**Project**

**Neural Network and Deep Learning**

**Team**

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**Preprocessing**

1. Load Dataset by c2v
2. Resize All images(100)
3. Make Augmentation

* Rotation
* Flip Left to Right
* Zoom

1. Shuffle images
2. Create six list for six sports

**Model 1 : CNN**

* Shape size : 100
* Architecture
* 5 (Convolution Layer and Pooling)
* 2 Fully Connected

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| --- | --- | --- | --- |
| **Layer** | **# filters/** | **Filter Size** | **Activation Function** |
| Input | - | - | - |
| Conv1 | 32 | 5x5 | ReLU |
| Pool 1 | - | 5x5 | - |
| Conv2 | 64 | 5x5 | ReLU |
| Pool 2 | - | 5x5 | - |
| Conv3 | 128 | 5x5 | ReLU |
| Pool3 | - | 5x5 | - |
| Conv4 | 64 | 5x5 | ReLU |
| Pool4 | - | 5x5 | - |
| Conv5 | 32 | 5x5 | ReLU |
| Pool5 | - | 5x5 | - |
| FullyConnected | 512 | 5x5 | Softmax |
| CnnLayer | 6 | 5x5 | Softmax |

**Model 2 : Inception:**

* Image Size : 100
* Architecture
* 3 Convolution and 2 Max Pooling

|  |  |  |  |
| --- | --- | --- | --- |
| **Layer** | **Filter Size** | **Strides** | **Activation Function** |
| Input | - |  | - |
| Conv1 | 7x7 | 2 | ReLU |
| MaxPool1 | 3x3 | 2 | - |
| Conv2 | 1x1 | 1 | ReLU |
| Conv3 | 3x3 | 1 | ReLU |
| MaxPool2 | 3x3 | 2 | - |

* Call Inception Model By using different filter
* Average Pooling Filter(5)
* Make Flatten and Dense
* Use optimizer SDG (LR=0.01)

**Summary**

* Finally When Use CNN Model accuracy 66%
* In test script will use CNN Model for predicate