



Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY, THANE
(All Programs Accredited by NBA)

Department of Information Technology



Developing an Accurate Model for Cricket Pose Estimation

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Contents

- Introduction
- Literature Review
- Problem Statement
- Objectives
- Proposed System
- Technology Stack
- Implementation
- Results
- Conclusion
- References

1. Introduction

- Problem Identified :
 - Cricket association boards find difficulty in analyzing the pose of a cricketers while playing the game to identifying the different poses such as cut, sweep, drive, bowling action, fielding etc.
- Solution Proposed :
 - A CNN model to classify different poses in cricket.

2. Literature Review

Sr No.	Paper Title	Findings
1.	Shot-Net: A convolutional Neural Network for Classifying Different Cricket Shots.	In this paper, they have proposed a 13 layered Convolutional Neural Network for classifying cricket shots. A CNN based model where images are served in 3 convolutional layers, 3 max pooling layers, 4 dropout layers and 2 dense layers.
2.	InceptB: A CNN Based Classification Approach for Recognizing Traditional Bengali Games.	This study trained a CNN model on a collection of images from traditional Bengali games using Google's acclaimed Inception-v3 model of TensorFlow platform and transfer learning technology.

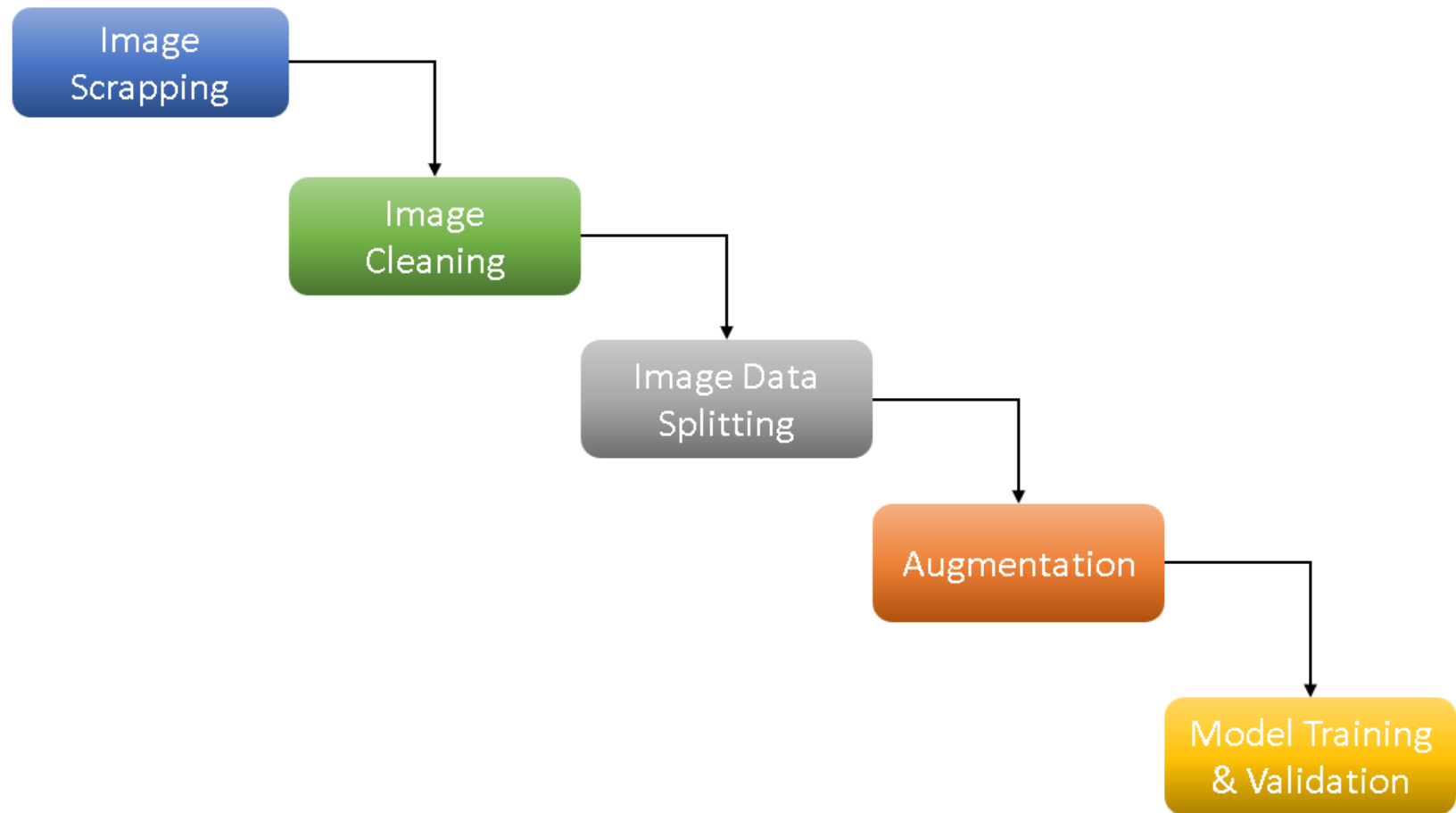
3. Problem Statement

- Cricket teams had to analyze videos to understand opponent player's most played shots.
- Teams needed a efficient alternative for this problem.

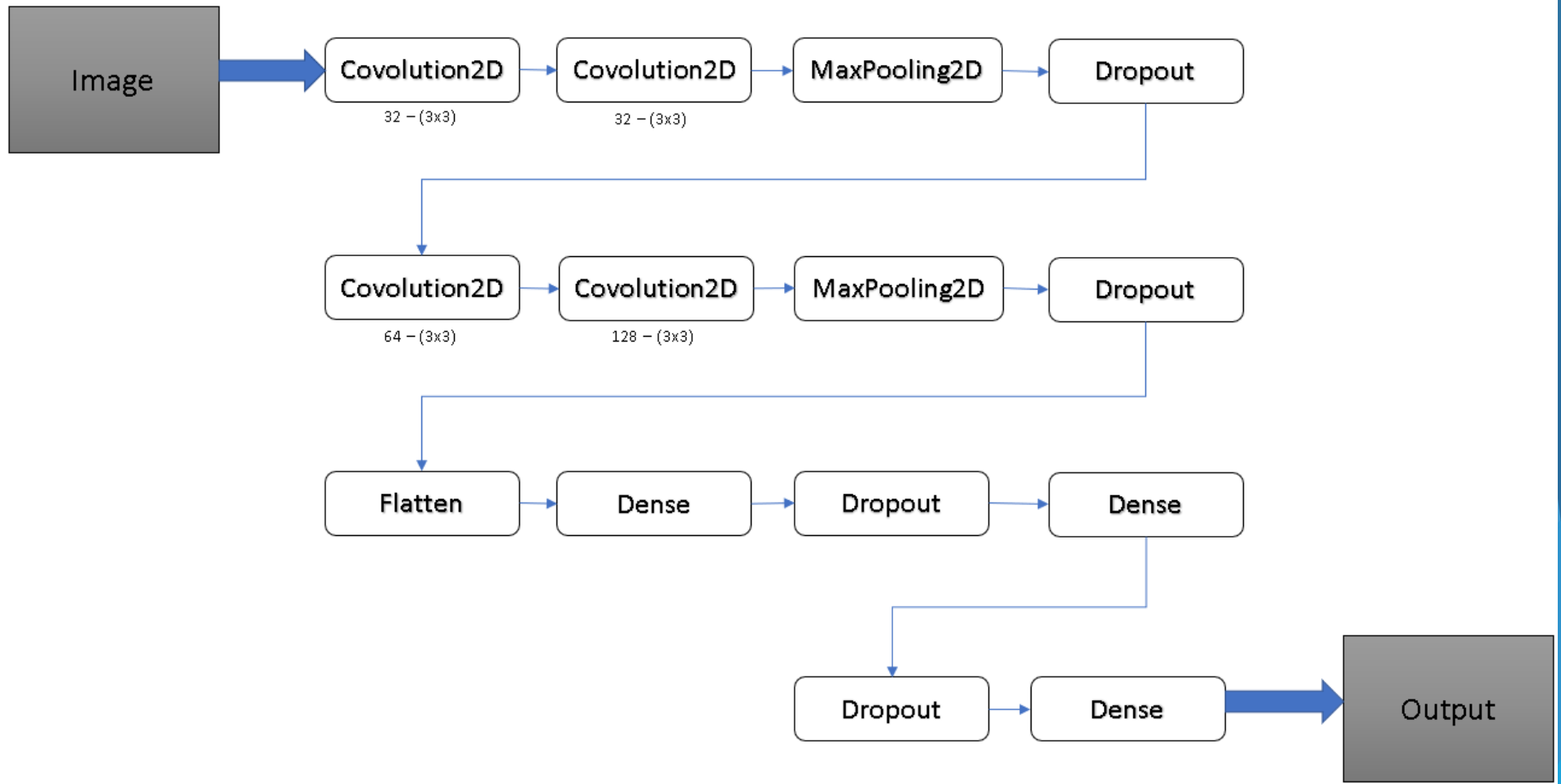
4. Objectives

- To Train accurate model for Cricket Pose Detection using CNN Deep Learning Architecture.
- To collect at least 10 type of Cricket Poses Data using web scraping and Image Augmentation.
- To Create user friendly User Interface using Flask Framework.

