

Machine Learning Engineering Assignment

This assignment involves designing, training and deploying a deep learning based solution for action recognition of a video stream. Please follow the steps below:

1. Download the Activity Net dataset for temporal localization - <http://activity-net.org/index.html> . If you face a problem, you can use any other dataset from the Internet that contains 2+ human activity.
2. Create a small version of the dataset, containing sufficient videos for training, validation and testing.
3. Read top 3 SOTA papers on Temporal Action Localization from here - <https://paperswithcode.com/sota/temporal-action-localization-on-activitynet> . Understand how their architectures are different from each other. Take the smallest model architectures from the three papers.
4. Compare the architectures and techniques used in the three models, and design a small custom model architecture for your dataset. Make sure your model architecture is small enough to be trained in time. Explain your selection and design criteria.
5. Train your model architecture on your dataset, evaluate its performance.
6. Compare the performance of your model with that of other models trained on the Activity Net. Explain the performance.
7. Install a video streaming server with correct protocol. Send video through the streaming server and make inference using your model. Send the results through another stream and display the real time activity analytics using a graph.

Extra Points:

1. Export your model for deployment on a standard camera. Explain the process.

Please upload your code, notebook and documentation to a public repository on GitHub and share the link. Use your best intuition in case of doubt. You will need to explain your solution if you are selected for an interview.

NOTES:

1. Please implement your code in a simple, modular way.
2. Perform thorough testing and document well using Google documentation style.
3. Make sure your code achieves a 10/10 score using PyLint.

All the best,
Matrice Hiring Team