SMART HUMAN DAILY ACTIVITY REPORTING SYSTEM

Presentation by Shreeya Gulawani

INTRODUCTION

This thesis focuses on the identification (prediction) of human actions in videos using Machine and Deep Learning Models.

HUMAN ACTIVITY RECOGNITION

Human Activity Recognition (HAR) refers to the process of automatically identifying and classifying human activities based on data collected from various sensors or devices.

And is categorized as:

- Gesture
- Action
- Interaction
- Group Activity

LIMITATIONS

- Data Collection and Annotation.
- Variability in Activities:
- Environmental Factors.
- Privacy & Ethics.

HAR APPROARCHES

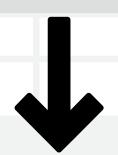


IMAGE PROCESSING

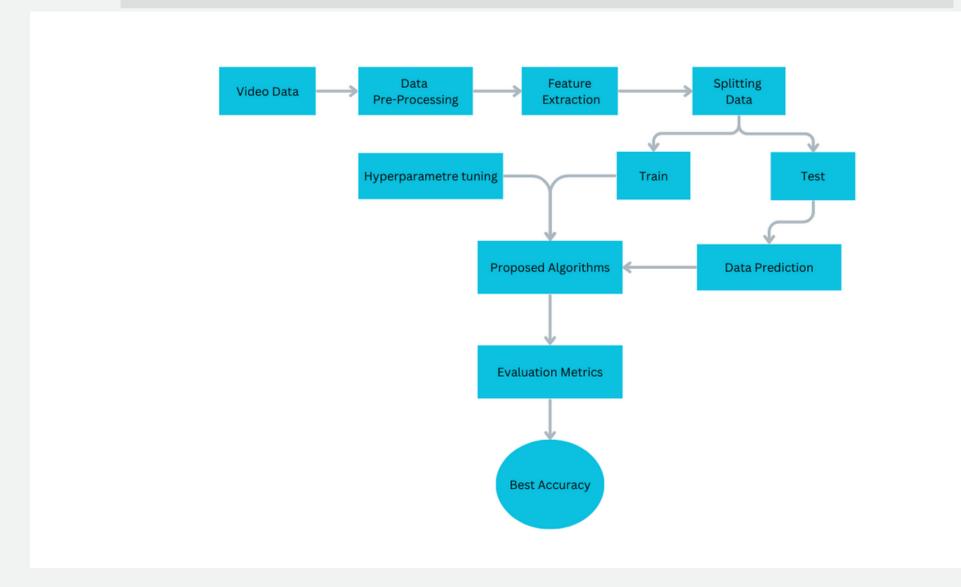
Involves analyzing video frames or images to detect and classify human actions and movements.



ML & DL

Involves preprocessing data, extracting relevant features, training models for accurate activity recognition.

EXPERIMENTAL METHODOLOGY



ALGORITHMS

REGRESSION MODELS

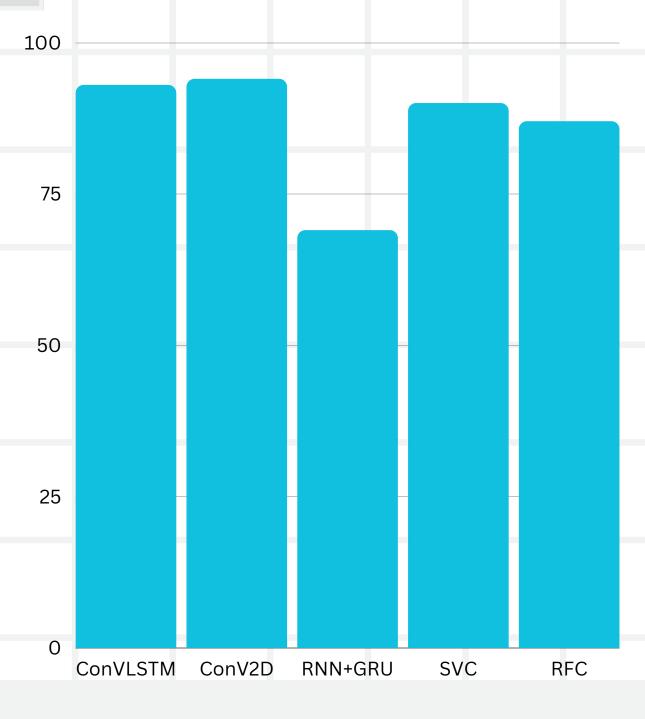
- ConVLSTM.
- ConV2D
- RNN+GRU

CLASSIFIERS

- SVC
- Random Forest Classifier.

RESULT

The CNN (Conv2D) model excelled in image-based classification tasks, with an amazing accuracy of 94%. The ConVLSTM model came in second with a noteworthy accuracy of 93%, demonstrating its ability to handle sequential data. The SVM classifier also performed well, with an accuracy of 90%, making it a solid alternative for a variety of classification difficulties. The RNN with GRU, on the other hand, fell behind with an accuracy of 69%, indicating room for improvement or alternate model selection for sequential data tasks. While not the best performer in this group, the Random Forest Classifier delivered competitive results with an accuracy of 86%.



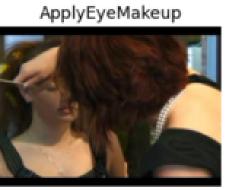
RESULT

Human Activity Recognition Using Image Processing





BabyCrawling



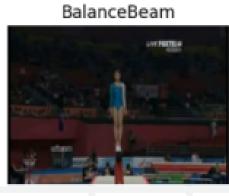




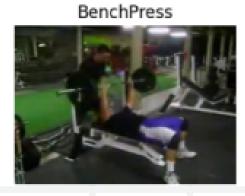














ANTICIPATED STUDY

- Experiment with more advanced data augmentation techniques.
- Investigate the use of hybrid models(CNN+RNN) & TCN.
- Domain Adaptation Methodologies.
- Enhance the ability to interpret of models.

THANK YOU

Presentation by Shreeya Gulawani