

TARP: Tensorflow-based Activity Recognition Platform

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Abstract. Keywords:

1 Introduction

2 Overview of TARP

TARP comprises of two main components, 1) the data input block, and 2) the execution block, as shown in Fig. 1. The pipeline contained within the data input block can be divided into three simple stages,

1. Read video data from disk
2. Extract the desired number of clips from a given video
3. Preprocess the frames of clips using a selected model's preprocessing strategy.

The execution block houses all of the code required to setup, train, test as well as log the outputs of a chosen model. This includes defining the layers that comprise the model, training the model up to a predetermined number of epochs, saving parameter values of a model are regular intervals and finally testing the performance of the trained model over a variety of recognition metrics. The following sections provide an in depth discussion of the setup and structure of various components of the platform.

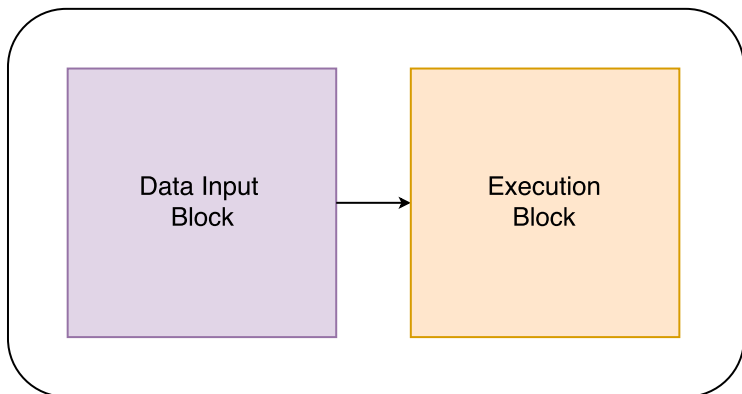


Fig. 1: Illustration of the two main components of TARP

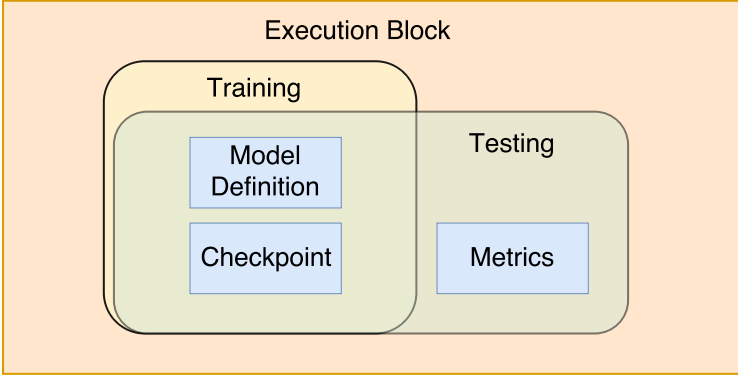


Fig. 2: Training and Testing functions are the two major phases within the execution block. Model definitions and checkpoint-based functions are part of both training and testing functions while metrics are calculated after models are tested.

3 Input Pipeline

4 Execution Block

Training and testing form the two main tenants of the execution block. Fig. 2 illustrates this partition along with the largest submodules present within each part. Details regarding the flow of data and processes between various submodules and the entire execution block are provided below.

4.1 Training: Flowchart of processes

4.2 Model Description Submodule

4.3 Checkpoint Submodule

4.4 Testing: Flowchart of processes

4.5 Metrics Submodule