5. Proposed System



5. Proposed System



6. Technology Stack

- Python:
As Backend Programming Language.
- IBM Watson Studio:
To create and deploy the ML model.
- CNN:
Image Classification Neural Network Algorithm.
- Flask:
Python-based framework to connect model and Front End.
- HTML&CSS:
To design a User-friendly interface.

7. Implementation

```
model=Sequential()  
model.add(Convolution2D(32,(3,3),input_shape=(64,64,3),activation=LeakyReLU(),padding='same'))  
model.add(Convolution2D(32,(3,3),input_shape=(64,64,32),activation=LeakyReLU(),padding='same'))  
model.add(MaxPooling2D(pool_size=(2,2)))  
model.add(Dropout(0.4))  
model.add(Convolution2D(64,(3,3),input_shape=(32,32,32),activation='relu',padding='same'))  
model.add(Convolution2D(128,(3,3),input_shape=(32,32,64),activation='relu',padding='same'))  
model.add(MaxPooling2D(pool_size=(2,2)))  
model.add(Dropout(0.3))  
model.add(Flatten())  
model.add(Dense(128))  
model.add(Dropout(0.3))  
model.add(Dense(64))  
model.add(Dropout(0.3))  
model.add(Dense(10,activation='softmax'))
```

7. Implementation

Select a file to upload

• sweep



CRICKET POSE ESTIMATION

Select a file to upload

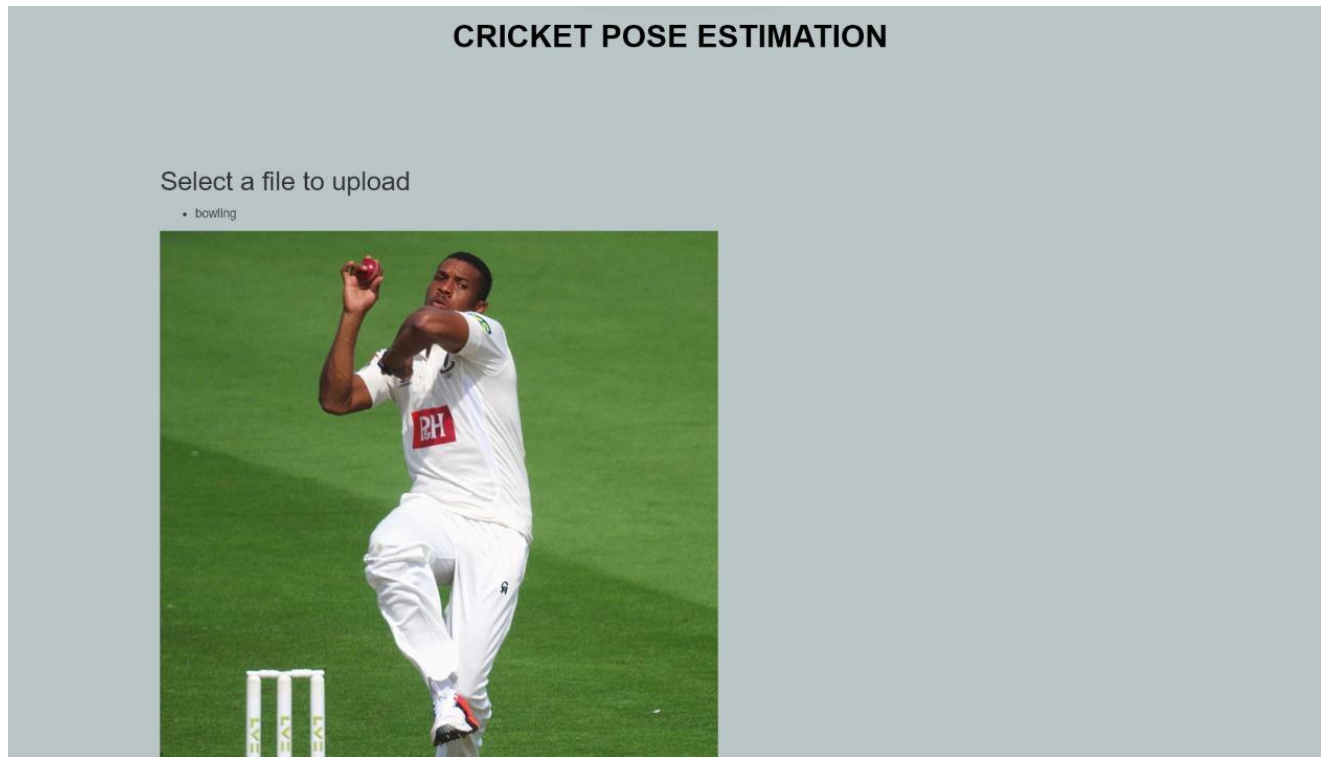
• cover drive



Choose file No file chosen

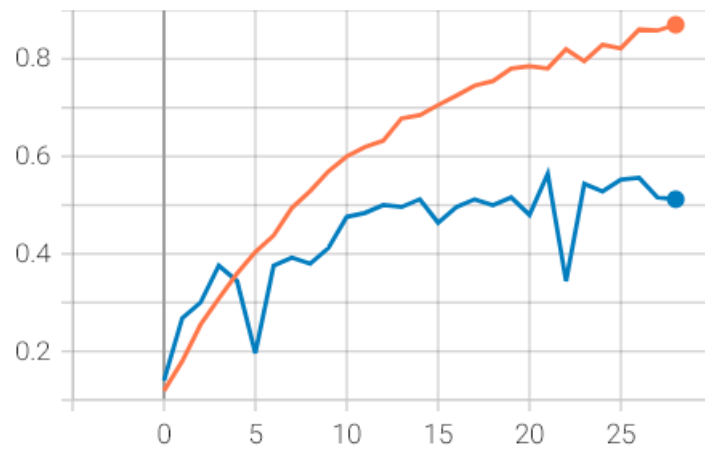
Submit

7. Implementation

