | - | 8 |
| 22 |  | Train all | 30 | 88.6% | 82.0% | 80.8% | 30 |
| 23 | Inceptionv3 | FC | 40 | 15.8% | 34.6% | - | 10 |
| 24 |  | CNN Block 2 | 40 | 37.5% | 64.3% | - | 10 |
| 25 |  | CNN Block 4 | 40 | 58.0% | 73.6% | - | 10 |
| 26 |  | CNN Block 5 | 40 | 72.6% | 78.4% | - | 12 |
| 27 |  | CNN Block 6 | 40 | 74.9% | 79.8% | - | 8 |
| 28 |  | Train all | 40 | 79.9% | 84.2% |  | 58 |
| 29 | VGG19 | FC | 0 | 0.9% | - | - | 10 |
| 30 | IncepResV2 | FC | 20 | 29.2% | 34.3% | - | 9 |
| 31 |  | CNN Block 6 | 20 | 70.2% | 73.0% | 72.6% | 10 |
| 32 |  | CNN Block 8 | 20 | 81.8% | 77.6% | - | 27 |
| 33 |  | Train All | 20 | 94.7% | 85.3% | 84.0% | 37 |
| 34 | IncepResV2 | FC | 40 | 65.4% | 71.8% | - | 10 |
| 35 |  | Train All | 40 | 92.4% | 86.3% | 85.4% | 30 |
| 36 | Ensemble | 6,14,20 | - | - | - | 83.5% | - |
| 37 | Resnet152 | FC | 0 | 58.8% | 57.7% | - | 28 |
| 38 |  | Rbs4b20 | 0 | 92.4% | 76.7% |  | 31 |
| 39 |  | Train All | 0 |  |  |  |  |
| 40 | Resnet152 | FC | 40 | 52.5% | 54.0% | - | 10 |
| 41 |  | Rbs4b20 | 40 | 95.1% | 77.4% |  | 33 |
| 42 |  | Train All | 40 |  |  |  |  |

**Overview**

* Approach used (training/ transfer learning)
* Table of models (parameters, design choice)
* Analysis of misclassification across models
* Comparison of accuracy (validation vs test)
* Rationale behind model ensembling
  + Choice of models
  + Ensembling technique

Summary of top single models

|  |  |  |  |
| --- | --- | --- | --- |
| Model ID | Type | Dropout | Test Accuracy |
| Ir1 | Inception resnet v2 | 0 | 84.40% |
| Ir2 | Inception resnet v2 | 0 | 85.95% |
| Ir3 | Inception resnet v2 | 0 | 86.23% |
| Ir4 | Inception resnet v2 | 0 | 87.01% |
| Rn50 | Resnet50 | 0 | 79.44% |
| Rn50\_2 | Resnet50 | 0 | 79.48% |
| D05 | Inception v3 | 0.5 | 84.04% |
| V2 | ? | ? | ? |
| Incepv3\_do\_30 | Inception v3 | 0.3 | 80.80% |
| Incepv3\_do\_40 | Inception v3 | 0.4 | 82.2% |
| Ir\_20 | Inception resnet v2 | 0.2 | 81.2% |
| Ir\_40 | Inception resnet v2 | 0.4 | 84.6% |
|  |  |  |  |
|  |  |  |  |