Final Competition of Deep Learning 2024

Version 1.0

April 2, 2024

Introduction

As we're sadly approaching the end of this course, we thought it would be fun to fire up a competition. You'll be tasked with discovering the most effective method to tackle a given problem, competing alongside your peers. We will give you a dataset with a large amount of unlabeled data and a small amount of labeled data to train your model, and the final performance of your model will be evaluated on a hidden test set and posted on a public leaderboard.

Overview

The dataset has the following structure:

- 13,000 unlabeled videos with 22 frames each,

- 1,000 labeled training videos with 22 frames each,

- 1,000 labeled validation videos with 22 frames each.

(We have a simple colab to help you understand the dataset: link)

Overall, we'll keep for ourselves a hidden test set, with which we'll be testing your models. In order to improve performance when training your model with few labeled samples, you'll need to make use of the unlabeled data. You're encouraged to utilize all kind of SSL techniques in order to beat your peers on the leader-board, and, of course, learn something new.

Data

Video

The dataset features synthetic videos with simple 3D shapes that interact with each other according to basic physics principles. Objects in videos have three shapes (cube, sphere, and cylinder), two materials (metal and rubber), and eight colors (gray, red, blue, green, brown, cyan, purple, and yellow). In each video, there is no identical objects, such that each combination of the three attributes uniquely identifies one object.

For unlabeled, training and validation set, you will have all 22 frames for each video. For hidden set you will only have the first 11 frames of each video.

Label

For training set and validation set you will have the full semantic segmentation mask for each frame.

Task

The task on hidden set is to use the first 11 frames to generate the semantic segmentation mask of the last frame (the 22nd frame). The performance is evaluated by calculate the IOU between the ground truth and the generated mask.

Schedule

- 04/14 23:59: the first practice leaderboard submission deadline

- 04/21 23:59: the second practice leaderboard submission deadline

- 04/30 23:59: the final leaderboard submission deadline

- 05/01 23:59: The Video submission deadline

- 05/02 16:55–18:55: Poster Session

- 05/12 23:59: Paper Submission Deadline

Leaderboard

There are three leaderboards during the whole competition. Only the final leaderboard is used to grade your project. However, we highly recommend you to participate the practice leaderboards, so you can make sure you understand how to submit your results.

The instruction on how you should submit results will be posted on bright space.

Rules

- You don't have to use the unlabeled data.

- You are not allowed to use any external images or pre-trained weight. You will fail the course if you violate this rule.

- You are not allowed to use the labeled validation set to train your models. You will fail the course if you violate this rule.

- Make sure you test your submission before sending to us. You will get penalty for submitting code unable to run.