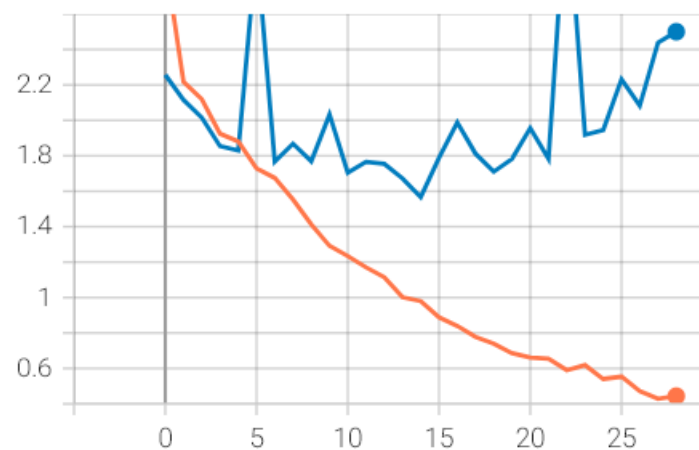


8. Results

epoch_accuracy
tag: epoch_accuracy



epoch_loss
tag: epoch_loss



9. Conclusion

- In this study, we present a method for classifying cricket shots using our CNN model.
- We used one flatten layer, three dense layers, two max polling layers, four dropout layers, and four convolution layers. To lessen overfitting, dropout layers are used. The outcome descent with Validation Accuracy of 56% and Cross Entropy loss of 1.78.

10. References

- [Foysal, Md, et al. "Shot-Net: A convolutional neural network for classifying different cricket shots." *International Conference on Recent Trends in Image Processing and Pattern Recognition*. Springer, Singapore, 2018.](#)
- [Islam, M.S., Foysal, F.A., Neehal, N., Karim, E., Hossain, S.A.: InceptB: a CNN based classification approach for recognizing traditional bengali games. In: ICACC2018 \(2018\)](#)
- [<https://blog.jovian.ai/detecting-cricket-shots-using-pose-estimation-8e69ed12fe98?gi=e32c42dbd673>](#)
- [\[https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2022/22964/final/fin_irjmets1682609258.pdf\]\(https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2022/22964/final/fin_irjmets1682609258.pdf\)](#)
- [<https://www.analyticsvidhya.com/blog/2022/03/cricket-shot-classification-using-pose-of-the-player-image/>](#)

Thank You...!!