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# Predictive Analytics Mini Project

# Video Classification using MoViNets

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# Introduction

- Video classification involves identifying human actions or activities from video data.
- It has applications in surveillance, healthcare, sports analytics, and more.
- MoViNets (Mobile Video Networks) offer fast, efficient, and scalable solutions for video understanding.

# Project Goals

To develop a deep learning model capable of:

- Classifying video sequences into human actions
- Operating in real-time environments with low compute power
- Leveraging a compact model architecture (MoViNet-A0) for efficient deployment

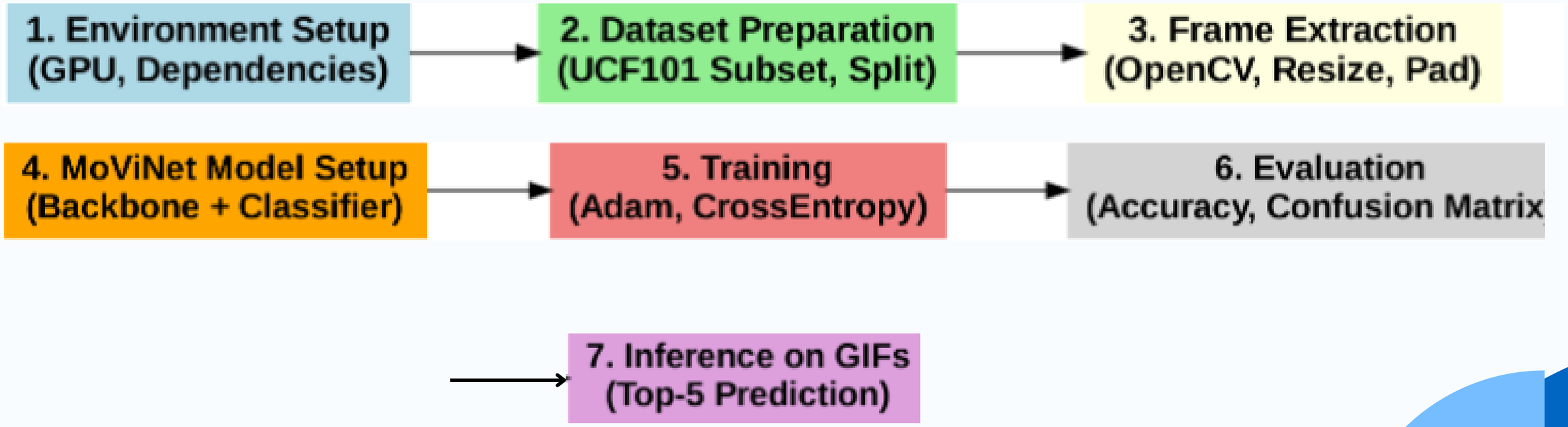
# Objectives

- Implement a MoViNet-based classification system using TensorFlow
- Utilize the UCF101 dataset for model training
- Optimize training using state-of-the-art preprocessing and augmentation
- Validate performance across training and test samples

# Dataset – UCF101

- A popular video dataset with 13,320 videos across 101 action categories
- Each class includes diverse environments and camera angles
- Widely used for benchmarking video classification algorithms

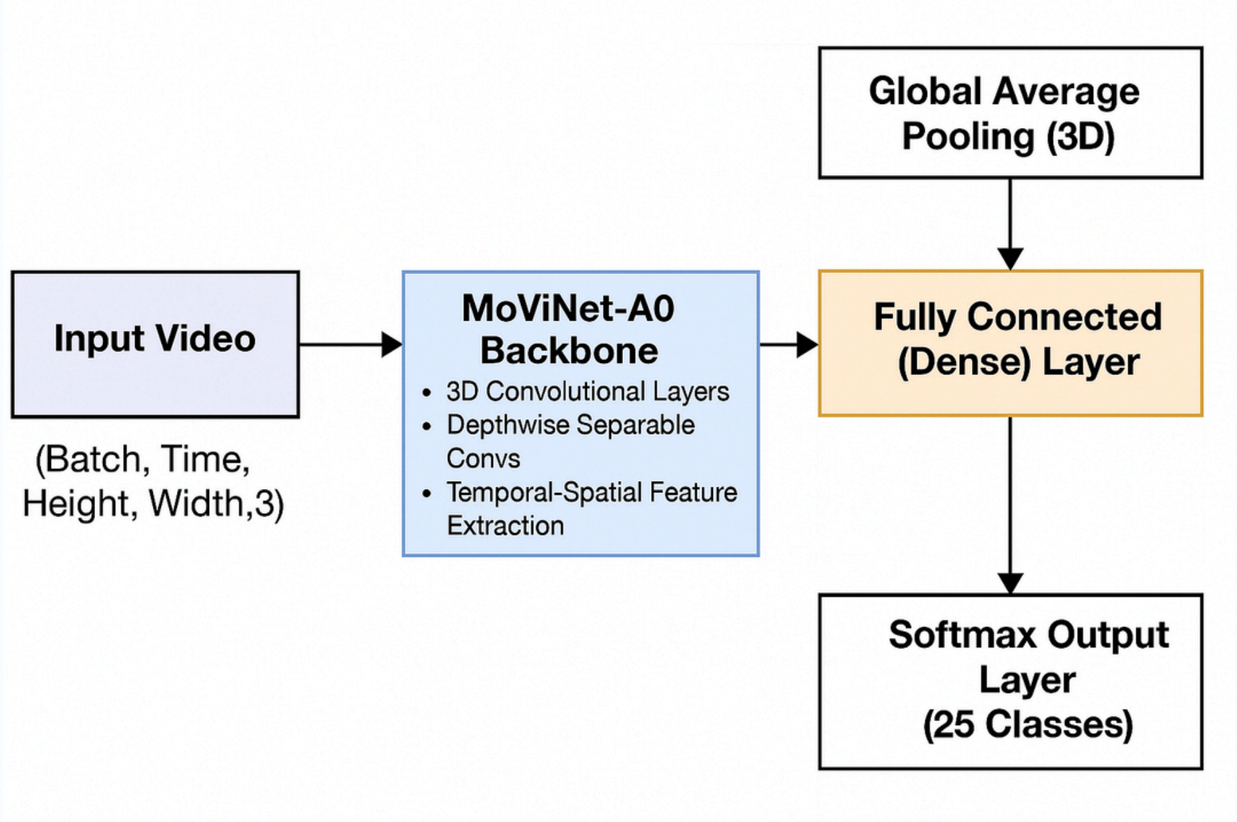
# Methodology



# Data Preprocessing

- 1Frames resized to 172x172 resolution
- Pixel values normalized between 0 and 1
- Videos segmented into clips with fixed frame lengths
- Batch processing for model compatibility

# Model Architecture



# Results & Evaluation

- The model achieved consistent training and validation accuracy
- Demonstrated generalization capability on unseen videos
- Suitable for real-time video analysis tasks due to low latency and memory footprint

# Code Implementation

**Link to colab Notebook :**

## Your paragraph text

# Conclusion

- MoViNets deliver high performance with lightweight architecture
- Ideal for applications with computational constraints
- Future work includes training on larger datasets and extending to multi-label classification

# References


- https://www.researchgate.net/publication/359476644_Comparative_Analysis_of_OpenPose_PoseNet_and_MoveNet_Models_for_Pose_Estimation_in_Mobile_Devices
- https://www.researchgate.net/publication/233815759_UCF101_A_Dataset_of_101_Human_Actions_Classes_From_Videos_in_The_Wild
- https://www.researchgate.net/publication/349853529_Human_pose_estimation_and_its_application_to_action_recognition_A_survey

# THANK YOU